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ABSTRACTS

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Abstracts that were submitted for consideration for presentation and received as of May 8, 2021, are published as submitted and are provided to the members of the AAGL for use at the 50th AAGL Global Congress on Minimally Invasive Gynecology. The abstracts will be presented in Oral, Video and Virtual Poster Sessions. Published by: Elsevier on behalf of AAGL.

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Oral Presentations

MONDAY, NOVEMBER 15, 2021
Plenary 1: Laparoscopy

(11:00 AM — 12:30 PM)

11:04 AM

Approach to the Laparoscopic Excision of Bladder Endometriosis

Nguyen D.B.,[1,] Arendas K.,[2] Jago C.A.,[3] Warren J.,[4] Singh S.S.[5]. [1]McGill University, Montreal, QC, Canada; [2]Obstetrics and Gynecology, University of Ottawa, Ottawa, ON, Canada; [3]University of Ottawa, Ottawa, ON, Canada; [4]Urology, The Ottawa Hospital, Ottawa, ON, Canada; [5]Department of Obstetrics, Gynecology, and Newborn Care, The Ottawa Hospital, Ottawa, ON, Canada*
*Corresponding author:

Study Objective: To describe a stepwise approach to the excision of bladder endometriosis by laparoscopy.
Design: Surgical video.
Setting: Academic tertiary care hospital.
Patients or Participants: Surgical footage was obtained from three patients who underwent surgery for bladder endometriosis.
Interventions: Laparoscopic excision of bladder endometriotic nodule by partial cystectomy.
Measurements and Main Results: The approach to the excision of bladder endometriotic nodules can be standardized in 6 reproducible steps: (1) cystoscopy; (2) abdominal survey; (3) bladder mobilization; (4) partial bladder cystectomy under cystoscopic guidance; (5) cystotomy closure; (6) water-leak test.
Conclusion: The safe and complete excision of bladder endometriosis relies on the understanding of surgical anatomy, the multi-disciplinary aspect of patient care, and the standardization of the surgical approach

Plenary 1: Laparoscopy
(11:00 AM — 12:30 PM)

11:11 AM

Decreasing Utilization of Minimally Invasive Hysterectomy for Cervical Cancer in the United States

Ciesielski K.M.,[1,] Mandelbaum R.S.,[1] Matsushima K.,[2] Matsuzaki S.,[1] Roman L.D.,[1] Wright J.D.,[3] Matsuo K.[1]. [1]Department of Obstetrics and Gynecology, University of Southern California, Los Angeles, CA; [2]Department of Surgery, University of Southern California, Los Angeles, CA; [3]Department of Obstetrics and Gynecology, Columbia University, New York, NY*
*Corresponding author:

Study Objective: To examine the influence of the Laparoscopic Approach to Cervical Cancer (LACC) Trial on utilization of minimally invasive hysterectomy and perioperative complications for cervical cancer surgery.
Design: Population-based retrospective observational study comparing the time periods before versus after the LACC Trial report in March 2018.
Setting: National Inpatient Sample.
Patients or Participants: Women with cervical cancer who underwent hysterectomy and lymphadenectomy from 10/2015-12/2018.
Interventions: N/A
Measurements and Main Results: A quasi-experimental analysis with interrupted-time series by linear segmented regression with log transformation was performed to assess the influence of the LACC Trial report on outcome measures (minimally invasive hysterectomy use and perioperative complication rates). 5,120 women in the pre-LACC period and 1,645 women in the post-LACC period were examined. Following the LACC Trial report on 3/2018, the utilization of minimally invasive hysterectomy dropped by 19.7% in one month (55.2% in 3/2018 to 35.5% in 4/2018), followed by a continued decline of 8.0% (95% confidence interval [CI] 0.1-15.3) monthly. By 12/2018, minimally invasive hysterectomy was used in 17.9% of cases, which was 37.8% lower than the expected rate per the pre-LACC period projection. In a multivariable analysis, women in the post-LACC period were 63% less likely to undergo minimally invasive hysterectomy (adjusted-odds ratio 0.37, 95%CI 0.33-0.42) but 23% more likely to have a perioperative complication (38.6% *versus* 29.1%, adjusted-odds ratio 1.23, 95%CI 1.08-1.40) compared to those in the pre-LACC period. Women in the post-LACC group were more likely to have a longer hospital stay compared to those in the pre-LACC group (median, 3 versus 2 days, $P<0.001$).
Conclusion: Following the LACC Trial results, U.S. surgeons rapidly shifted from minimally invasive to open hysterectomy for cervical cancer. Decreasing utilization of minimally invasive surgery was associated with an increase in perioperative complications and longer hospital admissions

Plenary 1: Laparoscopy
(11:00 AM — 12:30 PM)

11:18 AM

Does Gas Insufflation during Gynecologic or Urologic Oncologic Laparoscopy Cause Dissemination of Malignant Cells

Tzur Y.,[1,2,] Michaan N.,[1,2] Laskov I.,[1,2] Cohen A.,[3] Grisaru D.,[1,2] Beri A.[2,4]. [1]Department of Obstetrics & Gynecology, Lis Maternity Hospital, Tel Aviv Sourasky Medical Center, Tel Aviv, Israel; [2]Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel; [3]Sackler Faculty of Medicine, Lis Maternity Hospital, Sourasky Medical Center, Tel Aviv, Israel; [4]Department of Urology, Tel Aviv Sourasky Medical Center, Tel Aviv, Israel*
*Corresponding author:

Study Objective: To investigate whether benign or malignant cells are found in evacuated gas during laparoscopy for gynecological or urological malignancies.
Design: Observational prospective study.
Setting: Academic, tertiary medical center.
Patients or Participants: A total of 30 patients were included; 15 underwent laparoscopic staging due to uterine adenocarcinoma and 15 had laparoscopic nephrectomy due to suspected renal cell carcinoma.
Interventions: All gas evacuated during laparoscopy was passed through a filter in order to capture any aerosolized cells formed during surgery. After surgery, the filter was rinsed backwards with 50 CC of normal saline. The fluid was collected, centrifuged and sent for cytological evaluation. Filter ability to capture malignant cells was proved by filtering ascites fluid of an ovarian cancer patient through the filter. The primary outcome was the rate

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laparoscopic surgeries in which the filtered sample was positive for malignant or benign cells.
Measurements and Main Results: No benign or malignant cells were identified in evacuated gas during laparoscopic surgeries in all but one case. This case of malignant adenocarcinoma had a clear, macroscopic extra-uterine pelvic spread and malignant adenocarcinoma cells were identified in the cytology examination of the fluid collected.
Conclusion: In contrast to previous concerns, in all cases where the tumor was confined to its' organ, we found no evidence of benign or malignant cell spread in the gas evacuated from the abdominal or retroperitoneal cavity during laparoscopy. The single event of malignant cells from aerosolized gas was in a case with a macroscopic, extra-organ involvement. Our study confirms the safety of performing laparoscopic surgery for gynecologic and urologic malignancies with regard to aerosolized gas. The explanation for malignant cells found in evacuated gas could be both aerosolization of cells or cells that adhered to surgical instruments. The clinical significance of this finding in the setting of macroscopic, extra-organ tumor spread is unclear.

Plenary 1: Laparoscopy
(11:00 AM — 12:30 PM)

11:25 AM

Go Wide before Closing in: A Safe Approach to Minimally Invasive Hysterectomy for a Large Broad Ligament Leiomyoma

Kashi Katebi P.[1,2,*]. [1]*Division of Gynecology Oncology, Department of Ob/Gyn, Inova FairFax Women's Hospital, McLean, VA;* [2]*The Kelly Gynecologic Oncology Service, Department of Gynecology and Obstetrics, Johns Hopkins School of Medicine, Baltimore, MD*
*Corresponding author:

Study Objective: Demonstrate total laparoscopic hysterectomy technique for a large broad ligament leiomyoma.
Design: Surgical video
Setting: Tertiary-care operating room using standard equipment for laparoscopic surgery and four 5 mm trocars, a 30-degree laparoscope, and bipolar sealing device.
Patients or Participants: A 47-year-old female with pelvic pressure, bulkiness and occasional right sided pelvic pain found to have a twenty-centimeter broad ligament leiomyoma.
Interventions: She desired to have a definitive surgical treatment. She underwent total laparoscopic hysterectomy, bilateral salpingectomy, and cystoscopy.
Measurements and Main Results: Although leiomyomas are the most common benign tumors of the female pelvis, broad ligament leiomyomas are rare. Broad ligament is the most common extrauterine site for the occurrence of leiomyoma with the incidence of <1%.
Laparoscopy revealed a large pelvic mass extending through the right board ligament and retroperitoneal space consistent with radiographic imaging. The surgery began on the left side by ligating the blood supply to the uterus in the retroperitoneal space, disconnecting the suspensory ligaments of the uterus. On the right side, the round ligament transected and the incision extended parallel to the infundibulopelvic ligament to enter the right retroperitoneum. The uterine artery was ligated at its origin and the mass was carefully enucleated out of lateral pararectal space while preserving the branches of hypogastric nerve. We utilized the colpotomy cup to demarcate our anatomical landmark and complete the hysterectomy. Pathology revealed benign leiomyoma and reported no malignancy in uterus, cervix and bilateral fallopian tubes.
Conclusion: Board ligament leiomyomas may pose significant anatomical distortion and adhesive disease making minimally invasive surgical approach very challenging. Anatomic knowledge is imperative to safely gain access to the retroperitoneal space, ligate the blood supplies at its origin, preserve crucial pelvic nerves and excise these masses without increasing morbidity to the patient.

Plenary 1: Laparoscopy
(11:00 AM — 12:30 PM)

11:32 AM

Laparoscopic Management of Cesarean Scar Pregnancy

Crihfield E.G.,[1,*] *Nelson D.C.,*[2] *Nimaroff M.L.*[1]. [1]*Obstetrics & Gynecology, Zucker School of Medicine at Hofstra/Northwell, Manhasset, NY;* [2]*Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, Manhasset, NY*
*Corresponding author:

Study Objective: To present a case and surgical video of a laparoscopic excision of a cesarean scar pregnancy at 12 weeks and review the literature regarding cesarean scar pregnancy management.
Design: Case report and surgical video.
Setting: Tertiary care hospital.
Patients or Participants: One patient.
Interventions: 23 y/o G5P0131 at 7 weeks 1 day with history of obesity and a 31-week low transverse cesarean delivery presented for initial prenatal care to an outside OB. Cesarean scar pregnancy diagnosis was not recognized until patient presented for a nucal translucency to maternal fetal medicine at 11 weeks and 3 days where suspicion for scar pregnancy was raised. Patient was referred to our institution where cesarean scar pregnancy was confirmed at 11 weeks and 6 days and laparoscopic excision was recommended, as it was felt that pregnancy was too large and advanced in gestational age for medical management to be successful. Patient underwent uterine artery embolization and fetal intra-cardiac KCl injection the day prior to procedure to prevent hemorrhage during surgery, then patient underwent laparoscopic excision of cesarean scar pregnancy.
Measurements and Main Results: Laparoscopic excision of cesarean scar pregnancy was completed successfully with no intra or post-operative complications. Surgical techniques are reviewed in the surgical video. Patient had a good surgical recovery.
Conclusion: Laparoscopic excision of a cesarean scar pregnancy can be accomplished successfully with good outcomes when preventative measures to achieve good hemostasis such as pre-operative uterine artery embolization and fetal intra-cardiac KCl injection are used.

Plenary 1: Laparoscopy
(11:00 AM — 12:30 PM)

11:39 AM

Laparoscopic Posterior Inferior Mediastinal Prone Position Lymphadenectomy for Recurrent Gynecologic Carcinoma

Azevedo B.R.B.,[1,*] *Felippe F.E.,*[2] *Linhares J.C.,*[3] *Rabelo H.K.M.,*[4] *Shiomi S.R.,*[5] *Nunes J.S.,*[6] *Ioshii S.O.,*[7] *Ostroski T.K.D.,*[7] *Tsunoda A.T.*[8,9]. [1]*Surgical Oncology, Instituto de Hematologia e Oncologia de Curitiba / Oncoclinicas, Curitiba, Curitiba, Brazil;* [2]*Digestive Surgery, Hospital de Amor Barretos, Barretos, Brazil;* [3]*Gynecologic Oncology, Hospital Erasto Gaertner, Curitiba, Brazil;* [4]*Surgical Oncology Residency, Hospital Erasto Gaertner, Curitiba, Brazil;* [5]*Anesthesiology, Hospital Erasto Gaertner, Curitiba, Brazil;* [6]*Clinical Oncology, Hospital Erasto Gaertner, Curitiba, Brazil;* [7]*Pathology Department, Hospital Erasto Gaertner, Curitiba, Brazil;* [8]*PPGTS, Pontifícia Universidade Católica do Paraná, Curitiba, Brazil;* [9]*Gynecologic Oncology, Hospital Erasto Gaertner, Curitiba PR, Brazil*
*Corresponding author:

Study Objective: To demonstrate a prone position laparoscopic approach to posterior inferior mediastinal lymphadenectomy.

Design: This is an edited video including a step-by-step approach.
Setting: The patient was positioned in a prone position, similar to the thoracic step for esophagectomy. Selective ventilation was performed with a two-way endotracheal tube. Access was performed by the right side of the patient, with a 4-trocar placement.
Patients or Participants: The patient had been treated for a gynecologic poorly differentiated carcinoma with a sarcomatoid component, 4 years prior to this salvage procedure. She received a pelvic lymphadenectomy and total hysterectomy with pelvic adjuvant radiation therapy. Her nodal posterior mediastinal recurrence was detected during follow up, and partially responded to platin-based chemotherapy. After a multidisciplinary discussion, a surgical resection was offered for this residual specific site, positive at PET CT.
Interventions: A careful anatomical review was performed as the pleural space was entered and the right lung was collapsed with left selective ventilation. Azygos vein was preserved, and the dissection started with a mediastinal pleural dissection with regular bipolar and advanced bipolar, proximal to distal, from T10 to T12, between the thoracic aorta and the corpus vertebrae. Intercostal branches were preserved. All small vascular and lymphatic branches were sealed and/or clipped (with titanium clips or Hem-o-lok(R)). The specimen was inserted into a bag and retrieved by the incision of the 12mm trocar, at the 12 intercostal space, posterior axillary line. A thoracic drain was placed.
Measurements and Main Results: Surgical time was 96-minutes, total blood loss was 12cc. The thoracic drain was retrieved on POD 2, when the patient was discharged.
Conclusion: The laparoscopic prone surgical approach is safe, feasible, and standardized for the thoracic/upper digestive surgeon, and should be considered for posterior mediastinal approaches. Further studies, with more patients, is required before this information should be used in clinical settings.

Plenary 1: Laparoscopy
(11:00 AM — 12:30 PM)

11:46 AM

Laparoscopic Repair of Colo-Ovarian Fistula

Lee E.M.,[1,*] *Foley C.E.,*[2] *Lee T.T.M.*[3]. [1]*Obstetrics, Gynecology and Reproductive Sciences, University of Pittsburgh, Providence, RI;* [2]*Magee Women's Hospital, University of Pittsburgh Medical Center, Pittsburgh, PA;* [3]*Obstetrics, Gynecology and Reproductive Sciences, Magee Womens Hospital, UPMC, Pittsburgh, PA*
*Corresponding author:

Study Objective: To demonstrate a unique laparoscopic approach to repair of a colo-ovarian fistula causing recurrent tubo-ovarian abscess.
Design: A step-by-step surgical video highlighting relevant anatomy and describing key steps to repair of colo-ovarian fistula laparoscopically.
Setting: Tertiary care academic teaching hospital.
Patients or Participants: 51-year-old gravida 0 patient with a recurrent tubo-ovarian abscess found to be caused by a colo-ovarian fistula.
Interventions: After failing trial of medical management with antibiotics and interventional radiology-guided drainage of a tubo-ovarian abscess, the patient was taken to surgery for a total laparoscopic hysterectomy and bilateral salpingo-oophorectomy. During the surgery, the patient was found to have a colo-ovarian fistula, which was the cause of recurrent abscess. The patient underwent a successful laparoscopic repair of the colo-ovarian fistula by excision of the fistulous tract and repair of bowel in two layers.
Measurements and Main Results: The laparoscopic repair of a colo-ovarian fistula was completed without complication. The pathology confirmed findings of a fistulous tract. At post-operative follow-up in both one month and two years, the patient was doing well without concerns.
Conclusion: In this video, we propose a novel approach to repair of a colo-ovarian fistula laparoscopically. Although en-bloc resection has been described for repair of colo-ovarian fistula, in this patient without active inflammation, dissection of the fistulous tract could be achieved after control of blood supply and careful interrogation of surgical planes. The defect was then repaired using a two-layered closure. This approach can be applied in appropriately selected patients to offer repair in a minimally invasive fashion.

Plenary 1: Laparoscopy
(11:00 AM — 12:30 PM)

11:53 AM

Laparoscopic Technique for Extraction of Large Abdominopelvic Masses

Ambacher K.,[1,*] *O'Leary M.M.,*[2] *Belland L.M.*[3]. [1]*University of Calgary, Calgary, AB, Canada;* [2]*Minimally Invasive Gynecologic Surgery, University of Calgary, Calgary AB, AB, Canada;* [3]*Obstetrics and Gynecology, University of Calgary, Calgary, AB, Canada*
*Corresponding author:

Study Objective: To review preoperative evaluation of a patient presenting with an abdominopelvic mass. To discuss methods of drainage and spill prevention during surgical management of large abdominopelvic masses and to demonstrate an efficient laparoscopic method for extraction of large adnexal masses.
Design: N/A
Setting: In the operating room with patient in dorsal lithotomy position with both arms tucked. Five-millimeter ports were placed in the umbilicus, the right lower quadrant and the left mid-abdomen. The specimen was extracted through an 8 mm port in the left lower quadrant.
Patients or Participants: 27-year-old female with a 15 × 13 cm abdominopelvic mass who presented with right lower quadrant and low back pain and mild right hydronephrosis. She had a benign appearing cyst on ultrasound and her tumor markers were negative.
Interventions: We employ a morcellation method we refer to as apple-peeling to cut the cyst into a long strip of 1 inch width to allow easy removal through an 8 mm laparoscopic port without spill or struggle.
Measurements and Main Results: N/A
Conclusion: Large abdominopelvic masses can be managed via laparoscopic approach with proper pre-operative work-up to ensure benign status. The apple-peeling morcellation technique demonstrated in this video allows efficient extraction of abominopelvic masses > 10 cm through small laparoscopic ports (8mm)

Plenary 1: Laparoscopy
(11:00 AM — 12:30 PM)

12:00 PM

Minimally Invasive Management of Second Trimester Placenta Percreta

Mathur S.,[1,2,*] *Chan W.V.,*[3] *McGrattan M.,*[4] *Allen L.M.,*[5] *Kingdom J.,*[6] *Hobson S.H.,*[6] *Shirreff L.,*[7] *Solnik J.M.,*[8] *Murji A.*[9]. [1]*OBGYN, University of Toronto, Toronto, ON, Canada;* [2]*Department of Obstetrics and Gynecology, Mount Sinai Hospital, University of Toronto, Toronto, ON, Canada;* [3]*Obstetrics and Gynecology, Mount Sinai Hospital, Toronto, Canada;* [4]*Department of Obstetrics and Gynecology, University of Toronto, Toronto ON, ON, Canada;* [5]*Hospital for Sick Children, Toronto, ON, Canada;* [6]*Obstetrics and Gynecology, Mount Sinai Hospital, Toronto, ON, Canada;* [7]*Department of Obstetrics and Gynecology, University of Toronto, Toronto, ON, Canada;* [8]*Obstetrics and Gynaecology, Mount Sinai Hospital, Toronto ON, ON, Canada;* [9]*Department of Obstetrics and Gynecology, Mount Sinai Hospital, Toronto, ON, Canada*
*Corresponding author:

Study Objective: To describe the diagnostic and surgical challenges in the management of second trimester placenta percreta.

Design: Case Review, review of surgical technique and video documentation.
Setting: Laparoscopic hysterectomy at a tertiary care centre.
Patients or Participants: The patient was a 39-year-old female, G7P3 at 17 +2 weeks gestation who presented with acute abdominal pain to a community hospital. Imaging such as CT and ultrasound were inconclusive during initial work up for appendicitis. She experienced a drop in her hemoglobin, received a unit of pRBC and was taken to the operating room for exploratory laparoscopy. In the OR, acute hemoperitoneum was visualized with placenta like tissue invading through the anterior lower uterine segment. She was then transferred to our centre for urgent work up which confirmed the diagnosis of second trimester placenta percreta with active bleeding.
Interventions: Laparoscopy.
Measurements and Main Results: Once the patient was transferred to our centre an urgent MRI was done and this confirmed placenta percreta with invasion at the level of bladder and lateral parametrial involvement. An extensive discussion was had with our multidisciplinary team and given that were was ongoing bleeding from the invading placental tissue, pregnancy continuation was not possible.
Second trimester placenta percreta is a rare entity with very few case reports in the literature. Our video demonstrates the challenges of a minimally invasive approach, which has not been previously described. We describe five main challenges and a step wise approach to mitigating these challenges. In addition, we combine the use of a dilatation and evacuation technique to allow for a complete minimally invasive approach.
Conclusion: Placenta accrete spectrum disorders pose significant challenges in diagnosis and management. A minimally invasive approach has not been described in the literature. We demonstrate that a minimally invasive approach to hysterectomy in management of midtrimester placenta percreta is a feasible option.

Plenary 1: Laparoscopy
(11:00 AM — 12:30 PM)

12:07 PM

Pelvic Nerves in Laparoscopy: A Review of Anatomy and Approach to Dissection

Gupta S.,MA[1,*] *Einarsson J.I.*[2]. [1]*Minimally Invasive Gynecologic Surgery, Brigham and Women's Hospital, Boston;* [2]*Division of Minimally Invasive Gynecologic Surgery, Brigham and Women's Hospital, Boston, MA*
*Corresponding author:

Study Objective: Our objective is to review the anatomic course, sensory and motor functions, and approach to dissection of important pelvic nerves encountered during advanced gynecologic laparoscopy.
Design: Using annotated intraoperative footage, we illustrate surgical approaches to safe dissection of the following pelvic nerves:
Ilioinguinal, iliohypogastric, lateral femoral cutaneous, femoral, genitofemoral, obturator, sciatic, hypogastric and pudendal nerves, lumbosacral trunk and sacral nerve roots.
Setting: Patients were placed in dorsal lithotomy position with legs in Yellowfin stirrups. The umbilicus was used for camera port placement, and three accessory ports were placed (in the bilateral lower quadrants and a second to the left of the umbilicus).
Patients or Participants: Patients requiring dissection of the aforementioned nerves for surgical treatment of deep infiltrating endometriosis, adhesiolysis, or treatment of pudendal neuralgia were selected.
Interventions: N/A.
Measurements and Main Results: N/A.
Conclusion: Surgeons must have a comprehensive understanding of pelvic anatomy and comfort operating in deep pelvic spaces in order to minimize risk of inadvertent nerve injury. A systematic approach to nerve dissection enables adequate exposure of the operative field and safe space for lysis of adhesions, excision of endometriosis, and surgical treatment of pelvic pain syndromes.

Plenary 2: Oncology
(2:00 PM — 3:00 PM)

2:04 PM

Laparoscopic Extraperitoneal Total Retroperitoneal Dissection- the Right Approach.

Andou M.,[1,*] *Yanai S.,*[2] *Kanno K.,*[1] *Sakate S.,*[2] *Sawada M.,*[2] *Hada T.*[3].
[1]*Obstetrics & Gynecology, Kurashiki Medical Center, Kurashiki, Japan;* [2]*Obstetrics and Gynecology, Kurashiki Medical Center, Kurashiki, Japan;* [3]*OB/GYN, Kurashiki Medical Center, Okayama, Japan*
*Corresponding author:

Study Objective: To demonstrate our minimally invasive para-aortic and pelvic lymphadenectomy via the retroperitoneal approach. This technique is performed entirely from the renal vein to the circumflex iliac vein extraperitoneally for cases with mainly endometrial cancer, selected cases of ovarian cancer and in rarer situations for advanced cervical cancer cases as a staging procedure.
Design: Analysis of a technique via video.
Setting: Urban general hospital in Japan.
Patients or Participants: More than 900 cases have undergone laparoscopic or robotic extraperitoneal para-aortic dissection and around 19 of these cases have also undergone extraperitoneal pelvic lymphadenectomy.
Interventions: The extraperitoneal approach is performed using a 5mm EndoTIP cannula. We place all 4 retroperitoneal ports along the left flank. For dissection we use a monopolar hook equipped with an aspiration device and advanced bipolar for retroperitoneal dissection.
Measurements and Main Results: The estimated blood loss for para-aortic dissection was only 30ml and 160ml in the pelvic procedure. Only 3 cases of the total 900 cases required a conversion to open laparotomy. We experienced 23 cases of peritoneal tent perforation, but did not abandon the original procedure, rather suture-repaired the hole and continued.
Conclusion: The advantage of this approach is that the operative filed is bowel-free as the peritoneum acts as a natural retractor. This means that there is minimally impact to the bowel. Patients are not required to be placed in a deep Trendelenburg position. Even extensive intraperitoneal adhesion cases have been successfully managed with this procedure making it a patient friendly option.

Plenary 2: Oncology
(2:00 PM — 3:00 PM)

2:11 PM

Lymphadenectomy, Sentinel Node Mapping Plus Backup Lymphadenectomy and Sentinel Node Mapping Alone in Endometrial Cancer

Bogani G.,[1,*] *Ghezzi F.,*[2] *Malzoni M.,*[3] *di Donato V.,*[4] *Casarin J.,*[2] *Ferrero S.,*[5] *Angioli R.,*[6] *Plotti F.,*[6] *Muzii L.,*[4] *De Iaco P.,*[7] *Perrone A.M.,*[7] *Papadia A.,*[8] *Gasparri M.L.,*[8] *Buda A.,*[9] *Landoni F.,*[10] *Mueller M.D.,*[11,12] *Panici P. Benedetti,*[4] *Raspagliesi F.*[1]. [1]*Fondazione IRCCS Istituto Tumori di Milano, Milano, Italy;* [2]*University of Insubria, Varese, Italy;* [3]*National Center for Endometriosis, Avellino, Italy;* [4]*Università La Sapienza, Roma, Italy;* [5]*DINOGMI, University of Genoa, Genoa, Italy;* [6]*Campus Biomedico di Roma, Roma, Italy;* [7]*Università di Bologna, Bologna, Italy;* [8]*Ente Ospedaliero Cantonale, Lugano, Switzerland;* [9]*Ospedale "Michele e Pietro Ferrero" di Verduno, Verduno, Italy;* [10]*Università Milano Bicocca, Monza, Italy;* [11]*Hôpital Universitaire de Berne, Berne, Switzerland;* [12]*University of Bern, Bern, Switzerland*
*Corresponding author:

Study Objective: Sentinel node mapping (SNM) has replaced lymphadenectomy for staging surgery in apparent early-stage endometrial cancer (EC). Here, we evaluate the long-term survival of three different approaches of nodal assessment.
Design: A retrospective study evaluating long-term outcomes (at least 3 years of follow-up).

Setting: Multi-institutional study.
Patients or Participants: EC patients having nodal assessment between 2006 and 2016. In order to reduce possible confounding factors, we applied a propensity-matched algorithm.
Interventions: Laparoscopic hysterectomy plus sentinel node mapping and/or lymphadenectomy
Measurements and Main Results: Charts of 940 patients were evaluated: 174 (18.5%), 187 (19.9%), and 579 (61.6%) having SNM, SNM followed by backup lymphadenectomy and lymphadenectomy, respectively. Applying a propensity score matching algorithm (1:1:2) we selected 500 patients: 125 SNM vs. 125 SNM plus backup lymphadenectomy vs. 250 lymphadenectomy. Baseline characteristics of the study population were similar between groups. The prevalence of nodal disease was 14%, 16%, and 12% in patients having SNM, SNM followed by backup lymphadenectomy and lymphadenectomy, respectively. Overall, 19 (7.6%) patients were diagnosed with low volume nodal disease (7 and 12 patients with micrometastasis and isolated tumor cells). The mean (SD) follow-up time was 62 (±11) months. The survival analysis comparing the three techniques did not show statistical differences in terms of disease-free (p=0.750) and overall survival (p=0.899). Similarly, the type of nodal assessment did not impact survival outcomes after stratification on the basis of uterine risk factors.
Conclusion: Our study highlighted that SNM provides similar long-term oncologic outcomes than lymphadenectomy. Further evidence is warranted to assess the prognostic value of low-volume disease detected by ultrastaging and the role of molecular/genomic profiling.

Plenary 2: Oncology
(2:00 PM — 3:00 PM)

2:18 PM

Minimally Invasive Surgery in High-Grade Endometrial Carcinoma and Risk for Local Recurrence: An Israeli Gynecology Oncology Group Study

Levin G.,[1,2,] Kogan L.,[3] Helpman L.,[4] Eitan R.,[5] Vaknin Z.,[6] Lavie O.,[7] Ben-Arie A.,[8] Amit A.,[9] Levy T.,[10] Namazov A.,[11] ben Shachar I.,[12] Atlas I.,[13] Bruchim I.,[14] Perri T.,[1] Gemer O.[11]*. [1]*Gynecologic Oncology, Hadassah Medical Center, Jerusalem, Israel;* [2]*Faculty of Medicine, Hebrew University of Jerusalem, Jerusalem, Israel;* [3]*Gynecologic Oncology, Hadassah Medical Center, Jerusalem, QC, Israel;* [4]*Gynecologic Oncology, Chaim Cheba Medical Center, Ramat Gan, Israel;* [5]*Department of Obstetrics and Gynecology, Rabin Medical Center, Peta Tikv, Israel;* [6]*Department of Obstetrics and Gynecology, The Yitzhak Shamir (formerly Assaf Harofeh) Medical Center, Zerifin, Israel;* [7]*Department of Obstetrics and Gynecology, Carmel Medical Center, Haifa, Israel;* [8]*Department of Obstetrics and Gynecology, Kaplan Medical Center, Rehovot, Israel;* [9]*Department of Obstetrics and Gynecology, Rambam Medical Center, Haifa, Israel;* [10]*Department of Obstetrics and Gynecology, Wolfson Medical Center, Holon, Israel;* [11]*Department of Obstetrics and Gynecology, Barzilai University Medical Center, Ashkelon, Israel;* [12]*Department of Obstetrics and Gynecology, Ziv Medical Center, Zefat, Israel;* [13]*Department of Obstetrics and Gynecology, Poriya Medical Center, Tiberia, Israel;* [14]*Department of Obstetrics and Gynecology, Hillel Yaffe Medical Center, Hedera, Israel*
*Corresponding author:

Study Objective: To compare oncological outcomes of women with high-grade endometrial carcinoma (HGEC) who underwent surgery by minimally invasive surgery (MIS) versus laparotomy.
Design: A retrospective cohort study.
Setting: Academic multi-center.
Patients or Participants: Consecutive women with HGEC cancer treated at 11 Israeli institutions between 2002 and 2017 were accrued in an assimilated database with a median follow-up of 52 months (range 12-120 months). Women with HGEC were stratified into two groups by route of surgery; MIS vs. laparotomy by an intention to treat. Clinical, pathological and outcome data were compared.
Interventions: MIS and laparotomy.
Measurements and Main Results: Six hundred and seventy-eight women met the inclusion criteria: 160 underwent MIS and 518 laparotomy. The two groups were comparable in demographic and clinical characteristics. Local recurrence was more common in the MIS group, Odds Ratio (OR) 95% Confidence Interval (CI) 2.80 (1.80-4.36). Disease progression rates were comparable (p=0.537). In a multivariable analysis, including age, comorbidities, disease stage, CA-125 and lymph-vascular space invasion, MIS was not associated with an increased risk for either overall recurrence rate, disease progression, or overall survival. Independent risk factors for local recurrence were diabetes, stage III-IV, LVSI and MIS, adjusted OR 95% CI 3.30 (1.69-6.48).
Conclusion: In women with HGEC, MIS is associated with higher rates of local recurrence as compared to laparotomy.

Plenary 2: Oncology
(2:00 PM — 3:00 PM)

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Retrograde Ureteral Indocyanine Green Injection at the Time of Pelvic Lymph Node Debulking for Metastatic Cervical Cancer

Horton T.,[1,] Vargas R.,[2] Marley M.[1]*. [1]*Obstetrics and Gynecology, Cleveland Clinic Akron General, Akron, OH;* [2]*Gynecology Oncology, Cleveland Clinic Akron General, Akron, OH*
*Corresponding author:

Study Objective: Demonstrate a safe and easy method for ureteral identification during laparoscopy.
Design: Case report.
Setting: Patient was in dorsal lithotomy with steep Trendelenburg.
Patients or Participants: 1 patient.
Interventions: Retrograde ureteral indocyanine green injection.
Measurements and Main Results: N/A
Conclusion: Retrograde ureteral indocyanine green injection is a simple and feasible method for real time identification of the ureter during laparoscopy and helps to prevent ureteral injury.

Plenary 2: Oncology
(2:00 PM — 3:00 PM)

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Robot Debulking of Right Pelvic Lymph Nodes 360-Degree Approach

Varma S.,[1,] Palmieri A.J.,[2] Aikman N.M.,[1] ElSahwi K.[2]*. [1]*Obstetrics & Gynecology, Jersey Shore University Medical Center, Neptune, NJ;* [2]*Gynecologic Oncology, Jersey Shore University Medical Center, Neptune, NJ*
*Corresponding author:

Study Objective: To demonstrate a 360-degree approach to debulking of an enlarged malignant right pelvic lymphadenopathy
Design: A surgical video case presentation.
Setting: A University affiliated teaching hospital.
Patients or Participants: A 78-year-old patient with uterine serous cancer.
Interventions: Robot assisted laparoscopic debulking surgery.
Measurements and Main Results: Complete debulking is accomplished to no residual disease. Video demonstrates approach to debulking the enlarged right pelvic lymph node.
Conclusion: Robot assisted laparoscopic debulking of enlarged pelvic masses allows enhanced identification of anatomy and adequate safe dissection.

Plenary 2: Oncology
(2:00 PM — 3:00 PM)

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Robotic Resection of Isolated Ovarian Cancer Recurrence in the Lesser Sac

Worley M.J.,Jr[1,*] *St. Laurent J.D.*[2]. [1]*Gynecologic Oncology, Brigham and Women's Hospital/Dana Farber Cancer Institute, Boston, MA;* [2]*Gynecologic Oncology, Brigham and Women's Hospital, Boston, MA*
*Corresponding author:

Study Objective: Demonstrate the technique necessary for safe minimally invasive surgery in the lesser sac for removal of recurrent ovarian cancer.
Design: A step-by-step video review of the pertinent anatomy and surgical technique for robotic secondary cytoreduction in the lesser sac.
Setting: Robotic surgical platform, reverse Trendelenburg position.
Patients or Participants: 78-year-old BRCA negative female with a history of stage IIIC high-grade serous ovarian cancer presenting with a 24-month disease free interval and a 2.2 cm recurrent ovarian cancer lesion in the lesser sac, near the neck of the pancreas
Interventions: The patient received 3.75mg of indocyanine green prior to the procedure to assist with identification of the common bile duct. She was placed in the supine position with 20 degrees of reverse Trendelenburg. A 30 degree downward facing endoscope was used.
Measurements and Main Results: In this video, we discuss important pre-procedural/anatomic considerations for robotic resection of recurrent ovarian cancer in the lesser sac. Port placement was performed using standard robotic port locations for upper abdominal surgery. An incision was made along the lesser omentum and the mass was identified within the lesser sac. The common bile duct was identified with the use of a near infrared filter. The lesion was dissected away from the pancreas. After the common hepatic artery was identified at the base of the resection, the remaining attachments were removed. Operative time was 60 minutes and without complications. She was discharged home on the day of surgery and had an uncomplicated postoperative course.
Conclusion: Minimally invasive surgery in the lesser sac is feasible and safe in well-selected patients with recurrent ovarian cancer. Positioning and familiarity with pertinent anatomy are critical for successful surgery in this region.

Plenary 3: Robotics
(3:15 PM — 4:15 PM)

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Multiquadrant Robotic Assisted Primary Cytoreduction for Stage III C Ovarian Cancer Part I Complete Omentectomy Right Diaphragm Stripping

Lim P.C.,[1,*] *Kennedy L.L.*[2]. [1]*Gynecologic Oncology, Center of Hope @ Reno / University of Nevada School of Medicine, Reno, NV;* [2]*University of Nevada School of Medicine, Reno, NV*
*Corresponding author:

Study Objective: To demonstrate Part I of multi-quadrant robotic assisted abdominal primary cytoreductive surgery for Stage IIIC epithelial ovarian cancer.
Design: A prospective single patient underwent robotic assisted cytoreductive surgery. Docking time for pelvic and abdominal dissection was recorded. The multiple procedures that patient underwent was recorded for operative time along with intraoperative complications and postoperative complication, estimated blood loss, and length of hospitalization.
Setting: Tertiary hospital.
Patients or Participants: Patient is a 56-year-old female presents with abdominal pain. CT scan showed no ascites soft tissue mass in the right hepatic gutter omental mass with minimal pelvic fluid and pelvic mass. CA 125 was 533.
Interventions: Robotic Xi.
Measurements and Main Results: The abdominal docking time was 2 minutes and 30 seconds. The pelvic docking time which was the time from de-docking after completion of abdominal dissection to rotating the boom to re-docking for pelvic dissection was 5 minutes and 30 seconds. Total operative time for both pelvic and abdominal dissection was 246 minutes. The operative time for right diaphragm peritonectomy 30 minutes and resection of omental caking with complete omentectomy was 68 minutes. The pelvic dissection which consisted of en bloc modified posterior exenteration procedure with total intracorporal sigmoid rectal anastomosis was 126 minutes. A complete cytoreductive surgery with no gross residual was achieved. EBL 200 cc and length of hospitalization was 4 days. There was no intraoperative or postoperative complication.
Conclusion: Robotic assisted multi-quadrant surgery is feasible to achieve upper abdominal, abdominal and pelvic procedures to achieve an optimal cytoreductive surgery for stage IIIc ovarian cancer.

Plenary 3: Robotics
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Multiquadrant Robotic Assisted Primary Cytoreduction for Stage III C Ovarian Cancer Part II Modified Posterior Exenteration

Lim P.C.,[1,*] *Kennedy L.L.*[2]. [1]*Gynecologic Oncology, Center of Hope @ Reno / University of Nevada School of Medicine, Reno, NV;* [2]*University of Nevada School of Medicine, Reno, NV*
*Corresponding author:

Study Objective: To demonstrate Part II of multi-quadrant robotic assisted pelvic primary cytoreductive surgery for Stage IIIC epithelial ovarian cancer.
Design: A prospective single patient underwent robotic assisted cytoreductive surgery. Docking time for pelvic and abdominal dissection was recorded. The multiple procedures that patient underwent was recorded for operative time along with intraoperative complications and postoperative complication, estimated blood loss, and length of hospitalization.
Setting: Tertiary hospital.
Patients or Participants: Patient is a 56-year-old female presents with abdominal pain. CT scan showed no ascites soft tissue mass in the right hepatic gutter omental mass with minimal pelvic fluid and pelvic mass. CA 125 was 533.
Interventions: Robotic Xi.
Measurements and Main Results: The abdominal docking time was 2 minutes and 30 seconds. The pelvic docking time which was the time from de-docking after completion of abdominal dissection to rotating the boom to re-docking for pelvic dissection was 5 minutes and 30 seconds. Total operative time for both pelvic and abdominal dissection was 246 minutes. The operative time for right diaphragm peritonectomy 30 minutes and resection of omental caking with complete omentectomy was 68 minutes. The pelvic dissection which consisted of en bloc modified posterior exenteration procedure with total intracorporal sigmoid rectal anastomosis was 126 minutes. A complete cytoreductive surgery with no gross residual was achieved. EBL 200 cc and length of hospitalization was 4 days. There was no intraoperative or postoperative complication.
Conclusion: Robotic assisted multi-quadrant surgery is feasible to achieve upper abdominal, abdominal and pelvic procedures to achieve an optimal cytoreductive surgery for stage IIIc ovarian cancer.

Plenary 3: Robotics
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Robotic Radical Hysterectomy with Vaginal Cerclage without Uterine Manipulator: Novel Technique, Feasibility, and Oncologic Outcomes.

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*Corresponding author:

Study Objective: To evaluate the feasibility and report on early outcome of Novel Technique of Robotic Radical hysterectomy with vaginal cerclage without uterine manipulator (RRHVC) for treatment of stage I cervical cancer.
Design: Prospective cohort of patients who underwent RRHVC were recorded for demographics, intraoperative and postoperative outcomes and pathological data.
Setting: Tertiary Hospital.
Patients or Participants: Stage I cervical cancer from 10/2018 to 10/2020.
Interventions: Robotic radical hysterectomy with vaginal cerclage without uterine manipulator and pelvic lymphadenectomy.
Measurements and Main Results: Demographic data, intraoperative and postoperative outcomes, pathological data were prospectively collected and analyzed. The 2 year follow-up was analyzed for recurrence and survival outcomes.
Eighteen patients underwent RRHVC: 4 (22.2%) stage IA2, 6 stage IB1 (33.3%), 8 stage IB2 (44.5%). The average age was 50, average BMI 28.3, average clinical tumor size was 2.06 cm. Surgical outcomes were as follow: Average operating time was 208 minutes, average blood loss 100.7 milliliters. Average length of hospitalization was 23 hours. There were no intraoperative complications. Postoperative complications consisted of 3/18 (16.6%): 2 urinary tract infections and one lymphocyst.
Pathological outcomes were as follow: Histological cell type: 12 (66.75%) squamous cell, 4 (22.2%) adenocarcinoma, 2 (11.1%) adenosquamous. There were 8(44.4%) Grade 1, 8(44.4%) Grade 2, and 2 (12.2%) Grade 3. The average parametria removed on the right ($4.2 \times 1.1 \times 0.67$) and left ($4.4 \times 1 \times 0.62$) centimeter. The average vaginal margin was 2.57 (1.3-3.2) centimeter. The average total lymph nodes retrieved were 20 (9-39). Four of 18 had (22.2%) + pelvic nodes.
There were no recurrences and deaths to date at the time of this analysis. The average time to followup is 13.6 months (5-27 months)
Conclusion: The Novel technique of Robotic Radical hysterectomy with vaginal cerclage without uterine manipulator for early-stage cervical cancer appears to be feasible. Assessment of early oncological surgical outcomes appear to be safe without evidence of early recurrence.

Plenary 3: Robotics
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Robotic Resection of Retroperitoneal Pelvic Tumor

Vieira M.,[1,] Nobrega L.,[1] de Almeida Barbosa P.,[1] Peresi P.,[2] Torres L.,[3] Abrao H.,[1] Chaddad-Neto F.,[4] Abrao M.[1,5]. [1]Gynecology Department, Beneficência Portuguesa Hospital, São Paulo, Brazil; [2]Pathology Department, Beneficência Portuguesa Hospital, São Paulo, Brazil; [3]Radiology Department, Beneficência Portuguesa Hospital, São Paulo, Brazil; [4]Neurosurgery Department, Beneficência Portuguesa Hospital, São Paulo, Brazil; [5]Ob/Gyn Department, Sao Paulo University, Sao Paulo, Brazil*
*Corresponding author:

Study Objective: To illustrate a technique of robotic resection of a retroperitoneal pelvic tumor.
Design: Stepwise demonstration of the technique with narrated video footage.
Setting: The patient was in the lithotomy position with steep Trendelenburg, intermittent pneumatic compression, and Allen Stirrups. She underwent robotic surgery with side docking.
Patients or Participants: A 48-year-old woman was experiencing pain in her left lower limb for four months. Imaging studies revealed a myomatous uterus and an expansive, complex, heterogeneous formation in the retroperitoneal region of the left pelvic wall, posterior to the iliac vessels and adjacent to the iliac bone, with 8.9cm in the largest diameter and with 140.8mL. The lesion dislocated the left iliac vessels anteriorly, the left psoas muscle laterally, the parametrial structures medially and showed close contact with the anterior part of the left foramina of S1 and S2. The procedure was held at Beneficência Portuguesa Hospital, São Paulo, Brazil.
Interventions: A robotic hysterectomy with bilateral salpingectomy and resection of a retroperitoneal pelvic tumor aided by neuronavigation was performed after simple hysterectomy with vaginal retrieval of the surgical specimen. The tumor, which was bulging the external iliac vessels, was dissected entirely and isolated. The formation was completely resected robotically, with an adequate presentation of the left ureter, left vascular, and nerve structures.
Measurements and Main Results: Surgical intraoperative parameters were measured. The docking time was five minutes, and the robotic surgery took 180 minutes. The estimated blood loss was 200mL. There were no nerve injuries or intraoperative complications, and the patient was discharged 36 hours after surgery. The final pathology report revealed a Myxoid Liposarcoma.
Conclusion: This video demonstrates of a case a robotic resection of a retroperitoneal tumor aided by neuronavigation. This approach was feasible with the benefit of superior imaging affording a three-dimensional vision and stable instruments allowing wrist-like movements.

Plenary 3: Robotics
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Robotic Trachelectomy for Cervical Myoma after Partial Hysterectomy

Corinti M.,[1,] Cutrim P.T.,[2] Pessoa P.D.,[2] Alvarenga-Bezerra V.,[3] Vieira Gomes M.T.,[4] Barison G.[5]. [1]Gynecology, Hospital Israelita Albert Einstein, Sao Paulo, Sao Paulo, Brazil; [2]Gynecology, Hospital Israelita Albert Einstein, Sao Paulo, Brazil; [3]Gynecologic Oncology, Hospital Israelita Albert Einstein, Sao Paulo, Brazil; [4]Gynecology, Hospital Israelita Albert Einstein, São Paulo, Brazil; [5]Hospital Israelita Albert Einstein, São Paulo, Brazil*
*Corresponding author:

Study Objective: To present a rare case of cervical leiomyoma in a post partial hysterectomy patient.
Design: Case report illustrated with video.
Setting: Under general anesthesia, the patient was placed in dorsolithotomy position, arms alongside the body and legs 80°abducted in adjustable stirrups. Two robotic portals were positioned in both iliac fossae, in addition to the umbilical, and a conventional laparoscopic portal was placed on the right flank. The cervix was manipulated and delineated with a 60cc syringe.
Patients or Participants: We present a case of a 43-year-old woman who had undergone partial hysterectomy 8 years ago due to intense menstrual bleeding and multiple uterine fibroids. She went to the gynecologist with a complaint of deep dyspareunia and chronic pelvic pain in the left lower quadrant. These complaints started after 3 years of hysterectomy and were now more intense. Physical examination revealed the presence of a partially mobile nodule of 5cm in left iliac

fossa, slightly sore to the touch. During the investigation, her pelvic MRI showed signs of partial hysterectomy, the uterine cervix with multiple retention cysts and a well-defined nodule with low T2 signal in the left lateral region vascularized by branches from the left internal iliac vessels measuring 5.3 × 4.2 × 4.7 cm. Cervical cytology was negative.
Interventions: Patient was eligible for a robotic-assisted simple trachelectomy.
Measurements and Main Results: Surgery duration time was 2 hours with minimal blood loss. She was discharged after 15 hours with mild soreness. After 2 weeks she had complete remission of symptoms and the final pathological report confirmed leiomyoma of the uterine cervix.
Conclusion: Partial hysterectomy may not be enough for uterine fibroid treatment once the uterine cervix can be a site of fibroid growth. In addition, surgery afterwards may be hampered by the presence of pelvic adhesions and anatomical distortion.

Plenary 3: Robotics
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Robotic-Assisted Uterus Retrieval from Living Donor for Uterine Transplantation: First Case in Brazil

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*Corresponding author:

Study Objective: To present the first robotic-assisted uterus retrieval from a living donor for uterine transplantation in Brazil.
Design: Stepwise demonstration of the technique with narrated video footage.
Setting: Three operating rooms were designated to carry out the transplantation: one for harvesting the donor's uterus by robotic surgery, another for the bench surgery, and another for the organ recipient. The donor was in the lithotomy position with steep Trendelenburg, intermittent pneumatic compression, and Allen Stirrups. She underwent robotic surgery with central docking.
Patients or Participants: The recipient was a 33-year-old patient with hypoplasia of the Müllerian duct system due to Mayer-Rokitansky-Küster-Hauser syndrome. The donor was a 50-year-old woman.
Interventions: Ureteral dissection was performed over its entire length. The vascular pedicles that emerged from the uterine arteries and the internal iliac arteries' posterior branches were clipped. The obliterated umbilical arteries, the internal iliac arteries, and the pelvic infundibulum ligaments were clipped and cut. The uterus was retrieved through a Pfannenstiel incision to avoid complications to the uterine vessels. The organ was transplanted in the recipient by end-to-end anastomosis of the internal iliac arteries and end-to-side anastomosis of the external iliac vein with a gonadal vein from the infundibulopelvic ligament.
Measurements and Main Results: Surgical intraoperative parameters were measured. The operative time from docking was 4 minutes. Robotic donor surgery took 400 minutes, bench surgery 62 minutes, and laparotomic recipient surgery was completed in 240 minutes. There were no intraoperative complications. The donor was discharged in 48 hours and the recipient in 5 days.
Conclusion: This is the first case in Brazil of uterine transplantation with a living donor to the best of our knowledge. Traditionally, patients who undergo uterine transplantation by minimally invasive surgery are managed by laparoscopy. However, this video demonstrates the feasibility of a robotic approach to uterine transplantation.

TUESDAY, NOVEMBER 16, 2021
Plenary 4: Endometriosis

(11:00 AM — 12:30 PM)

11:04 AM

Excision of Deep Endometriosis of the Rectosigmoid Colon: Individualizing Care to the Presenting Pathology

Warring S.K.,[1,2,] Cope A.G.,[3] Burnett T.L.,[3] Langstraat C.L.,[4] Behm K.T.,[5] Khan Z.[3]. [1]Obstetrics & Gynecology, Mayo Clinic, Rochester, MN; [2]Alix School of Medicine, Mayo Clinic, Rochester, MN; [3]Department of Obstetrics and Gynecology, Division of Gynecologic Surgery, Mayo Clinic, Rochester, MN; [4]Obstetrics & Gynecology, Division of Gynecologic Surgery, Mayo Clinic, Rochester, MN; [5]Colon and Rectal Surgery, Mayo Clinic, Rochester, MN*
*Corresponding author:

Study Objective: To highlight different surgical approaches to managing deep infiltrating endometriosis involving the rectosigmoid colon.
Design: Educational video highlighting specific surgical techniques.
Setting: Academic medical center.
Patients or Participants: Patients undergoing conventional or robotic laparoscopic excision of endometriosis involving the rectosigmoid colon.
Interventions: In patient cases where endometriosis lesions involved the rectosigmoid colon, a surgical technique was chosen based on the location of the lesion, depth and circumference of involvement, and number of nodules present.
Measurements and Main Results: Based on imaging findings and intraoperative findings, a surgical technique was chosen and demonstrated. The types of surgical techniques demonstrated included laparoscopic serosal shaving, discoid resection with manual resection and primary suture closure, discoid resection with EEA stapler use, and segmental resection.
Conclusion: Knowledge of the different surgical approaches to excise endometriosis is essential to appropriately address a patient's unique pathology.

Plenary 4: Endometriosis
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11:11 AM

Isolated Endometriosis in the Ischial Spine Region. an Anatomic Laparoscopic Approach

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*Corresponding author:

Study Objective: This video describes the technique used to treat an isolated endometriotic nodule in the Ischial Spine Region emphasizing the anatomic aspect of this region.
Design: Isolated endometriotic nodule in the Ischial Spine Region diagnosed preop in one symptomatic patient by MRI. Laparoscopic resection with 6 months follow-up.
Setting: Through a laparoscopic approach using HD-3D microcamera which was inserted umbilical scar, with 3 auxiliary punctures of 5mm each in the inferior abdomen.
Patients or Participants: A 39-year-old patient was referred to the Center of Endometriosis. Her symptoms started about six years before the surgery. She reported pelvic pain, proctalgia, sciatica and perineal pain in the right side, paresthesia and burning on the inguinal region and the plantar face of the right foot, and chronic fatigue. Cyclical pain happened during menses, not relieved with non-steroidal anti-inflammatory drugs (NSAIDs). Preop

CA-125 marker was 57.0 U/mL. Three years before surgery she reported a spontaneous abortion.
Interventions: A Laparoscopic resection of the endometriotic nodule in the ischial spine region.
Measurements and Main Results: The Surgical time: 230min. Removed nodule: 5cm. The patient is totally asymptomatic, without any pain or neurological deficits. After 6 months, she has started reproductive treatment.
Conclusion: This video demonstrates the infiltration of endometriosis in the complex region of the ischial spine, its excision and various aspects of anatomical dissection in vascular structures, muscles and nerve sparing.

Plenary 4: Endometriosis
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Isthmocele Endometriosis- the Relationship between Cesarean Section and Endometriosis.

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*Corresponding author:

Study Objective: We present a unique case of diffuse peritoneal endometriosis following cesarean section, involving the cesarean scar isthmocele and associated with secondary infertility, failed embryo transfers, and progressive pelvic pain.
Design: Case report of endometriosis within an isthmocele membrane and concomitant peritoneal endometriosis.
Setting: A combined hysteroscopic and laparoscopic approach in lithotomy position.
Patients or Participants: A 44-year-old patient with three prior cesarean-sections and a laparoscopic appendectomy, in none of which, endometriosis was visualized. She presented with dysmenorrhea, dyspareunia, and recurrent embryo transfer failures. The progressively debilitating symptoms started 14 years ago, shortly after her last cesarean-section. MRI and ultrasound demonstrated a retroverted uterus and a prominent, thin, fluid filled, cesarean scar defect.
Interventions: A combined hysteroscopic and laparoscopic approach was performed. Indocyanine green dye was used to identify the bladder borders and methylene blue was added to the hysteroscopy irrigation solution to create contrast. A wide excision of the isthmocele was performed followed by a three-layer closure and excision of all apparent peritoneal lesions using the AquaBlue contrast technique (ABCt™).
Measurements and Main Results: In the pathological assessment, multiple foci of endometriosis were identified within the isthmocele membrane, clearly differentiated from intrauterine endometrial tissue. Additionally, all seven excised peritoneal specimens contained peritoneal endometriosis. Two weeks following the procedure, transvaginal sonographic scan confirmed thick anterior uterine wall, and the patient reported only minor discomfort with almost complete resolution of her symptoms.
Conclusion: This case demonstrates endometriosis within the isthmocele membrane, with concomitant symptomatic peritoneal endometriosis. We propose a laparoscopic isthmocele excision technique with three-layer reconstruction, and peritoneal endometriosis excision using methylene blue contrast. We suggest a possible link between isthmocele and endometriosis and emphasize the need for wide excision of the isthmocele margins and maintaining clean borders, given the possibility of endometriosis within the isthmocele, which might be a cause or a contributor to the tissue weakness and isthmocele formation.

Plenary 4: Endometriosis
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11:25 AM

Laparoscopic Management of Endometriosis with Deep Infiltration of the Bladder

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*Corresponding author:

Study Objective: To discuss and review surgical management of endometriosis with bladder invasion through a surgical case.
Design: Single patient case report.
Setting: Academic hospital.
Patients or Participants: 38yo G3P3 with pelvic pain, dysuria, adenomyosis and urinary tract endometriosis desiring definitive management.
Interventions: Patient underwent robotic-assisted laparoscopic lysis of adhesions, resection of urinary tract endometriosis with bladder dome involvement and hysterectomy. During resection, paravesical and vesicouterine spaces were developed, the ureter was identified, and the bladder dome lesion circumscribed and excised, followed by detrusor repair.
Measurements and Main Results: The patient was discharged home the same day with a urinary foley catheter for two weeks. She had an uncomplicated post-operative course with improvement in her symptoms.
Conclusion: This video demonstrates the robotic resection of deep infiltrating endometriosis with urinary tract involvement and highlights techniques to avoid injury to underlying structures.

Plenary 4: Endometriosis
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Modified Ubess and CA-125 Endometriosis Severity Prediction Model – Preliminary Results

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*Corresponding author:

Study Objective: The Ultrasound-Based Endometriosis Staging System (UBESS) does not account for the need for ureterolysis, nor does it differentiate between isolated peritoneal disease and no disease. The Modified-UBESS (M-UBESS) and Ca-125 endometriosis severity prediction model aims to account for these short-falls by incorporating ultrasound (endometrioma, Pouch of Douglas 'POD' obliteration, uterosacral endometriosis & ovarian fixation) and Ca-125 to improve the prediction of intraoperative ureterolysis and isolated peritoneal disease, improving the UBESS accuracy in predicting surgical complexity.
Design: Prospective multicentre study assesses the accuracy of the endometriosis severity prediction model in predicting the AGES laparoscopic skill (Australasian Gynaecological Endoscopy & Surgery) required for maximum cytoreductive surgery for women with suspected endometriosis undergoing laparoscopic surgery at Liverpool, Campbelltown and Nepean Hospital over a 5-year period (Feb 2020).
Setting: N/A.

Patients or Participants: 63/200 women of with suspected endometriosis have been recruited thus far.
Interventions: Participants underwent a Ca-125 and a 5-domain transvaginal ultrasound by an expert sonologist according to the International Deep Endometriosis Analysis criteria and were assigned a M-UBESS score. All women then underwent laparoscopic surgery within 6 months, with an AGES skill recorded.
Measurements and Main Results: M-UBESS accuracy in predicting a generalist (level I-III) & advanced (level IV-VI) AGES level was 68.25% (p=0.044) & 76.19% (p=0.003) respectively. Ultrasound markers including endometrioma, POD obliteration, uterosacral endometriosis and fixed ovaries predicted ureterolysis in 79.37% (p=0.005), 77.78% (p=0.004), 74.60% (p=0.063) and 53.97% (p=0.137) respectively. CA125<30 predicted low r-ASRM and generalist AGES level in 73.33% and 46.67% respectively and distinguished between nil disease and r-ASRM I-II (sensitivity 75%).
Conclusion: Ultrasound markers (endometrioma, POD obliteration, uterosacral endometriosis & ovarian fixation) and CA-125 improve the prediction of intraoperative ureterolysis and isolated peritoneal disease. Further recruitment is required to determine whether the incorporation of these markers into the M-UBESS model improves UBESS accuracy in predicting surgical complexity.

Plenary 4: Endometriosis
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Surgical Evaluation and Management of Concomitant Anterior and Posterior Deep Infiltrating Endometriosis

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*Corresponding author:

Study Objective: The objective of this video is to present the evaluation and management of a patient who presents with concomitant anterior and posterior compartment deep infiltrating endometriosis.
Design: Surgical Video.
Setting: The operating room.
Patients or Participants: We present the case of a 34-year-old G0 female who was referred for evaluation and management of biopsy proven bladder endometriosis. The patient reported a long-standing history of chronic pelvic pain, dyspareunia, dysmenorrhea, cyclic hematuria and cyclic dyschezia as well. Of note, she had failed 2 IVF cycles. On pelvic examination, the patient was noted to have a fixed uterus with a scarred posterior cul-de-sac with significant nodularity. Although the patient had known bladder endometriosis, her history and physical exam findings were suggestive of possible rectosigmoid involvement as well. The patient then underwent further evaluation with imaging including a transvaginal ultrasound and pelvic MRI. The transvaginal ultrasound demonstrated hypoechoic nodules in the anterior and posterior compartments, highly suggestive of deep infiltrating endometriosis. The MRI demonstrated anterior compartment disease transmurally invading the urinary bladder as well as posterior disease as well. Given these findings, the patient underwent preoperative planning with a multidisciplinary team including Gynecologic surgery, Urology, and Colorectal surgery.
Interventions: Definitive surgical management.
Measurements and Main Results: The patient underwent a cystoscopy, bilateral ureteric stenting, cystectomy, and excision of endometriosis. In the post operative period, the patient underwent a retrograde cystogram which demonstrated no leakage at the site of repair. Her symptoms improved significantly and she is now attempting to conceive.
Conclusion: A thorough pre-operative evaluation of patients with deep infiltrating endometriosis is of utmost importance. Although the patient was referred for bladder endometriosis, she was incidentally found to have significant posterior compartment disease. As a result, she underwent surgical planning with a multidisciplinary team, which ultimately allowed for the best patient outcome.

Plenary 4: Endometriosis
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11:46 AM

Surgical Management of Inguinal Endometriosis

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Study Objective: To demonstrate surgical management of an inguinal endometrioma.
Design: Stepwise demonstration of surgical techniques with narrated video footage.
Setting: Yale New Haven Hospital, New Haven, CT.
Patients or Participants: A 31-year-old woman with a painful right inguinal endometrioma.
Interventions: The patient underwent diagnostic examination with pelvic MRI, which noted concern for an inguinal endometrioma. Biopsy confirmed endometriosis. She then underwent diagnostic laparoscopy, with resection of intra-pelvic and inguinal endometriosis. The technical steps of management and resection of an inguinal endometrioma have been detailed in the video with an emphasis on anatomic landmarks by utilizing visual illustrations. An incision was made at the inguinal ligament and taken down to the superficial fascia using Bovie cautery. The mass was progressively mobilized from the superficial inguinal ring superiorly, sartorius muscle laterally, and adductor longus muscle medially. Several perforating branches of the femoral vein as well as the round ligament of the uterus, at the level of the external inguinal ring, were ligated and tied off. The mass was removed in full, and the resected bed fulgurated. A drain was placed and the incision was closed in multiple layers.
Measurements and Main Results: Diagnostic laparoscopy revealed intrapelvic Stage I endometriosis. The right round ligament and internal inguinal ring were without evidence of endometriosis. The $3.1 \times 3 \times 2.8$ cm inguinal mass was fully resected. Final pathology confirmed both intrapelvic and inguinal endometriosis.
Conclusion: Inguinal endometriosis is exceedingly rare, with an estimated incidence of 0.6%. Given the broad differential diagnosis, imaging should be performed. In addition, biopsy can be considered, provided a hernia has been ruled out. Surgical management should entail diagnostic laparoscopy and excisional surgery.

Plenary 4: Endometriosis
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Sustained Efficacy and Safety of Relugolix Combination Therapy in Women with Endometriosis-Associated Pain: Spirit 52-Week Data

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Study Objective: To evaluate long-term safety and efficacy of relugolix combination therapy (Relugolix-CT) to treat endometriosis-associated pain.
Design: SPIRIT Extension was a Phase 3, open-label, single-arm, 80-week study.
Setting: 170 clinical research centers globally.
Patients or Participants: Premenopausal women (age 18−50 years) with endometriosis, moderate-to-severe dysmenorrhea and non-menstrual pelvic pain (NMPP) at baseline who completed the 24-week pivotal studies (SPIRIT 1/2) and were eligible to participate were enrolled.
Interventions: Once-daily Relugolix-CT (relugolix 40 mg, estradiol 1 mg, norethindrone acetate 0.5 mg).
Measurements and Main Results: Co-primary endpoints: proportion of dysmenorrhea/NMPP responders at Week 52, using Numerical Rating Scale (NRS) scores (0=no pain, 10=worst pain imaginable). Dysmenorrhea/NMPP responder: women who achieved a clinically meaningful reduction from baseline in NRS score (2.8/2.1, respectively) without increased analgesic use. Secondary endpoints: change in Endometriosis Health Profile-30 (EHP-30) pain domain scores, analgesic/opioid use. Safety endpoints: adverse events, bone mineral density (BMD) evaluation.
Of 1,261 women randomized in SPIRIT 1/2, 802 enrolled in the extension; 681 completed 52 weeks of treatment. Data are reported for women who received Relugolix-CT through 52 weeks. The proportion of responders for dysmenorrhea was 84.8% and 73.3% for NMPP. NRS least squares (LS) mean scores for dysmenorrhea, NMPP and dyspareunia decreased from 7.4 (severe), 6.0 (moderate) and 5.9 (moderate) at pivotal baseline to 1.3 (mild), 2.2 (mild) and 2.4 (mild) at Week 52, equating to 82.8%, 62.9% and 60.1% reductions.
Daily functioning (EHP-30 pain domain score) improved (−38.1 point); most women (85.6%) were opioid-free at Week 52. No disproportionate increase in adverse event incidence and no new safety signals were identified. Lumbar spine BMD was preserved, with LS mean change from baseline to Week 52 of −0.81% (95% CI: −1.26, −0.36).
Conclusion: Relugolix-CT was well tolerated and demonstrated sustained improvement of endometriosis-associated pain and maintenance of BMD through 52 weeks.

Plenary 4: Endometriosis
(11:00 AM — 12:30 PM)

12:00 PM

The Effect of Time Since Surgical Diagnosis of Endometriosis on Treatment Outcomes with Relugolix Combination Therapy: Spirit Program

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Study Objective: To assess efficacy of relugolix combination therapy (Relugolix-CT) in women who were surgically diagnosed with endometriosis <5 years and ≥5 years ago.
Design: SPIRIT 1/2 were 24-week randomized, double-blind, placebo-controlled Phase 3 studies.
Setting: 124 (SPIRIT 1) and 95 (SPIRIT 2) clinical research centers globally.
Patients or Participants: Premenopausal women (age 18−50 years) with surgically diagnosed endometriosis, moderate-to-severe dysmenorrhea and non-menstrual pelvic pain (NMPP).
Interventions: Once-daily Relugolix-CT (relugolix 40 mg, estradiol 1 mg, norethindrone acetate 0.5 mg) or placebo.
Measurements and Main Results: Change in dysmenorrhea/NMPP NRS scores and Endometriosis Health Profile-30 (EHP-30) pain domain scores analyzed in women with endometriosis diagnosis <5 years (N=579) and ≥5 years (N=255) ago.
Baseline demographics/clinical characteristics were comparable between subgroups. Mean (standard deviation) time since surgical diagnosis for Relugolix-CT and for placebo: 2.1 (1.5) and 2.1 (1.5) years (<5-years subgroup); 8.0 (2.8) and 7.8 (2.3) years (≥5-years subgroup), respectively.
With Relugolix-CT, mean dysmenorrhea NRS and EHP-30 pain domain score decreased significantly (both subgroups) vs placebo; mean NMPP NRS score decreased significantly in the <5-years subgroup (Table).
Conclusion: Relugolix-CT reduced dysmenorrhea and improved daily functioning in both groups: surgical diagnosis <5 years and ≥5 years ago. Reduction in NMPP was statistically significant in women with surgical diagnosis <5 years ago.

Table. Change from baseline in dysmenorrhea NRS, NMPP NRS and EHP-30 pain domain scores.

Least squares (LS) means	<5-years subgroup		≥5-years subgroup	
	Relugolix-CT	Placebo	Relugolix-CT	Placebo
Dysmenorrhea NRS score				
Baseline	7.5	7.3	6.9	7.0
Week 24/End of treatment (EoT)	1.8	5.1	1.8	4.7
Reduction from baseline	−74.8%	−24.9%	−72.7%	−30.4%
Difference of LS means	p<0.0001		p<0.0001	
NMPP NRS score				
Baseline	6.0	5.8	5.6	5.7
Week 24/EoT	3.0	3.8	2.7	3.2
Reduction from baseline	−48.8%	−33.5%	−51.5%	−41.8%
Difference of LS means	p<0.0001		p=0.0892	
EHP-30 pain domain score				
Baseline	59.1	57.2	57.4	54.9
Week 24	24.0	37.2	21.1	32.9
Difference of LS means	p<0.0001		p<0.0001	

Plenary 4: Endometriosis
(11:00 AM — 12:30 PM)

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Tips and Tricks for Diaphragmatic Endometriosis Resection and Management of Iatrogenic Pneumothorax

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Study Objective: To highlight the relevant surgical anatomy and techniques for safe and efficient laparoscopic resection of diaphragmatic

endometriosis as well as strategies for management of iatrogenic pneumothorax.
Design: Stepwise demonstration of techniques with narrated video footage.
Setting: Diaphragmatic endometriosis has a reported incidence of 0.1-1.5%. Patients may be asymptomatic or present with right upper quadrant abdominal pain, shoulder pain, or chest pain. Treatment may include laparoscopy alone or a combination of laparoscopy and thoracoscopy.
Patients or Participants: A 32-year-old female presents with symptomatic diaphragmatic endometriosis.
Interventions: The patient elected to undergo laparoscopic resection of diaphragmatic endometriosis. The key principles for safe and effective laparoscopic resection of diaphragmatic endometriosis include:
• Grasping and tenting the endometriotic lesion away from the diaphragm
• Gentle deflection of the liver to improve visualization during the procedure
• Use of the open and spread technique to serially thin and separate the endometriotic lesions from the underlying diaphragm, when possible
The key principles for management of iatrogenic pneumothorax, which may occur with even the most meticulous surgical technique, include:
• Recognition of diaphragmatic injury by visualizing the loss of diaphragmatic tenting
• Communication with the anesthesia team
• Use of the laparoscopic suction irrigator to re-establish the negative pressure within the pleural cavity
• Prompt chest x-ray in the PACU and, in the asymptomatic patient, administration of supplemental oxygen to improve the resolution rate of the pneumothorax
• Consideration of needle aspiration or chest tube placement if the patient is symptomatic.
Measurements and Main Results: The patient recovered well without any postoperative complications.
Conclusion: In conclusion, laparoscopic resection of diaphragmatic endometriosis is reasonable in the appropriately selected patient. Surgical techniques used should ensure complete resection of endometriotic lesions while minimizing the risk of diaphragm injury. Prompt recognition and management of iatrogenic pneumothorax is crucial, and a surgeon should use these key principles when managing this complication.

Plenary 5: Fibroids
(2:00 PM — 3:00 PM)

2:04 PM

30-Day Incidence of Complications and Readmission after Myomectomy

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Study Objective: To determine whether open compared to minimally invasive myomectomy is associated with an increased risk of 30-day incidence of post-operative complications.
Design: Retrospective cohort study of prospectively collected surgical quality data.
Setting: American College of Surgeons National Surgical Quality Improvement Program (NSQIP) database.
Patients or Participants: Patients undergoing elective myomectomy for uterine leiomyomas from 2012 to 2018 were eligible. Surgery not performed by a gynecologist or with malignancy were excluded.
Interventions: N/A.
Measurements and Main Results: A total of 20,278 patients were identified as myomectomy cases. Fifty-eight percent (n=11,742) were classified as open surgery and the remaining 42% underwent laparoscopic/robotic surgery. Patients undergoing open myomectomies were more likely to be Black/African American or Unknown Race (both $p<0.01$), have hypertension requiring medication ($p<0.01$), have clean wound status ($p<0.01$) and ASA classification of 3 or above ($p<0.01$). Average operative time was longer in laparoscopic myomectomies (164 minutes vs 121 minutes, $p<0.01$). Multivariable logistic regression was used to estimate the adjusted OR (aOR) and 95% confidence interval (CI) after adjusting for operative year, race, ASA classification, OR time, BMI, and age. Open myomectomies were associated with a significantly increased risk of all post-operative complications. Patients undergoing open myomectomies had 8.15 times the risk of vascular complications (aOR 8.15, 95% CI 7.01, 9.47). This large association seemed driven largely by peri-operative transfusions (aOR 8.36, 95% CI 7.18, 9.74), though risk of VTE/PE was also significantly increased (OR 2.95, 95% CI 1.49, 5.81) when investigated separately. Patients undergoing open myomectomies were also more likely to be readmitted (aOR 1.52, 95% CI 1.19, 1.94) and undergo reoperation (aOR 1.84, 95% CI 1.27, 2.67) within 30 days of surgery.
Conclusion: Patients undergoing open myomectomies have a higher incidence of postoperative complications despite shorter operative time. Though post-operative complications are rare, minimally invasive approaches may offer a lower risk and should be considered in appropriate surgical candidates.

Plenary 5: Fibroids
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A 6-Step Technique for Smooth Transvaginal Extraction of a Fibroid in Laparoscopic Myomectomy

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Study Objective: In laparoscopic myomectomy (LM), it is necessary to devise a method to extract enucleated fibroids safely, easily, and minimally invasively. In our hospital, we don't use laparoscopic power morcellation. Before the surgery, we perform an MRI examination on all patients to rule out the possibility of malignancy. Only in cases that are considered benign, we extract enucleated fibroids via colpotomy of the posterior vaginal fornix, using scissors morcellation transvaginally. However, the poor surgical field sometimes makes extraction difficult. To counter these scenarios, we devised a technique for easy transvaginal extraction called the "Crisscross Method", making a laparoscopic incision into fibroids with a long scalpel.
Design: Step-by-step demonstration of the technique.
Setting: General hospital in Japan.
Patients or Participants: N/A.
Interventions: We use a modified diamond trocar placement. After enucleating fibroids and suturing myometrium, we use the following 6-step-technique.
1: Grasp and pull the fibroid from the bilateral side and place in a vesicouterine pouch.
2: Remove the trocar from the center abdominal port site and insert a long scalpel.
3: Make several parallel cuts in a vertical direction to the long axis, like an accordion shape. Cut 2-3cm width and deeply into four-fifths.
4: Turn the fibroid over and cut deeply into four-fifths of the center in the long axis direction.
5: Cut the connecting parts alternately to make a long snake-like shape.
6: Perform the colpotomy of the posterior vaginal fornix. Grasp the end of the cut fibroid and feed it into the vagina for extraction.
Measurements and Main Results: By using this technique, we were able to extract fibroids easily, even in the cases of huge fibroids, without power morcellation.

Conclusion: This "Crisscross Method" is effective for transvaginal extraction of fibroids in LM. The important points are preoperative evaluation by MRI examination and preoperative explanations to patients about the risks and the benefits of this minimally invasive procedure.

Plenary 5: Fibroids
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Decreased Complications and Reoperations with Minimally Invasive Myomectomy: A Population-Based Cohort

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Study Objective: To assess complication and reoperation rates after myomectomy.
Design: Population based cohort study.
Setting: All non-VA Facilities in the state of California from 01/01/2005 through 12/31/2018.
Patients or Participants: All women undergoing myomectomy in California from 01/01/2005-12/31/2018 were identified from the Office of Statewide Health Planning and Development datasets using ICD-9/10 and CPT codes.
Interventions: Demographics, facility of surgery (including volume), and approach (open vs. minimally invasive-MIS) were identified. Complications occurring within 60 days of surgery and repeat surgeries for fibroid disease (myomectomy or hysterectomy) were identified. Univariate (chi-square, t-test) and multivariate (logistic regression) analysis was performed.
Measurements and Main Results: Of the 66,012 patients identified, 5,265 (8.0%) suffered a complication. Advanced age (OR 1.01, p<0.001), Black race (OR 1.55, p<0.001), Asian race (OR 1.21, p<0.001), indigent payor status (OR 1.75, p<0.001), obesity (OR 1.21, p=0.001) and diabetes (OR 1.30, p<0.001) were independently associated with increased complication risk. MIS (OR 0.29, p<0.001) and surgery at a facility in the top tertile of surgical volume (OR 0.75, p=0.017) were associated with a decreased complication rate. The repeat surgery rate was 26.3% (22.6% myomectomy, 11.2% hysterectomy) with mean time to repeat surgery of 4.4 years. Advanced age (OR 0.97, p<0.001), MIS (OR 0.67, p<0.001), surgery at an academic center (OR 0.92, p<0.001) and facility volume in the highest tertile (OR 0.81, p=0.010) were associated with decreased risk of repeat surgery.
Conclusion: >Comorbid illness, open approach, indigent payor status and Black or Asian race were independently associated with an increased risk of a complication after myomectomy, indicating outcome disparities may exist and warrants further investigation. MIS surgery and surgery at facilities with high surgical volumes were associated with decreased rates of complications and reoperation. MIS myomectomy should be the preferred approach when possible and discussed at time of fibroid surgery counseling.

Plenary 5: Fibroids
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Durable Improvement in Generic and Fibroid-Specific Quality of Life in Women Treated with the Sonata System after Three Years

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Study Objective: To determine the longitudinal health outcomes of transcervical fibroid ablation (TFA) with the Sonata System on quality of life (QOL) as determined by quality-adjusted life years (QALYs) over 3 years.
Design: Prospective, controlled, multicenter interventional trial.
Setting: 22 Hospitals in the US (21) and Mexico (1).
Patients or Participants: 147 women who underwent TFA with the Sonata® System.
Interventions: TFA was used to ablate fibroids under clinical trial protocol.
Measurements and Main Results: Change in generic health status was assessed with the EQ-5D questionnaire (0 to 1 scale). Fibroid-specific QOL was measured on a 0 to 100 scale using the health-related quality of life (HRQL) subscale of the Uterine Fibroid Symptom and Quality-of-Life (UFS-QOL). We determined the number of QALYs gained relative to baseline by calculating the area under the curve at each follow-up visit over 3 years. We additionally determined cumulative QALYs experienced at each interval during follow-up. The SONATA trial enrolled 147 women at 22 centers who received TFA for symptomatic uterine fibroids. Fibroid-specific QOL increased from 40±21 at baseline to 83±23 at 3 years (p<0.001). Generic QOL increased from 0.72±0.21 at baseline to 0.88±0.16 at 3 years (p<0.001). Comparing outcomes at 3 years relative to baseline, TFA resulted in 1.24±0.64 QALYs gained when calculated using fibroid-specific health utility scores and 0.49±0.61 QALYs gained when calculated using generic health utility scores. Cumulative QALYs experienced at 3 years as a percentage of perfect health were 82% when using fibroid-specific scores and 88% when using generic health scores.
Conclusion: Women treated by TFA with the Sonata System for symptomatic uterine fibroids reported durable improvements in generic and fibroid-specific QOL.

Plenary 5: Fibroids
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Safety & Efficacy of Womed Leaf™, a Novel Barrier Film to Prevent Intrauterine Adhesions after Hysteroscopic Myomectomy: The PREG1 Trial.

Weyers S.,[1] Capmas P.,[2] Huberlant S.,[3] Dijkstra J.,[4] Hooker A.B.,[5] Hamerlynck T.W.O.,[6] Debras E.,[7] De Tayrac R.,[3] Thurkow A.L.,[8,9,] Fernandez H.[2]. [1]Obsetrics and Gynaecology, Women's Clinic, Ghent University Hospital, Ghent, Belgium; [2]Paris Sud University, Le Kremlin Bicetre, France; [3]Obstetrics & Gynaecology, Nimes University Hospital, Nimes, France; [4]Obstetrics & Gynaecology, Isala Hospital Zwolle, Zwolle, Netherlands; [5]Obstetrics & Gynaecology, Zaans Medisch Centrum, Zaandam, Netherlands; [6]Obstetrics & Gynaecology, Women's Clinic, Ghent University Hospital, Ghent, Belgium; [7]Obstetrics & Gynaecology, Bicêtre Hospital, Le Kremlin Bicêtre, Paris, France; [8]Gynaecology, Bergman Clinics, Amsterdam, Netherlands; [9]Obstetrics & Gynaecology, Amsterdam University Medical Centres, Amsterdam, Netherlands*
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Study Objective: The objective of this first-in-human study was to evaluate the safety of the novel intrauterine adhesion barrier film Womed Leaf™ and pilot its potential efficacy in preventing IUAs after hysteroscopic myomectomy.
Design: PREG1 is a prospective, multi-center, international, single arm clinical study. Womed Leaf™ (Womed SAS, France) is a degradable polymer film (DPF) designed for insertion into the uterus like an IUD, that self-expands to fill the cavity and separate the uterine walls. After approximately one week, it degrades to be naturally discharged through the cervix. The safety endpoint was the number of device-related Adverse Events (AE) at thirty days, and the efficacy endpoint was freedom from IUA at second look hysteroscopy at six weeks.
Setting: N/A.
Patients or Participants: 23 women over 40 years with no plans to conceive who qualified for transcervical resection of myoma (TCRM), with at

least one 10=millimeter type 0, 1 or 2 myoma, were enrolled between December 2019 and January 2021, from six centers in France, Belgium and the Netherlands.
Interventions: Women underwent TCRM, immediately followed by DPF insertion and ultrasound verification.
Measurements and Main Results: The device was successfully delivered on first attempt in all cases and the procedure was rated as easy by all operators. The DPF was visible by ultrasound in 22/23 women (96%).
There were no device-related AE. Of the 23 women, 13 noticed the DPF discharge 6 days on average after surgery, with a discomfort level of 1.9 on a scale of 10. At second look hysteroscopy, 20 of the 23 women (87%) were free of IUAs, and no residual DPF was found in the uterine cavity.
Conclusion: Womed Leaf™, the first mechanical barrier specifically designed to prevent IUA, is a novel, safe, easy to apply device with very promising initial efficacy data.

Plenary 5: Fibroids
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The Gynecologist's Role in the Workup and Management of Patients with Leiomyomas Demonstrating Fumarate Hydratase Deficiency

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Study Objective: Fumarate hydratase (FH) tumor predisposition syndrome or hereditary leiomyomatosis renal cell cancer (HLRCC) is caused by an autosomal-dominant heterozygous mutation in the FH gene. It is characterized by uterine or cutaneous leiomyomas and renal tumors. Timely diagnosis of HLRCC allows for cancer surveillance. Yet, delays in diagnosis are common in patients with isolated uterine findings. Given that leiomyomas are the most common benign tumors in reproductive-aged women, gynecologists are in an opportunistic position to detect HLRCC earlier. In this series, we present three patients with FH-deficient leiomyomas, and review the gynecologist's unique role in screening, workup, and diagnosis of HLRCC.
Design: Case Series.
Setting: Academic institution.
Patients or Participants: Three patients.
Interventions: Surgery and genetic screening.
Measurements and Main Results: Case 1
A 33-year-old with heavy menstrual bleeding and an 18cm uterine lesion presents for abdominal myomectomy. Pathological evaluation was suggestive of FH-deficient leiomyoma, which was confirmed by immunohistochemistry (IHC). She was lost to follow up.
Case 2
A 32-year-old with pelvic pain, infertility, and a submucosal fibroid presents for robotic myomectomy. Pathology and IHC confirmed a diagnosis of FH-deficient leiomyoma. Genetic testing for FH mutation was negative.
Case 3
A 52-year-old with adenomyosis unresponsive to conservative management presents for hysterectomy. Pathological evaluation was suggestive of FH-deficient leiomyoma, however IHC did not support this diagnosis. Genetic testing was negative.
Conclusion: HLRCC presents with a variation of phenotypes ranging from leiomyomas to metastatic renal cell carcinoma. Our cases underscore the gynecologist's unique role in the diagnosis of HLRCC. The majority of uterine fibroids are not associated with an increased risk malignancy. FH-deficient leiomyomas can occur in both syndromic and sporadic settings. A thorough history can identify patients at risk. Characteristic histopathological features should prompt genetic evaluation. Management requires a multidisciplinary approach and surveillance can be offered to individuals with even a suspected diagnosis in whom an FH mutation has not been identified.

Plenary 6: Hysteroscopy
(3:15 PM — 4:15 PM)

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A Framework Approach for Hysteroscopic Uterine Septum Incision: Partial and Complete

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Study Objective: To demonstrate safe and efficient techniques for hysteroscopic partial and complete uterine septum incision with electrocautery.
Design: Video instruction of hysteroscopic uterine septum incision techniques.
Setting: Academic hospital setting.
Patients or Participants: One patient with a partial uterine septum and one patient with a complete uterine septum.
Interventions: Hysteroscopic partial and complete uterine septum incision with the monopolar knife.
Measurements and Main Results: Surgical techniques that can be used to safely and efficiently incise a uterine septum and to determine when the incision is complete. For a partial uterine septum, these techniques include 1) alignment of the tubal ostia to maintain a horizontal incision plane, 2) uterine septum shortening, 3) uterine septum thinning, and 4) measurement of the residual septum length with the operating instrument to determine when the incision is complete. For a complete uterine septum, we additionally demonstrate how to make a window through the septum at the level of the internal os to incise the uterine portion while preserving the cervical portion inferiorly.
Conclusion: Uterine septum incision is typically a short procedure that can be successfully performed with operative hysteroscopy. However, if a systematic approach is not followed, the surgeon can quickly and unknowingly become disoriented which can lead to inadvertent uterine perforation, incomplete septum incision, or excessive septum incision causing myometrial thinning which has been shown to increase the risk of uterine rupture during pregnancy. The use of the techniques presented in this video help to maintain intra-operative orientation and provide a framework to guide adequate removal of the septum without causing injury to the myometrium. Review of these techniques may be particularly helpful for a surgical trainee or a less experienced hysteroscopic surgeon.

Plenary 6: Hysteroscopy
(3:15 PM — 4:15 PM)

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Changes in the Expression of Endometrial Receptivity Genes after Hysteroscopic Metroplasty in Infertile Women with Uterine Malformation

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Study Objective: To determine the effect of hysteroscopic metroplasty on the expression of endometrial receptivity genes, such as HOX family and LIF gene, in infertile women with congenital uterine malformations.

Design: a prospective observational study conducted between June 2016 and March 2020.
Setting: Tertiary care University hospital in Italy.
Patients or Participants: Forty-four patients with a diagnosis of dysmorphic uterus or uterine septum (according to the ESHRE/ESGE classification), with history of primary unexplained infertility, repeated (>2) early miscarriages, or severe preterm labor (<25w) were enrolled in the study.
Interventions: All patients underwent hysteroscopic metroplasty either in office or OR settings, in the proliferative phase. Endometrial hysteroscopic biopsy was performed immediately before the metroplasty and at the two-month follow up. The endometrial samples were immediately stored at -80°C and RT-PCR was used to evaluate the expression of each gene.
Measurements and Main Results: The metroplasty was completed in all cases, resulting in a significant optimization of uterine morphology (44/44). After hysteroscopic metroplasty, overall, 1.05-fold increase in endometrial HOX-10 expression and overall 1.09-fold increase in endometrial HOX-11 expression were detected in comparison with baseline values. The mRNA expression level of LIF gene resulted under expressed, with a -1.12-fold decrease.
Conclusion: Our data demonstrate that hysteroscopic metroplasty provides favorable effect on endometrial HOXA-10 and 11 mRNA expression. These preliminary data suggest that hysteroscopic metroplasty could induce an important uterine remodeling involving not only macroscopic but also microscopic changes.

Plenary 6: Hysteroscopy
(3:15 PM — 4:15 PM)

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Hystero-Embryoscopy: Evaluation and Evacuation of Spontaneous Missed Abortions

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*Corresponding author:

Study Objective: To demonstrate the steps for hystero-embryoscopic evaluation of a 7-week spontaneous missed abortion and evacuation of the products of conception. Illustrate the surgical technique and highlight its advantages in improving the evaluation of spontaneous missed abortions.
Design: Video case presentation and demonstration of surgical technique.
Setting: Video-hysteroscopy.
Patients or Participants: Patient provided consent for the video and publication.
Interventions: Following vaginoscopy, the cervix is approached without prior blind cervical dilation. Using a 2.9 mm diameter hysteroscope, navigation from the endocervix to the endometrial cavity is performed. The endometrial cavity is thoroughly inspected revealing an intact gestational sac and submucosal fibroids. The operative grasper is introduced, the chorion and amnion are penetrated and embryoscopy is performed. In-flow in reduced for external morphological inspection of the embryo; it is then grasped and retrieved. The procedure is continued by introducing of a 26-french bipolar resectoscope. The product of conception are excised without electricity and sent for histologic and genetic studies.
Measurements and Main Results: Cytogenic analysis for this case revealed a female embryo with trisomy 15. No maternal and fetal cell admixture was noted in the analysis, allowing a precise diagnosis.
Conclusion: Hystero-embryoscopy is a valuable diagnostic and therapeutic procedure for cases of missed abortion. It may reveal embryonic morphological abnormalities, expand the diagnostic spectrum in the evaluation of pregnancy loss and avoid potential complications from blind curettage.

Plenary 6: Hysteroscopy
(3:15 PM — 4:15 PM)

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Hysteroscopic Resection vs Blind Dilation and Curettage (D&C) for Treatment of Cesarean Scar Pregnancy: A Randomized Clinical Trial

Di Spiezio Sardo A.,[1,] Mastantuoni E.,[2] Saccone G.,[1] Ferrara C.,[3] Zizolfi B.,[1] De Angelis M.C.,[1] Zullo F.,[4] Bifulco G.[1]. [1]University of Naples "Federico II", Naples, Italy; [2]University of Naples Federico II, Naples, Italy; [3]University of Naples, Naples, Italy; [4]University Magna Graecia, Napoli, Italy*
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Study Objective: To compare the success rate of hysteroscopic resection vs dilation and curettage (D&C) for treatment of cesarean scar pregnancy (CSP).
Design: Parallel-group randomized clinical trial conducted from February 2020 to February 2021 (Clinicaltrials.gov NCT04205292)
Setting: Women admitted with diagnosis of CSP at a single center in Italy.
Patients or Participants: Inclusion criteria were women with singleton CSP and positive embryonic/fetal heart activity, gestational age <8 weeks and 6 days at the time of randomization, and thickness of myometrial layer ≥1mm. Patients were randomized 1:1 to receive either hysteroscopic resection or D&C. A sample size of 54 women was planned. After one year of enrollment an interim analysis was performed, and 17 women were included.
Interventions: In both groups, 50mg/m2 (based on DuBois formula for body surface area) of methotrexate (MTX) was injected intramuscularly at the time of randomization (day 1) and another dose at day 3. A third dose of MTX was planned in case of persistence of positive fetal heart activity at day 5. Women received D&C or hysteroscopic resection using 15 Fr bipolar mini resectoscope from 3 to 7 days after the second or third dose of MTX. Ultrasound guidance was used in both groups, if needed.
Measurements and Main Results: The primary outcome was the success rate of the treatment protocol, defined as no further treatment required until the complete resolution of the CSP. Success rate was 100% in the hysteroscopic resection group and 75.0% in the D&C group (OR 7.31, 95% CI 0.30-178.57) (Table).
Conclusion: Hysteroscopic resection was associated with increase in success rate of treatment of CSP, even if the statistical significance was not reached in this preliminary analysis.

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	Hysteroscopic resection N=9	D&C N=8
Success rate	9(100%)	6(75.0%)
Failure rate	0	2(25.0%)*
Hysterectomy	0	1(12.5%)
Intraoperative complications	1 (11.1%)**	0
Length of stay (days)	11.5±3.6	10.8±2.7

* *One hysterectomy, and one laparotomic uterine segmental resection*
** *Hemorrhage >500 mL*

Plenary 6: Hysteroscopy
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Hysteroscopy for Retained Products of Conception

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*Corresponding author:

Study Objective: To describe benefits of hysteroscopy over blind D&C in management of retained products of conception (RPOC), identify the role of hysteroscopy in managing RPOC in special populations, and differentiate various hysteroscopic techniques (resectoscopes, cold loop, mechanical tissue removal systems) for management of RPOC.
Design: Surgical video.
Setting: Academic tertiary care hospital.
Patients or Participants: Surgical footage was obtained from four patients who underwent surgery for retained products of conception.
Interventions: Hysteroscopic resection of retained products of conception in complex patient populations using different techniques.
Measurements and Main Results: Hysteroscopy allows direct visualization with targeted removal of RPOC to minimize trauma to the endometrium, resulting in significantly less likelihood of developing intrauterine adhesions compared to blind D&C. It can also be performed in an inpatient or outpatient setting, improving patient access to care.
Conclusion: Advantages of hysteroscopic management of retained products of conception include reduced risk of persistent RPOC, reduced incidence of intrauterine adhesions and other complications, and utility in an inpatient or outpatient setting.

Plenary 6: Hysteroscopy
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Ultrasound-Guided Hysteroscopy in the Complex Uterine Isthmus

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Study Objective: Demonstrate clinical consideration, operative setup and techniques for safe hysteroscopic navigation through the complex uterine isthmus.
Design: Video.
Setting: Operative hysteroscopy under general anesthesia with simultaneous ultrasound and hysteroscopic guidance.
Patients or Participants: 33-year-old G1P1 with history of cesarean delivery, chorioamnionitis, multiple D&C, endometriosis presents for management of secondary infertility with cervical stenosis and isthmocele obstructing embryo transfer.
Interventions: Ultrasound-guided hysteroscopic cervical dilation.
Measurements and Main Results: Despite simultaneous stenosis and isthmocele, cervical dilation and access to the uterine cavity was obtained safely without perforation, permitting planned embryo transfer.
Conclusion: Advanced hysteroscopy requires care pre- and intraoperative planning, use of simultaneous multi-modal imaging and knowledge of safety parameters of all available instrumentation.

Plenary 7: New Instrumentation & Technology
WEDNESDAY, NOVEMBER 17, 2021

(11:00 AM — 12:30 PM)

11:04 AM

Comparison between Robotic Single-Port Myomectomy Using New da Vinci SP® Surgical System and Robotic Multi-Site Myomectomy

Park S.Y.,[1,] Yoo H.,[1] Cho E.H.,[1] Lee J.H.,[1] Jeong K.,[2] Moon H.S.[1].*
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Study Objective: To compare the perioperative outcomes of the robotic single-port myomectomy (RSPM) using the new da Vinci SP® surgical system with those of the robotic multi-site myomectomy (RM) using the da Vinci Xi® surgical system.
Design: Multicenter retrospective case-controlled study.
Setting: A university tertiary care hospital.
Patients or Participants: A total of 101 patients were enrolled. 67 patients underwent RSPM and 34 patients underwent RM at November 2018 to May 2020 were included.
Interventions: All patients underwent robotic myomectomy who diagnosed uterine myoma with target size that the instrument could operate by entering the umbilicus. The choice of surgical modality was not influenced by the patient's history of previous abdominal surgery, body mass index, uterus size, location or type of myoma, or myoma size.
Measurements and Main Results: RSPM vs. RM patients demographics had no difference significantly in mean age, BMI, maximal diameter of myoma and total number of myomas. In terms of surgical outcomes, RSPM and RM has comparable in EBL (50 mL vs. 150 mL, $p < 0.05$), Hemoglobin change (2.2±0.8 g/dl vs. 2.6±1.1 g/dl, p=0.046), operative time (105 min vs. 110 min, $p = 0.001$). Post-operative complication, conversion to laparotomy rate, tranfusion rate were similar between the two groups.
Conclusion: Robotic single-port myomectomy using new da Vinci SP® surgical system is feasible surgical modality as like as multi-site myomectomy. Further studies are needed to confirm these preliminary results and to determine the proper indications for the surgery.

[Table] Surgical outcomes.

	Multi-site myomectomy	Single-port myomectomy	*P-value*
Docking time (min)	2.8 (2.7-3.0)	2.8 (2.7-2.9)	0.530
Console time (min)	45.0 (35.0-62.0)	40.0 (26.0-67.0)	0.007
Total operation time (min)	110.0 (97.5-125.0)	105.0 (85.0-135.0)	0.001
Estimated blood loss (ml)	150.0 (100.0-300.0)	50.0 (50.0-100.0)	<0.001
Hemoglobin change (g/dl)	2.6±1.1 (0.6-5.2)	2.2±0.8 (0.5-3.6)	0.046
Hospitalization period (days)	5.0 (3.5-6.5)	5.0 (5.0-5.0)	0.271
Conversion to laparotomy rate, n (%)	0 (0.0%)	0 (0.0%)	ns
Transfusion, n (%)	1(2.9%)	4(6.0%)	0.661

Plenary 7: New Instrumentation & Technology
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11:11 AM

Excision of an Occult, Obstructed Hemivagina Under Laparoscopic Ultrasound Guidance in a Patient with Ohvira Syndrome

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Study Objective: To demonstrate the use of laparoscopic ultrasound guidance for identification and excision of an oblique vaginal septum in a patient with a congenital uterine anomaly.
Design: Case presentation.
Setting: Academic-affiliated tertiary care center.
Patients or Participants: A 27-year-old P0000 who presented to an outside facility with 7 months of abnormal uterine bleeding, pelvic pain, and increased vaginal discharge. A complex left adnexal mass was seen on ultrasound. The patient was taken to the OR and found to have a uterine

didelphys, pelvic wall adhesions, and a 3cm left ovarian cyst. Three months later, when the patient had persistent LLQ pain, MRI demonstrated presence of a double cervix, obstructed and dilated left hemivagina, and left renal agenesis. Referral to a tertiary center was made for further evaluation.

Interventions: At the tertiary center, diagnostic hysteroscopy through the single visible cervix demonstrated a right uterine cavity and ostium. Transvaginal ultrasound did not identify the hematocolpos in a way that aided surgical exploration. During diagnostic laparoscopy, a BK 4-way 10mm OD articulated laparoscopic ultrasound transducer (I12C4F) was attached to the BK 5000 imaging system. The transducer was directed toward the pelvic floor revealing the minimally dilated hematocolpos allowing for image-guided positioning of a needle and injection of sterile water making the mass adequately tense to allow easy identification via the vagina. A portion of the oblique vaginal septum was removed, the opening was secured with interrupted absorbable sutures, and hysteroscopy was performed on the left side through the exposed left cervix demonstrating a left uterine cavity and ostium.

Measurements and Main Results: The patient did well postoperatively. Both cervices were readily seen and the area of resection healed appropriately. No further interventions anticipated.

Conclusion: This video demonstrates the utility of laparoscopic ultrasound to assist with the management of selected Müllerian anomalies, particularly when important features may not be palpable or visible vaginally, hysteroscopically, or laparoscopically.

Plenary 7: New Instrumentation & Technology
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11:18 AM

In-Person Versus Video Preoperative Visit: A Randomized Clinical Trial

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Study Objective: To determine if preoperative video visits are non-inferior to in-person visits in preparing women for pelvic reconstructive surgery as measured by a preoperative preparedness questionnaire (PPQ). Secondary objectives included patient satisfaction, convenience, visit duration, total perioperative visits, and patient travel time and distance.

Design: Non-inferiority randomized controlled trial.

Setting: Preoperative counseling visit.

Patients or Participants: Women planning to undergo pelvic reconstructive surgery.

Interventions: Participants underwent either preoperative in-person versus video counseling. The primary outcome was composite score of the Preoperative Preparedness Questionnaire (PPQ). Postoperatively, the preoperative subsection of the Consumer Assessment of Healthcare Providers and Systems Surgical Care Survey (SCAHPS) was completed. Six weeks postoperatively, total in-person visits, patient-initiated phone calls, and nurse-initiated phone calls were calculated. Round-trip travel time and distance from home to office were calculated. Sample size calculation was 118 subjects to detect a 9-point difference in PPQ composite scores with 80% power and α=0.05.

Measurements and Main Results: Between July 2019 and November 2020, 691 women were screened, 118 were randomized with 59 in each group. Demographics were similar between groups. Video visits were non-inferior to in-person visits in PPQ scores (63.0 vs 62.5, 95% CI 0.5 (-0.8,) p=0.49). Satisfaction was higher for video visits based on composite SCAHPS scores (30.5±2.1 vs 31.3±1.5, p=0.02). Video visits were more convenient (85.2% vs 100%, p=0.01) and of shorter duration for participants (55.9±18.9 vs 37.7±10.3min vs, p<0.01). The video group had fewer office visits than the in-person group (3.0 [2.0,3.0] vs 2.0 [1.0,2.0], p<0.01) and traveled 66 minutes (p<0.01) and 28 miles (p<0.01) less. There were no differences in patient-initiated calls or nurse-initiated calls between groups (1.0 [0.0,2.0] vs 1.0[1.0,3.0], p=0.88, 1.0[1.0,2.0] vs 1.0[1.0,2.0], p=0.50 respectively).

Conclusion: Video preoperative visits are non-inferior to in-person preoperative visits for preparing women to undergo pelvic reconstructive surgery and increase convenience.

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Intraureteral Indocyanine Green (ICG) in Benign Gynecologic Surgery

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*Corresponding author:

Study Objective: To demonstrate the use of intraureteral indocyanine green (ICG) in gynecologic surgery

Design: Educational video highlighting a surgical technique.

Setting: Academic medical center.

Patients or Participants: Women undergoing laparoscopic pelvic surgery for benign gynecologic indications including both conventional and robotic approaches. We use this in our practice in cases where significant distortion of anatomy from presenting pathology is anticipated or in the setting of patient factors including multiple prior surgeries, radiation, active inflammation, or congenital anomalies.

Interventions: At the start of the procedure, rigid cystoscopy is performed using a 22 French rigid cystoscope. We combine 25 mg of ICG with 10 mL of sterile water (concentration of 2.5 mg/mL). A 5 French ureteral catheter is passed into the ureter up to 20 cm and 5 mL of ICG is gradually injected as the catheter is slowly withdrawn. This process is repeated in the contralateral ureter. Using specialized equipment, near infrared light or laser penetrates the ureter causing the ICG molecules fluoresce and emit near infrared light that is captured and electronically converted to give the ureter a green color.

Measurements and Main Results: The fluorescence of the ICG allows for quick identification of the ureter. The catheter used may have a smaller diameter than stents, potentially reducing risk of ureteral edema, injury, and obstruction. Indwelling stents also have greater likelihood of thinning the ureteral wall. ICG allows for detection of small full thickness injury that may be missed by stents as extravasation will present in the surrounding tissues. There are fewer externalized foreign bodies intraoperatively for a shorter duration of time, potentially reducing risk of infection or inadvertent injury. Limitations include the need for specialized equipment and possible washout effect with ICG used intravenously or intracervically.

Conclusion: Intraureteral ICG helps identify the ureter intraoperatively during benign gynecologic surgery with low risk of complications and potential benefits in comparison to stents.

Plenary 7: New Instrumentation & Technology
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11:32 AM

Medical Treatment of Uterine Arteriovenous Malformation: A Systematic Review and Meta-Analysis

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Study Objective: To quantify the efficacy of medical management of uterine arteriovenous malformation (AVM) and compare efficacy between different classes of medication. We also evaluated for factors associated with treatment success and pregnancy outcomes following medical management.
Design: Systematic review and metanalysis.
Setting: Not applicable.
Patients or Participants: Thirty-two studies representing 121 premenopausal women with medically treated uterine AVM were identified via database searches of MEDLINE, Embase, Web of Science and cited references.
Interventions: Medical treatment with progestins, gonadotropin-releasing hormone agonists (GnRH-a), methotrexate, combined hormonal contraception (CHC), uterotonics, danazol, or combination of the above.
Measurements and Main Results: The primary outcome of treatment success was defined as AVM resolution without subsequent procedural interventions. Secondary outcome was treatment complication (readmission or transfusion). The unadjusted overall success rate of medical management was 88% (106/121), while individual agent success rates were progestins (82.5%), GnRH-a (89.3%), methotrexate (90.9%), CHC (42.8%), uterotonics (100%), and danazol (66.6%). After adjusting for clustering effects, success rates for progestin (82.5%, 95% CI 70.1% to 90.4%, <0.001), GnRH-a (89.3%, 95% CI 71.4% to 96.5%, p<0.001) and methotrexate (90.0%, 95% CI 55.8% to 98.8%, p=0.028) were significantly different from the null hypothesis of 50% success. In a pairwise comparisons, progestins (OR 6.29, 95% CI 1.19 to 33.17, p=0.030) and GnRH-a (OR 11.13, 95% CI 1.63 to 76.10, p=0.014) were more efficacious compared to CHC. The agents with the lowest adjusted proportion of complications were progestins (10.0%, 95% CI 3.3% to 26.8%, p<0.001) and GnRH-a (10.7%, 95% CI 3.5% to 28.4%, p<0.001). No clinical factors were found to predict treatment success. Twenty-six subsequent pregnancies are described, with no reported recurrences of AVM.
Conclusion: Primary medical management for symptomatic uterine AVM is a reasonable approach in a well selected patient. This data should be interpreted in the context of significant publication bias.

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Neural Network Image Segmentation Model for Laparoscopic Gynecological Surgeries

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*Corresponding author:

Study Objective: This study aimed to develop the first mask r-cnn convolutional neural network model to predict laparoscopic structures in a controlled environment. We used state of the art technologies used in self-driving vehicles applied to the surgical field in a completely novel approach.
Design: A total of 227 images and 2674 labels from 28 surgeries were used to train the model with the assistance of the LabelMe Image Polygonal Annotation tool and Facebook Research's Detectron2 Library for python 3.7. The mask r-cnn model was trained for 10.000 iterations over a period of 1 hour and 33 minutes. This process generated a PTH file, which includes a series of functions and weights, enabling the execution of the prediction model over images and videos, as well as real-time video prediction.
Setting: N/A.
Patients or Participants: A total of 28 individual patient's surgeries were included in the training dataset for the model.
Interventions: N/A.
Measurements and Main Results: Besides achieving a high accuracy (95.22%), this is far from what would be reasonably acceptable in a real-life procedure. The same could be argued about the false positive (4.94%) and false negative (4.85%) results. However, these findings serve as a proof of concept that with more data, powerful machines and training time, a very robust general purpose model could be created to be used during laparoscopic procedures. Furthermore, we also collected the individual average precision (AP) values for each of the 31 categories that were trained. The highest AP was observed in the liver (87.63%) and the lowest in the obliterated umbilical artery (48.32%).
Conclusion: Our findings confirm that a high accuracy anatomy model can be developed using the mask r-cnn technology with sufficient training data. Thus, these technologies can be of great use to surgeons in near future. However, further research must be conducted using real-world data.

Plenary 7: New Instrumentation & Technology
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11:46 AM

Novel Technique of Pelvic Autonomic Nerve-Sparing with Near-Infrared Fluorescence Technology and ICG during Deep Endometriosis Surgery

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Study Objective: To describe the anatomical and technical highlights of a novel nerve-sparing surgery for deep endometriosis (DE) using near-infrared (NIR) fluorescence technology and indocyanine green (ICG).
Design: Stepwise demonstration of a technique.
Setting: An urban general hospital. ICG is a fluorescent dye that allows accurate, intraoperative, real-time assessment of tissue vascularization, once excited with light of a specific wavelength in the near-infrared spectrum. NIR fluorescence technology and ICG have been confirmed as feasible, safe, and useful tools to guide surgery in several settings, including colorectal and urologic surgeries. However, no reports have discussed pelvic autonomic nerve-sparing surgery using this tool in the gynecological field.
Patients or Participants: Stage IV endometriosis patients with parametrial involvement.
Interventions: An intravenous injection of 0.25mg/kg body weight of ICG for intraoperative NIR fluorescence imaging. Pelvic autonomic nerves were highlighted by ICG because these nerves are surrounded by many capillaries.

Measurements and Main Results: Evaluation of blood perfusion of DE nodules and achieving better visualization of anatomical relationship to the pelvic autonomic nerves. We could easily identify ischemic nodules which included DE and fibrosis under NIR fluorescence imaging, beyond the limits of macroscopic disease. Endometriosis or fibrosis was confirmed pathologically from all resected tissues, and resection margins of these tissues were negative for disease. These results suggest that this technique might be feasible for objectively identifying the border between DE lesions and healthy tissue. Furthermore, the hypogastric nerve and inferior hypogastric plexus were strongly highlighted by ICG and objectively preserved with assessment of perfusion. The patients developed no perioperative complications, including postoperative bladder or rectal dysfunction after surgery.
Conclusion: Application of ICG with NIR fluorescence appears potentially useful, not only to remove DE, but also to improve nerve-sparing. To our knowledge, this is the first reported use of ICG during pelvic autonomic nerve-sparing surgery for gynecologic disease.

Plenary 7: New Instrumentation & Technology
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11:53 AM

Surgical Planning Via Telehealth Consultation Is Effective for Patients Undergoing Minimally Invasive Gynecologic Surgery

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Study Objective: To determine if the proposed treatment plan created for new patients during telehealth consultation concurred with the treatment plan at the subsequent in-person visit. Our secondary objectives were to determine the average time of telehealth consultation and perioperative safety.
Design: Retrospective cohort.
Setting: New patient telehealth consultations during COVID pandemic.
Patients or Participants: Women undergoing telehealth evaluation at a minimally invasive gynecologic surgical practice, with subsequent in-person examination.
Interventions: N/A.
Measurements and Main Results: The primary outcome was concurrence of treatment plan (surgical or conservative) during the initial telehealth visit with plan made at the in-person examination.
Between April and November 2020, 148 women completed new patient phone visits, and 10 completed new patient video visits. When pandemic restrictions were lifted, patients returned for in-person exam to confirm the treatment plan of surgery or conservative management. During the telehealth consultation, 138 women (87.3%) elected for surgical treatment and 111 returned for in-person follow up. 20 women (12.7%) elected for conservative treatment; four returned for in-person follow up and two changed to a surgical plan.
Overall concordance between treatment plan made at initial telehealth consultation and in-person visit was 96.5% ($p<0.01$). Of those who elected for surgery at initial consultation and completed in-person examination, 110 had surgery (99.1% concordance.) Of those who planned conservative management at initial consultation and completed in-person examination, two proceeded with conservative management (50% concordance.)
Visit duration was obtained from billing notation and was 30.4±9.7min. Ultimately, 112 women underwent surgery with few complications. There were two intraoperative complications: one EBL > 500mL and one cystotomy. Postoperatively, three women (1.9%) developed a surgical site infection, four (2.5%) were diagnosed with a urinary tract infection, and one (0.6%) returned to the OR for small bowel obstruction.
Conclusion: Telehealth consultations performed at a minimally invasive gynecologic surgery practice are an effective modality for safe surgical planning.

Plenary 7: New Instrumentation & Technology
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12:00 PM

Treatment of a Cesarean Scar Pregnancy Using Microwave Ablation—a Novel Solution to a Complex Problem

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Study Objective: The aim of this presentation is to demonstrate a safe, minimally invasive, and immediately effective treatment option for cesarean scar pregnancy (CSP) using transvaginal microwave ablation.
Design: case presentation.
Setting: monitored care anesthesia, dorsal lithotomy position.
Patients or Participants: A 30-year-old G4P3 with severe obesity and three prior cesarean sections presented with a positive home pregnancy test, vaginal bleeding and cramping and was diagnosed with a CSP by transvaginal ultrasound. Imaging showed a fetal pole measuring 6w2d gestational age with fetal cardiac activity, and a 5 mm distance between the gestational sac and bladder serosa. The patient was extensively counseled regarding possible management options, at which time Interventional Radiology was consulted. Upon further evaluation and MRI imaging, she was deemed a candidate for novel treatment using transvaginal microwave ablation of the gestational sac.
Interventions: Using the Emprint™ Ablation System, an antenna needle was attached to a transvaginal ultrasound probe and directly inserted into the gestational sac. The ablation zone was adjusted to incorporate the entire gestational sac and microwave ablation was performed. Total treatment time was 72 seconds.
Measurements and Main Results: Immediate post-ablation ultrasound revealed total collapse of the gestational sac with only scant bleeding at the puncture site. Her overall postoperative recovery was unremarkable. Serial beta-hCG levels dropped precipitously from 13,048 before the procedure to 6,693 on postprocedure day 1 and 1,059 on postprocedure day 2, eventually resolving completely by postprocedure day 13.
Conclusion: The goal of this presentation is to demonstrate the novel use of transvaginal microwave ablation for cesarean scar pregnancies. This is a minimally invasive procedure that is quick, safe, and provides immediate resolution of a CSP without requiring prolonged surveillance after treatment. Further studies are required to showcase the true efficacy and safety of this technology as well as to determine its effects on future fertility.

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Utilizing Augmented Reality to Create an Effective Simulator in Uterine Manipulation

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*Corresponding author:

Study Objective: Demonstrate the components of an innovative uterine manipulation simulator
Design: NA.
Setting: NA.
Patients or Participants: NA.
Interventions: The key component of the simulator is a frame that suspends a ring-core with springs that simulate the ligaments of the uterus and pelvic diaphragm. This allows for the user to apply pressure in a similar fashion as they would in an actual case. A uterine model is attached to one side of the suspended ring, and any commercial uterine manipulator can be inserted through the other end. The frame is attached to a box with a fixed camera that simulates the view one would have during laparoscopic surgery. A layer of image recognition and augmented reality software is added to the video-feed, which allows for gamification of the experience, standardize tasks, and record objective measurements on performance.
Measurements and Main Results: NA.
Conclusion: Uterine manipulation is an important area of opportunity, where further education and training for new learners via simulation may lead to improved performance in the operating room.

Plenary 8: Urogynecology
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A Stepwise Approach to Lefort Colpocleisis

Benlolo S.,[1,2,] Miazga E.,[1,2] Epp A.,[3] Nensi A.,[1] Soroka D.[2,4]. [1]Obstetrics and Gynecology, St. Michael's Hospital, Toronto, ON, Canada; [2]University of Toronto, Toronto, ON, Canada; [3]University of Saskatchewan, Saskatoon, SK, Canada; [4]St. Michael's Hospital, Toronto, ON, Canada*
*Corresponding author:

Study Objective: The objective of this educational video is to describe the technique and required equipment for performing a LeFort partial colpocleisis using surgical footage as well as a low-cost surgical model.
Design: Educational surgical video.
Setting: Canadian academic medical centre.
Patients or Participants: This educational video was created using surgical footage as well as a low cost, reproducible surgical model.
Interventions: Using surgical footage and low-cost surgical model, we demonstrate a LeFort partial colpocleisis in six steps. (1) Proper patient positioning, (2) mark rectangular resection area, (3) dissect and resect vaginal epithelium, (4) place red rubber catheter to allow for lateral channels, (5) reduce prolapse using sequential pursestring sutures, (6) perineorrhaphy.
Measurements and Main Results: N/A.
Conclusion: Conclusion: Pelvic organ prolapse affects the quality of life of many patients, and one in nine will require corrective surgery by the age of 80. LeFort partial colpocleisis is a highly successful, minimally invasive surgical approach that is indicated in patients with pelvic organ prolapse who are no longer having vaginal intercourse and/or have comorbidities that prohibit a more extensive procedure. This video provides a stepwise approach to performing a LeFort partial colpocleisis.

Plenary 8: Urogynecology
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Laparoscopic Sacrospinous Ligament Hysteropexy

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Study Objective: Demonstrating the laparoscopic technique for a sacrospinous ligament hysteropexy.
Design: Surgical video.
Setting: Laparoscopic surgery.
Patients or Participants: Our patient is a 56 y.o. multiparous caucasian female with a BMI of 19 kg/m^2. She was found to have stage 3 uterine prolapse with the leading edge of the cervix at +2 cm (POP-Q Point C = +2). She had a history of colon cancer treated with partial colectomy, reanastomosis, and chemoradiotherapy. Uterosacral ligaments were attenuated on pre-op assessment. Uterine preservation was opted. Sacrohysteropexy with mesh was not recommended due to the risk of fistula formation in the context of her extensive pelvic radiation history. Anterior repair with concomitant sacrospinous hysteropexy was offered instead.
Interventions: Laparoscopic sacrospinous hysteropexy using FiberWire® permanent suture
Measurements and Main Results: Adequate suspension of the uterus - POP-Q Point C = -5 post-hysteropexy
Conclusion: Laparoscopic sacrospinous hysteropexy is a safe and feasible option for uterine suspension in patients who desire uterine preservation.

Plenary 8: Urogynecology
(2:00 PM — 3:00 PM)

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Patient and Surgical Characteristics Associated with Delay or Cancellation of Elective Gynecologic Surgeries Due to the COVID-19 Pandemic

Kim R.S., Chaoul J., Wood E., Ascher-Walsh C.J. Icahn School of Medicine at Mount Sinai, New York, NY*
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Study Objective: This study aims to identify patient characteristics associated with length of delay or not returning for elective benign gynecologic surgical procedures that were canceled due to the COVID-19 pandemic.
Design: Retrospective review of electronic medical records.
Setting: Academic, urban, tertiary hospital system.
Patients or Participants: Between March 15, 2020, and May 15, 2020, all elective surgical procedures were canceled due to resource limitations. Electronic medical records were reviewed through November 15, 2020, to assess whether patients rescheduled or did not come back for surgery within the following six-month period.
Interventions: N/A.
Measurements and Main Results: 219 benign gynecologic surgeries were canceled between March 15 and May 15, 2020. 158 (72%) patients returned within the following six months for their procedure, and 61 patients (28%) did not return. Among patients who rescheduled, the length of delay was not correlated with age, race/ethnicity, or route of surgery. There was, however, sufficient data to conclude that length of delay differed by primary indication of surgery (p=.0173). There was an association between not returning for surgery and primary indication of pelvic organ prolapse/ incontinence repair (p=.0203).
Conclusion: The majority of patients rescheduled their procedure within six months following the peak of the COVID-19 crisis. The primary indication of pelvic organ prolapse and incontinence was associated with a decreased likelihood of returning for surgery within six months.

Plenary 8: Urogynecology
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Recurrent Paravaginal Abscess: An Unusual Presentation of a Distal Ectopic Ureteral Remnant after Prior Nephrectomy

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Study Objective: Describe a patient with OHVIRA syndrome and demonstrate the surgical technique used to treat her paravaginal abscess and remnant ectopic ureter.
Design: Video case-presentation.
Setting: Academic hospital.
Patients or Participants: Single patient.
Interventions: Surgery.
Measurements and Main Results: We describe a patient who initially presented at the onset of menarche with cyclic abdominopelvic pain. She was diagnosed with uterine didelphys with obstructed right hemivagina. She underwent a vaginoplasty, which was followed by postoperative urinary incontinence. Further work-up indicated a dysplastic right kidney with ectopic ureter to the right vaginal sidewall, correlating with diagnosis of OHVIRA syndrome. She then represented at 21 years old with chronic vaginal drainage. She underwent an extensive evaluation including imaging as well diagnostic procedures, including: cystovaginoscopy, hysteroscopy and laparoscopy. She was tested for sexually transmitted diseases, put on multiple courses of antibiotics, and had two drains placed with recurrence of drainage. When she finally presented to our facility, there was concern for abscess secondary to remnant distal ectopic ureter into the vagina. She underwent an office examination and vaginoscopy, confirming drainage from a right vaginal ostium. She was counseled and ultimately underwent a robotic assisted laparoscopic excision of paravaginal abscess and remnant of distal right ectopic ureter. She did well postoperatively. Interval CT scan on post-operative day 15 demonstrated fluid collection, which was drained by interventional radiology. The fluid collection resolved, drain removed and she has had no further recurrence of drainage.
Conclusion: This is an unusual presentation of a recurrent paravaginal abscess in the setting of prior partial right ectopic ureterectomy. We describe the innovative and successful surgical technique used to identify and excise the paravaginal abscess and distal ectopic ureter. Highlighting this patient's unique anatomy and the importance of complete resection of an ectopic ureter to the vagina at the time of nephrectomy due to potential risk of ascending chronic infection and abscess formation.

Plenary 8: Urogynecology
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Robotic-Assisted Laparoscopic Rectal Prolapse Repair in a Patient with Indiana Pouch.

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Study Objective: To highlight the surgical techniques for ventral rectopexy with sacrocolpopexy in the face of extensive abdomino-pelvic adhesions and to present the use of strattice reconstructive tissue matrix as a viable option in a patient with significant previous abdominal surgeries and decreased peritoneum available for mesh coverage.
Design: Surgical video presentation.
Setting: Academic tertiary care center.
Patients or Participants: We present a 26-yo nulliparous patient with recurrent rectal prolapse. She had failed a previous rectopexy repair 4 years prior. Her medical history is significant for Ehlers Danlos Syndrome, chronic pelvic pain and interstitial cystitis refractory to medical management. This prompted surgical interventions in the form of hysterectomy with bilateral salpingectomy, cystectomy and creation of an Indiana Pouch.
Interventions: Evaluation with a dynamic MRI proctogram showed pelvic floor laxity with a moderate anterior rectocele and large enterocele. At laparoscopy there was significant adhesions of omentum and bowel to the anterior abdominal wall, extending into the pelvis. Careful lysis of adhesions was started laparoscopically in order to create safe entry points for the robotic trocars and to delineate the anatomical landmarks for the rectopexy and sacrcolpopexy.
Prolene mesh was secured to the exposed levator ani muscles, attached to the rectal wall and then extended to the sacral promontory. Strattice mesh was then fashioned and extended from the back of the pubic symphysis to the sacral promontory.
Measurements and Main Results: The patient was discharged on post op day 1 and at her postoperative review she was recovering well with no bowel dysfunction or rectal prolapse symptoms. Her Indiana Pouch remained functional.
Conclusion: The safety and feasibility of a robotic-assisted laparoscopic rectopexy was demonstrated in this surgical video even with extensive pelvic adhesive disease. Strattice matrix can safely be used to separate Prolene mesh from the intra-abdominal contents therefore, minimizing postoperative morbidity and increasing the chances of good functional outcomes.

Plenary 8: Urogynecology
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Suprapubic-Assisted Transurethral Excision of Eroded Transvaginal Cerclage Suture

Ramirez-Caban L.C.,[1,*] *Malekzadeh M.,*[1] *Hurtado E.*[2]. [1]*Gynecology, Cleveland Clinic Florida, Fort Lauderdale, FL;* [2]*Gynecology, Cleveland Clinic Florida, Weston, FL*
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Study Objective: To demonstrate our minimally invasive technique for excision of eroded transvaginal cervical cerclage suture through the bladder mucosa using a suprapubic-assisted transurethral approach.
Design: A narrated, stepwise video demonstration of our suprapubic-assisted transurethral technique.
Setting: Transvaginal cervical cerclage is a common treatment for cervical insufficiency. Complications such as erosion are rare as the duration of treatment is typically several months, with cerclage placement in the second trimester and complete removal prior to the onset of labor. Retained suture can lead to erosion through the vaginal epithelium and into other organs as seen in our case. Our technique offers a minimally invasive approach for excision of eroded transvaginal cervical cerclage suture through the bladder mucosa.
Patients or Participants: A single patient was included as part of this case.
Interventions: Suprapubic-assisted transurethral approach for excision of eroded transvaginal cervical cerclage suture through the bladder mucosa with key strategies for successful outcome.
1. A Carter-Thomason device can be used as a minimally invasive approach for suprapubic assistance in lieu of suprapubic trocar or suprapubic incision.
2. Rigid biopsy forceps can be used for improved traction at the time of eroded suture removal from the bladder mucosa.
3. For efficient excision, utilize countertraction on the suture with both suprapubic assistance and the biopsy forceps.
4. A Methylene Blue test should be performed to evaluate for a vesicovaginal fistula after excision of suture.
Measurements and Main Results: N/A.
Conclusion: A suprapubic-assisted transurethral approach can be used as a minimally invasive technique for excision of eroded transvaginal cervical cerclage suture through the bladder mucosa.

Open Communications 2: Fibroids
(11:00 AM — 12:30 PM)

11:04 AM

Cervical Fibroid Myomectomy

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Study Objective: This video reviews various techniques to reduce risk of blood loss and injury when performing a laparoscopic cervical myomectomy.
Design: N/A.
Setting: The techniques and surgery demonstrated in this video were performed on a patient who underwent laparoscopic cervical myomectomy in an academic tertiary care center. This patient had a large (8 × 8 cm) symptomatic cervical fibroid and desired future fertility, so she opted to have a myomectomy. The size and location of this fibroid increased the risk of blood loss and damage to the ureters or bladder. Various techniques were employed during surgery to reduce these risks, and the techniques shown in this video may be helpful in similar cases.
Patients or Participants: N/A.
Interventions: Three techniques were used in this video to reduce risk of blood loss and injury to nearby structures.
First, the ureters and uterine artery are identified. Retroperitoneal dissection is performed and the ureter is isolated on its course beneath the uterine artery. Additionally, the obliterated umbilical artery is pulled which confirms the identification of the internal iliac artery and the uterine artery. By clearly identifying these structures, one can avoid injury during operation.
Second, vascular clips are temporarily applied to the uterine arteries bilaterally. This reduces blood flow to the uterus while performing the myomectomy and afterwards the clips are removed once hemostasis is ensured.
Third, vasopressin is injected below the uterine serosa to cause vasoconstriction and temporary reduction in blood flow while performing the myomectomy.
Measurements and Main Results: N/A.
Conclusion: Laparoscopic cervical myomectomy can be performed using various techniques to reduce the risk of bleeding and injury to nearby structures.

Open Communications 2: Fibroids
(11:00 AM — 12:30 PM)

11:10 AM

Laparoscopic Myomectomy: Surgical Tips and Tricks

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Study Objective: The objective of this video is to provide surgical and suturing tips for successful laparoscopic myomectomy of an enlarged fibroid uterus.
Design: Video case presentation.
Setting: The surgery in this video was performed in the operating room at an academic medical center. The patient was positioned in dorsal lithotomy position. Laparoscopic myomectomy and closure were completed using a 12mm umbilical port, a 12mm left lower quadrant port, a 5mm left upper quadrant port, and a 5mm right lower quadrant port.
Patients or Participants: The patient is a 38-yo G0 with symptomatic uterine fibroids including heavy menstrual bleeding and bulk symptoms, desiring future fertility. She had a preoperative pelvic MRI demonstrating a 15cm multifibroid uterus with 6 fibroids, the largest being a 7.5cm Type II-V fibroid at the uterine fundus. She's had a prior laparoscopic right salpingo-oophorectomy for an ovarian stromal tumor and reports that 2 small fibroids were also removed at that time.
Interventions: Laparoscopic enterolysis, laparoscopic myomectomy
Measurements and Main Results: This patient underwent an uncomplicated laparoscopic myomectomy. Total operative time was 201 minutes. Estimated blood loss was 100cc. Eight fibroids were removed, weighing 459g. The endometrial cavity was entered, and she will need a cesarean section with future deliveries. The patient was doing well at her 2-week post-operative visit with improvement in pelvic pain and bleeding. She will have an in-office flexible hysteroscopy 3 months post-op during the early proliferative phase prior to pursuing fertility goals.
Conclusion: Laparoscopic myomectomy of a large fibroid uterus can be successfully completed with minimal blood loss using the techniques described in this video. Closure of deep myometrial and endometrial defects can be done under good visualization utilizing ipsilateral ports for efficient suture placement and recovery.

Open Communications 2: Fibroids
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Pregnancy Outcomes Following Minimally Invasive Vs Open Myomectomy

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Study Objective: The impact of myomectomy on subsequent pregnancies, whether performed open or minimally invasively, is not fully understood. We aim to characterize pregnancy outcomes and complications following myomectomy.
Design: We performed a retrospective review of all patients who underwent myomectomy from 2010-2018 (n=881) and identified all patients who had a subsequent delivery greater than 24 weeks (n=147). Operative reports and discharge summaries were reviewed to identify surgical factors, including the use of adhesion barriers, and complications at the time of myomectomy, as well as pregnancy complications including rates and severity of adhesions at the time of C-section.
Setting: A large academic hospital.
Patients or Participants: Women who underwent myomectomy followed by delivery.
Interventions: N/A.
Measurements and Main Results: 85 patients underwent MIS myomectomy and 61 underwent open myomectomy. During pregnancy, there were no statistically significant differences in the rates of placenta accreta (P=0.578, overall rate 0.6%), placenta previa (P=0.546, overall rate 3.4%), EBL during C-section (P=0.546), or rates of complications such as fetal growth restriction (P=0.463, overall rate 1.4%), fetal demise (0.916, overall rate 1.4%), or PPROM (P=0.225, overall rate 1.4%). Adhesions noted at the time of C-section were higher in in the open group compared to the minimally invasive group (P=0.011) and rates of severe adhesions (resulting in bladder or bowel injury or requiring classical C-section) were also higher in the open group as compared to the MIS group (P=0.006). The use of intercede significantly reduced rates of clinically significant adhesions (P= 0.019) whereas the use of Seprafilm or Tisseal did not (P=0.528, 0.323 respectively).
Conclusion: The use of MIS techniques, as well as the use of the adhesion barrier intercede, reduce the rates of clinically significant adhesions at the time of C-section. Other pregnancy outcomes are not impacted by the use of minimally invasive techniques in our sample.

Open Communications 2: Fibroids
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Radiofrequency Ablation of Uterine Fibroids and Pregnancy Outcomes: An Updated Review of the Literature

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Study Objective: The purpose of this article is to provide an updated review of pregnancy outcomes after laparoscopic and transcervical radiofrequency ablation of fibroids.
Design: Literature review using PubMed/Medline.
Setting: N/A.
Patients or Participants: Patients were identified from case reports and case series of pregnancies following trials of radiofrequency ablation (RFA) devices for symptomatic uterine fibroids. The pregnancies identified represented large trials of laparoscopic and transcervical ablation from North America, Asia, Europe, and Latin America.
Interventions: Laparoscopic and transcervical radiofrequency ablation of fibroids.
Measurements and Main Results: 6 publications met criteria for inclusion, representing 11 clinical trials and 3 reports from real-world settings. 593 patients underwent RFA of fibroids, with 46 total pregnancies identified. The average age of patients was 39 years old and ranged from 27 to 46 years old. The majority of patients had between one and three fibroids ablated, and the size varied from less than 2 centimeters up to 12.5 centimeters. In terms of pregnancy outcomes, among the 46 total pregnancies, there were 4 spontaneous abortions, 7 elective terminations of pregnancy, and 35 term pregnancies with 17 vaginal and 18 cesarean deliveries. The patients who experienced spontaneous abortion were 36 to 38 years old. There was one complication after cesarean delivery presenting as postpartum hemorrhage with resultant expulsion of degenerated myoma with no long-term sequelae. There were no cases of uterine rupture, uterine window, placenta accreta, placental abruption, or fetal growth restriction.
Conclusion: The majority of patients who had documented pregnancies after radiofrequency ablation of fibroids had full-term deliveries with no maternal or neonatal complications. Given the inherent obstetric risks with myomectomy (e.g., risk of uterine rupture, intrauterine scarring, possible need for cesarean delivery, etc.), these findings add to the growing consensus that radiofrequency fibroid ablation may offer a safe and effective minimally invasive treatment alternative to women seeking uterine-sparing fibroid treatment to preserve fertility.

Open Communications 2: Fibroids
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Robotic Assisted Total Laparoscopic Hysterectomy for Complex Uteri with Cervical Fibroids: Tips and Tricks with an ABC Approach

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Study Objective: Leiomyomatous uteri present as a complex pathology for those women requiring a hysterectomy. Specifically, cervical leiomyomas complicate typically straightforward hysterectomies by anatomically distorting the ureter, uterine arteries, and bladder pillars. A systematic approach is necessary in order to ensure the safety of patients undergoing robotic surgery for benign indications.
Design: N/A.
Setting: N/A.
Patients or Participants: This patient is a 40-year-old, African American woman who presents with a 4.6 centimeter cervical fibroid adjacent to the right uterine artery and parametrium on transvaginal ultrasonography.
Interventions: This video proposes the following ABC approach in order to safely perform a robotic-assisted total laparoscopic hysterectomy (RA-TLH) in the setting of known cervical fibroids by imaging:
A - Anatomical identification: specifically, the ureters, uterine artery, and colpotomy demarcation
B - Build a plane to delineate cervical fibroids: find a tissue plan with judicious use of blunt dissection and short bursts of energy
C - Consistent traction/counter traction: push the fibroids up and away from the eventual colpotomy site
Measurements and Main Results: Following the ABC approach ensures patient safety by identifying critical anatomical landmarks within the pelvis. Planes that delineate cervical fibroids help peel and shell these bulky tumors off and away from the eventual colpotomy site, while at the same time minimizing blood loss. Traction and counter traction allows for the cervix and colpotomy site to be set apart and distanced from the transection site, thus avoiding complications.
Conclusion: Cervical fibroids present as a uniquely complex pathology for surgeons attempting a total laparoscopic hysterectomy, whether robotic or via straight stick. This video proposes surgeons to follow the ABC approach for safely performing a hysterectomy with a leiomyomatous cervix. Further ongoing pre- and peri-operative planning will ultimately optimize patient outcomes.

Open Communications 2: Fibroids
(11:00 AM — 12:30 PM)

11:34 AM

Surgical Considerations in Parasitic Fibroid Excision

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Study Objective: To provide an overview of the etiology and risk factors of parasitic fibroids and to demonstrate laparoscopic considerations during the excision of abdominal and pelvic parasitic fibroids.
Design: Surgical video.
Setting: Academic hospital.
Patients or Participants: 38-year-old with symptomatic uterine fibroids and four prior myomectomies who presents for second opinion regarding the management of uterine and extra-uterine fibroids.
Interventions: Parasitic fibroids are a rare variant that has no connection with the uterus itself and may develop de novo or iatrogenically from prior fibroid surgery. Limited retrospective data estimates occurrence in 0.2-1.25% of cases after laparoscopic myomectomy and 0.1%-1% of cases specifically using uncontained power morcellation. These fibroids often occur along large vessels including the omental and mesenteric arteries, adding surgical complexity during excision. Proposed methods to prevent dissemination include removal through an in-bag containment system, intact removal, and irrigation. We demonstrate a successful laparoscopic myomectomy with excision of abdominal and pelvic parasitic fibroids located proximal to key anatomic structures, and we exhibit measures to prevent further dissemination.
Measurements and Main Results: N/A.
Conclusion: Consider parasitic fibroids on the differential of pelvic mass after previous myomectomy. Consider the possible proximity of parasitic fibroids to key anatomic structures to avoid vascular, urinary, bowel

complications. To date, the best preventative measures include in-bag containment, intact removal and irrigation but continued study is needed.

Open Communications 2: Fibroids
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Systematic Review of Outcomes after Radiofrequency Ablation for Fibroids: An Aagl Practice Committee Evidence Review

Kho K.A.,[1] Chen I.,[2] Berman J.M.,[3] Yi J.,[4] Zanotti S.,[5] Al Hilli M.,[6] Balk E.,[7] Saldanha I.[8]. [1]Obstetrics and Gynecology, University of Texas Southwestern Medical Center, Dallas, TX; [2]Department of Obstetrics and Gynecology, University of Ottawa, Ottawa, ON, Canada; [3]Obstetrics and Gyencology, Wayne State University Physician Group, Southfield, MI; [4]Department of Medical and Surgical Gynecology, Mayo Clinic Arizona, Phoenix, AZ; [5]Cleveland Clinic, Cleveland, OH; [6]Gynecologic Oncology, Cleveland Clinic, Cleveland, OH; [7]Brown University, Providence, RI; [8]Center for Evidence Synthesis in Health, Brown University, Providence, RI

Study Objective: To review the existing literature regarding short- and long-term outcomes after radiofrequency (RF) fibroid ablation.
Design: Systematic review.
Setting: N/A.
Patients or Participants: All studies that are comparative were included, and non-comparative studies with at least 10 participants per group, in any language, in any country/setting were included.
Interventions: We conducted a systematic review or all studies examining the use of RF ablation for the treatment of fibroids which reported clinical and patient-centered outcomes and complications. We searched existing systematic reviews and Medline, Embase, and Cochrane from inception through February 2, 2021. We included comparative and noncomparative studies of RF ablation and RF ablation compared to other interventions.
Measurements and Main Results: 7260 abstracts were doubly reviewed by members of the AAGL Practice Committee. Of these, 29 studies met inclusion criteria. 11 studies examined laparoscopic ultrasound guided RF ablation. 2 studies examined laparoscopic RF ablation (without imaging guidance). 5 studies examined percutaneous ultrasound guided RF ablation, 1 study examined percutaneous CT guided RF ablation, 6 studies examined transvaginal ultrasound guided RF ablation. 4 studies examined transcervical ultrasound guided RF ablation.
Conclusion: Worldwide, various types of radiofrequency fibroid ablation procedures are being performed for the treatment of symptomatic fibroids, including laparoscopic, percutaneous, transcervical and transvaginal routes, either with or without image guidance. Review of the available literature demonstrates that these procedures are associated with rare major complications and reintervention rates are low. Fibroid volume, bleeding, pain, bulk symptoms and overall quality of life improve after RF ablation.

Open Communications 2: Fibroids
(11:00 AM — 12:30 PM)

11:46 AM

The Association between Patient Body Mass Index and Initial Procedure Performed as Treatment of Fibroids

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Study Objective: To compare the distribution of initial procedures performed as treatment of uterine fibroids between the different classes of patient body mass index (BMI).
Design: Retrospective cohort study.
Setting: Academic medical center.
Patients or Participants: We included patients (N=1982) with known fibroids (based on ICD codes and ultrasound findings) who underwent a fibroid procedural intervention between 2008 and 2015.
Interventions: Uterine fibroid embolization (UFE), myomectomy (excluding hysteroscopic procedures), or hysterectomy
Measurements and Main Results: The main exposure was patient BMI class: normal weight (n=498), overweight (n=518), and class I (n=413), II (n=260), and III (n=293) obesity. The main outcome was the first fibroid procedural intervention (UFE, myomectomy, or hysterectomy) performed during the study time period.
Amongst women of normal weight who underwent a fibroid procedural intervention, 67.5% of the time this procedure was hysterectomy. Comparatively, overweight women and women with class I, II, and III obesity underwent hysterectomy as their initial procedure 71.4%, 77.7%, 78.1%, and 78.8% of the time ($p<0.001$).
Multivariable logistic regression adjusted for patient age, race, and the presence of the obesity-related comorbidities of hypertension, diabetes, and obstructive sleep apnea. When compared to women of normal weight, women with class I (aOR 1.8, 95% CI 1.3-2.5, $p<0.001$), class II (aOR 1.9, 95% CI 1.3-2.8, $p<0.001$), and class III (aOR 2.0, aOR 1.4-2.8, $p<0.001$) obesity were significantly more likely to undergo hysterectomy as compared to UFE or myomectomy as their initial fibroid procedural intervention.
Conclusion: Obese women were significantly more likely to undergo hysterectomy as their initial fibroid procedural intervention as opposed to uterine-preserving procedures, even when adjusted for key factors that may influence a patient's and surgeon's decision regarding operative management. Future studies elaborating on indication for surgery and fibroid burden may shed light on this phenomenon.

Open Communications 2: Fibroids
(11:00 AM — 12:30 PM)

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The Impact of Race/Ethnicity on Use of Minimally Invasive Surgery for Fibroids

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Study Objective: To determine if minimally invasive surgery (MIS) for fibroids is used differentially based on race/ethnicity.
Design: Retrospective cohort study.
Setting: Quaternary care academic hospital in the United States.
Patients or Participants: Women undergoing hysterectomy or myomectomy for uterine fibroids between 3/15/15 and 3/14/20 (n=1311). Cases involving correction of pelvic organ prolapse, malignancy, or pregnant women were excluded.
Interventions: Hysterectomy, myomectomy.
Measurements and Main Results: Of the 1311 cases, 35.9% were minimally invasive hysterectomy, 16.4% abdominal hysterectomy, 35.6% minimally invasive myomectomy, and 12.1% abdominal myomectomy. MIS rates were 94.7% among fellowship-trained minimally invasive gynecologic surgery (MIGS) subspecialists versus 44.2% among obstetrics and gynecology (OB/GYN) specialists and 46.8% among gynecologic oncologists ($p<0.001$). Uterine-sparing surgery was more common among MIGS subspecialists (62.2%) versus OB/GYN specialists (38.5%) and gynecologic oncologists (12.7%) ($p<0.001$). There were significant disparities in surgeon type by race/ethnicity overall ($p<0.001$), with 59.8% of White women having undergone surgery

with a MIGS subspecialist versus 44.0% of Black women and 45.7% of Hispanic women. Black and Hispanic women were less likely to undergo MIS overall versus White women (adjusted odds ratio [aOR] =0.33, 95% confidence interval [CI] 0.22-0.48 and aOR=0.44, 95% CI 0.28-0.72, respectively). Black and Hispanic women undergoing hysterectomy were less likely than White women to undergo MIS (aOR= 0.33, 95% CI 0.21-0.51 and aOR=0.35, 95% CI 0.20-0.60, respectively). Adjusted analysis revealed no significant differences in rates of MIS by race/ethnicity for myomectomies. Hispanic women were less likely than White women to undergo uterine-sparing surgery (aOR 0.42, 95% CI 0.24-0.74). Adjusted analysis revealed no significant differences in major or minor complications by race/ethnicity.

Conclusion: At a single quaternary care institution, Black and Hispanic women were less likely than White women to undergo MIS for fibroids, particularly when undergoing hysterectomy. Hispanic women were less likely to undergo uterine-sparing surgery. Differential access to MIGS subspecialists may be an important contributor to these disparities.

Open Communications 2: Fibroids
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The True Fibroid Map: Correlating Preoperative MRI and Intraoperative Findings

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Study Objective: To evaluate and compare the accuracy of Magnetic Resonance Imaging (MRI) in myoma diagnosis and mapping and its correlation with intraoperative findings.
Design: All patients with symptomatic leiomyoma attending the centre of study (Centre for minimally invasive Gynaecology, Obstetrics and ART, Paras Hospital, India) from August 2018-June 2020 underwent MRI and were subsequently operated at the same centre were considered for inclusion. The MRI was reviewed for number of fibroids, size, location, type and FIGO class of the largest fibroid and the same was correlated with intraoperative findings.
Setting: N/A.
Patients or Participants: 42 women with a diagnosis of symptomatic leiomyoma and meeting the inclusion criteria were enrolled.
Interventions: Laparoscopic myomectomy, Hysteroscopic myomectomy, Total laparoscopic hysterectomy, Abdominal myomectomy.
Measurements and Main Results: Of 42 patients enrolled, the number of fibroids predicted by MRI corroborated with intraoperative findings in 26 patients, 15 patients had greater number of fibroids during surgery and 1 had less than that predicted (median fibroid on MRI=2.0, median number in surgery=2.0, p=0.001). Location of largest fibroid predicted by MRI correlated with intraoperative findings in 77.8% anterior wall, 90% posterior wall, 83.3% left lateral wall and in 81.8% of fundal fibroids (k=0.757, p<0.001). MRI could accurately predict the type of fibroid in 80% submucosal, 87.5% intramural and 66.7% subserosal variants (k=0.642, p<0.001). FIGO class of largest fibroid denoted by MRI showed good correlation with intraoperative findings (k=0.670, p<0.001). Size of largest fibroid predicted by MRI (median=58.5cm^2) correlated well with size measured during surgery (median= 60cm^2, k=0.819).
Conclusion: MRI is an efficient tool for mapping of fibroid location, type and FIGO class but falls short in identifying the exact number of fibroids that can be encountered during surgery particulary in patients with larger uteri (> 12-week size) or multiple myomas (>5 in number).

Open Communications 2: Fibroids
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12:04 PM

Transcervical Radiofrequency Ablation of Uterine Fibroids Global Registry (SAGE): Study Protocol and Preliminary Results

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Study Objective: To describe the protocol and preliminary results of the SAGE Registry, which characterizes the long-term (5-year) outcomes of transcervical fibroid ablation (TFA) with the Sonata® System when used to treat symptomatic uterine fibroids in real-world use.
Design: Ongoing post-market global registry.
Setting: Up to 50 clinical sites.
Patients or Participants: Up to 500 women who select TFA with the Sonata System for treatment of symptomatic uterine fibroids.
Interventions: Transcervical fibroid ablation in women with symptomatic uterine fibroids.
Measurements and Main Results: Main outcomes include changes in the symptom severity score and health-related quality of life subscales of the UFS-QoL, general health status on the EQ-5D, perceived treatment benefit, treatment satisfaction, work and activity patterns, overall patient treatment outcome, adverse events, pregnancy incidence and outcomes, and surgical reinterventions for heavy menstrual bleeding. One Hundred Sixty (160) women have been enrolled and treated to date, with a device-related adverse event rate of 0.6% and a serious procedure-related adverse event rate of 0.6%. Of 241 fibroids ablated, 10% were submucous, 52% transmural, 28% intramural, and 10% subserous. Ablated fibroid diameters ranged from <1 cm to >10 cm, with 27% of fibroids having maximum diameters >5 cm.
Conclusion: The SAGE registry represents the largest known study of TFA for uterine fibroids and will generate up to 2500 patient-years of outcome data. Preliminary results from the first 160 treated women suggest broad applicability of TFA to a wide range of fibroid types and sizes, including those with diameters > 5 cm, and an excellent safety profile. The wide repertoire of fibroid types treated in SAGE, including transmural, intramural, and subserosal fibroids, are not generally accessible to operative hysteroscopy.

Open Communications 2: Fibroids
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Vascular Control during Robotic Myomectomy for 13cm Broad Ligament Fibroid

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Study Objective: Demonstrate surgical approach for a large 13 cm broad ligament fibroid, highlighting retroperitoneal anatomy and a novel method to decrease blood loss.
Design: A step-by-step explanation of the surgery using video (instructive video).
Setting: University hospital.
Patients or Participants: A 34-year-old woman with a 13 cm broad ligament fibroid who desires future fertility.
Interventions: We review entry into the retroperitoneum, more specifically, the pararectal space in a case with normal anatomy. Then, we present a case with a large broad ligament fibroid and systematically review the patient's MRI prior to showing surgical footage.

The retroperitoneal dissection is initiated by transecting the round ligament and dissection continues parallel to the infundibulopelvic (IP) ligament until the psoas muscle and external iliac are identified. Blunt dissection is used to find the ureter on the medial leaflet of the broad ligament. Ureterolysis is performed given the extent of invasion by the fibroid. The pararectal space is then entered using a push and spread technique. Continued dissection laterally in the areolar tissue is used to localize the uterine artery at its origin. Once the uterine artery is skeletonized, a bulldog clamp is carefully placed to decrease blood flow. The fibroid is dissected in a clockwise fashion, starting from our dissection in the retroperitoneal space. The distal uterine artery, which is wedged between the uterus and the fibroid, is carefully dissected. Once the fibroid is completely separated from the uterine artery and surrounding tissue, the bulldog clamp is removed and vascular supply is restored.

Measurements and Main Results: EBL during resection of the highlighted fibroid was minimal, with overall EBL 100mL after dissection of several additional fibroids. The patient's symptoms improved and fertility was preserved.

Conclusion: Using retroperitoneal dissection and bulldog clamps, safe dissection of large broad ligament fibroids can be accomplished with minimal blood loss.

Open Communications 3: Basic Science
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11:04 AM

A Communication Tool for Uterine Manipulation: Surgical View Standardization and Simulation Communication Training

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Study Objective: To demonstrate a communication tool and a corresponding training program for uterine manipulation during laparoscopic surgery.

Design: Descriptive demonstration of uterine manipulation training using a novel communication tool and simulator model

Setting: Two community-based surgical practices affiliated with academic medical centers.

Patients or Participants: Surgical technicians who serve as primary surgical assistants during laparoscopic hysterectomy.

Interventions: A communication tool was developed and previously presented in AUGS and AAGL. A new simulator model was developed as part of a new uterine manipulation training curriculum established for surgical technicians at our institutions. The training session includes a presentation highlighting critical pelvic anatomy and reviewing the cardinal movements of uterine manipulation. The presentation is followed by hands-on practice using the simulator model. Consent was obtained for all surgical footage utilized in this video explicitly for education purposes

Measurements and Main Results: Using surgical and simulator footage, the video demonstrates each component of the training program implemented at our institutions. The training program was well-received and will be converted to an on-line interactive module paired with simulator training. The simulator model was accepted to the ACOG Simulation Toolkit and is available for local use.

Conclusion: Communication between a surgeon and assistant can be challenging, especially for the novice assistant. Standardized methods for education, training, and communication with the vaginal assistant during laparoscopic hysterectomy are needed. Our strategy of developing a training program that includes a communication tool and simulation hands-on training was well-received and serves as an example for other programs to implement if helpful.

Open Communications 3: Basic Science
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11:10 AM

Complicated Laparoscopic Trachelectomy Following Supracervical Hysterectomy

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Study Objective: To review the most common indications and risk factors for trachelectomy after supracervical hysterectomy and demonstrate technique for a complicated laparoscopic trachelectomy.

Design: Narrated video tutorial for a safe and reproducible laparoscopic trachelectomy complicated by extensive adhesive disease after supracervical hysterectomy.

Setting: Although trachelectomy is a relatively uncommon procedure, it may be indicated for a variety of benign pathologies women who have undergone supracervical hysterectomy. The potential complications of this procedure may be elevated from baseline surgical risks due to the presence of adhesive disease from prior surgeries or concurrent pelvic pathologies. This patient underwent her surgery at a tertiary academic center. She was positioned in dorsal lithotomy with arms tucked for surgical ergonomics.

Patients or Participants: This is a 43-year-old para 1 who presented for surgical management of cyclic heavy vaginal bleeding after a supracervical hysterectomy for adenomyosis and fibroids in 2014.

Interventions: This educational video demonstrates a complicated laparoscopic trachelectomy with an opportunistic bilateral salpingectomy, left ureterolysis, excision of endometriosis, and cystoscopy.

Measurements and Main Results: Not applicable.

Conclusion: Laparoscopic trachelectomy after supracervical hysterectomy may be significantly complicated by adhesive disease. The following strategies are key in the approach to a complicated laparoscopic trachelectomy:
1. Restoration of normal pelvic anatomy
2. Retroperitoneal dissection to safely identify the ureters, as well as the gonadal and uterine vessels and
3. Use of a uterine manipulator with a colpotomy ring to delineate target tissues, allow for multidirectional movement and facilitate safe entry into key planes.

Open Communications 3: Basic Science
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Histological and Immunohistochemical Assessment of Ovarian Tissue and Endometrium in Patients with Diminished Ovarian Reserve

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Study Objective: To analyze the histological and immunohistochemical features of ovarian tissue and endometrium in women with diminished ovarian reserve and to investigate the correlation between these parameters and the effectiveness of infertility treatment

Design: Prospective study, Level II.

Setting: National Medical Research Center.

Patients or Participants: 70 patients with diminished ovarian reserve who underwent drug-free in vitro activation using a modified surgical technique. Two bilateral ovarian cortical tissue samples and one endometrial

sample were obtained from each patient during the surgery. 40 patients out of 70 underwent ovarian stimulation after at least a one-month postoperative period.
Interventions: Bilateral ovarian cortex biopsy via laparoscopy, ovarian tissue fragmentation in aliquots of 1 mm^2, and hysteroscopy with endometrial biopsy were performed in all patients, followed by histological and immunohistochemical analysis (expression of proteins of the Hippo signaling pathway (YAP, MST-1, LATS-1) and PTEN (inhibitor of PI3K signaling pathway). The Human Protein Atlas datasets were used as a comparison group.
Measurements and Main Results: We revealed an impaired functioning of intracellular signaling pathways (primarily YAP- and PTEN-dependent) both in ovarian tissue and endometrial samples. Moreover, the expression of the proteins targeted in the study was significantly reduced in patients who responded to stimulation (n=31). Histological analysis of tissue samples of patients with diminished ovarian reserve indicated profound changes in various structures of the ovaries: surface epithelium, vascular component, stroma of ovarian cortex. In 25% of patients, chronic endometritis was also determined.
Conclusion: Specific histological and immunohistochemical features of ovarian tissue and endometrium associated with diminished ovarian reserve and the outcome of ovarian stimulation were shown.

Open Communications 3: Basic Science
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Le Fort Colpocleisis

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Study Objective: To highlight a safe and effective technique of the Lefort Colpocleisis for treating pelvic organ prolapse in an elderly patient.
Design: Educational Video.
Setting: OR.
Patients or Participants: The index patient is an 82-yo G2P1011 patient with symptomatic stage III pelvic organ prolapse; the anterior compartment was the leading edge. Due to the prolapse the patient was unable to exercise and walk as much as she desired. She failed an initial trial of ring pessary. After appropriate counseling, the patient opted for surgical intervention via a Lefort Colpocleisis with the understanding that this would preclude vaginal intercourse in the future. Preoperative evaluation with cystoscopy, urodynamic studies and a pelvic ultrasound were all within normal limits. We started the procedure by marking rectangular areas on the anterior and posterior vagina. The marked areas are then removed by careful sharp and blunt dissection. The edges of the rectangle and the denuded vaginal mucosa were then closed; leaving laterally created tunnels for drainage of cervical mucus. As successive sutures were placed; it was ensured that the knots were within the epithelial lined tunnels. This carefully maneuvered technique allowed the uterus and vaginal apex to be gradually turned inward. A bladder neck plication suture was then placed due to the high risk of stress incontinence accompanying these cases. A perineorrhaphy was completed to narrow the vaginal introitus. A cystoscopy was then performed confirming ureteral patency and excluding lower urinary tract injury. At her postoperative visit the patient had resolution of her symptoms and was pleased with the outcome of her surgery.
Interventions: LeFort Colpocleisis.
Measurements and Main Results: N/A.
Conclusion: This technique is a good approach for the management of pelvic organ prolapse in elderly patients or those who are not candidates for major reconstructive surgery.

Open Communications 3: Basic Science
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Left Upper Quadrant Entry: Tips and Tricks for Success

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Study Objective: The objectives of this video are to: (1) define when left upper quadrant (LUQ) entry is indicated, (2) describe identification of Palmer's point and (3) demonstrate optimal technique for optical entry at the LUQ, (4) troubleshoot commonly encountered difficulties and (5) discuss alternatives if initial attempt at LUQ entry is unsuccessful.
Design: N/A.
Setting: Academic medical center.
Patients or Participants: Patients undergoing minimally invasive surgery for benign gynecologic indications. Patients agreed to use of photos and videos via informed consent process.
Interventions: This video reviews when LUQ entry should be considered due to conditions such as past surgical history, size of pelvic pathology, and failed umbilical entry. We demonstrate how to locate Palmer's point and options for the entry technique. We primarily focus on optical entry and correct technique is demonstrated. Recommendations for approaching commonly encountered issues are reviewed including failed entry, poor visibility, and skiving. Lastly, alternative entry techniques and locations are described and Veress needle entry is shown.
Measurements and Main Results: N/A.
Conclusion: This video is a comprehensive review regarding the LUQ entry approach. Knowledge of the indications and anatomy, location of Palmer's point and best practices for optical entry are reviewed and demonstrated. Additionally, alternatives are offered and exemplified.

Open Communications 3: Basic Science
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Levator Ani Trigger Point Injections and Chemodenervation with Onabotulinum Toxin a: An Introduction and How-to Guide

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Study Objective: To provide a stepwise description of the anatomy, evidence, and technique for performing levator ani trigger point injections and chemodenervation for the treatment of pelvic floor myofascial pain.
Design: Video demonstration with narrated description.
Setting: Academic tertiary care site.
Patients or Participants: Patients with pelvic floor myofascial pain.
Interventions: Trigger point injections and chemodenervation with Onabotulinum toxin A (Botox) of the levator ani muscles.
Measurements and Main Results: Prior research has indicated that trigger point injections and chemodenervation with Onabotulinum toxin A may provide pain improvement in over 60% of women with pelvic floor myofascial pain. This video reviews the relevant clinical anatomy, benefits and risks of the procedures, type and toxicity of injectate medications, procedural set up, procedural techniques, and post-procedural follow up care.

Conclusion: In expert hands, levator ani trigger point injections and chemodenervation with Onabotulinum toxin A are safe and effective components of a multimodal treatment plan for pelvic floor myofascial pain.

Open Communications 3: Basic Science
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Linguistic Differences by Gender in Letters of Recommendation for Minimally Invasive Gynecologic Surgery Fellowship Applicants

Tappy E.E.,[1,] Pan E.,[2] Chang S.,[2] Wang A.,[3] Diksha V.,[3] Brown S.E.,[4] Florian-Rodriguez M.[1]. [1]Female Pelvic Medicine and Reconstructive Surgery, UT Southwestern Medical Center, Dallas, TX; [2]Obstetrics and Gynecology, UT Southwestern Medical Center, Dallas, TX; [3]UT Southwestern Medical Center, Dallas, TX; [4]Parkland Health & Hospital System, Dallas, TX*
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Study Objective: Various surgical specialties have reported gender bias in letters of recommendations (LORs). Currently, no studies have evaluated this phenomenon in Gynecological sub-specialties. We aimed to determine if linguistic differences exist in LORs for female and male physicians applying to Minimally Invasive Gynecologic Surgery (MIGS) fellowship.
Design: Retrospective cohort study including application cycles 2019 and 2020.
Setting: Academic university hospital.
Patients or Participants: MIGS fellowship applicants.
Interventions: Not applicable.
Measurements and Main Results: Abstracted applicant demographic data included age, race, gender, geographical region of residency training, Step 1 and 2 scores, number of research and volunteer activities, Alpha Omega Alpha (AOA) status and number of LORs, as well as the gender and academic rank of the letter writer. We utilized the Linguistic Inquiry and Word Count (LIWC) software, a validated text analysis program, to characterize LORs linguistic content by frequency of words in predetermined categories. A total of 118 applications, including 391 letters, were analyzed. Seventy-six (64.4%) of applicants were female and 42 (35.6%) were male. A majority of female applicants were white (46% versus 36%, p=0.04), had AOA status (13% vs. 0%), higher Step 2 scores (239.7 vs. 230.4, p <0.01), and more service activities (7.7 versus 4.7, p<0.01), compared to male applicants. Male applicants were more likely to graduate from international residency programs (45% vs. 16%, p <0.01). Female authors wrote 159 LORs, and male authors wrote 232. Following multivariable analysis controlling for race, Step 1 score and letter writer gender, no significant differences in average LOR word count for female and male applicants (406.7 ± 24.2 words vs. 340.1 ± 35.4 words), or differences in LIWC linguistic categories existed.
Conclusion: Although demographic differences were noted between female and male MIGS applicants, no differences in LOR length or linguistic categories were noted. These results likely reflect a shift towards a female-dominated field and increased efforts to address gender bias.

Open Communications 3: Basic Science
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Magnetic Resonance Imaging (MRI): Basics for the Gynecologist

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Study Objective: The aim of our video is to provide fundamental knowledge regarding the use and interpretation of magnetic resonance imaging (MRI) in regard to gynecology. We will describe the mechanisms behind MRI and review clinical considerations such as indications for MRI, use of contrast, and contraindications. We will provide basic concepts in the interpretation of images and review common imaging findings the gynecologist may encounter.
Design: 6-minute educational video.
Setting: N/A.
Patients or Participants: Our video is targeted toward medical students, residents, fellows, and providers who practice gynecologic care.
Interventions: N/A.
Measurements and Main Results: N/A.
Conclusion: In addition to first-line diagnostic tools, MRI can serve as a helpful adjunct in the gynecologist's armamentarium. Through basic understanding of MRI and pattern recognition of common gynecologic pathologies, providers can better utilize MR images.

Open Communications 3: Basic Science
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The Leadership Landscape: Characteristics of Current Faculty in Leadership Positions in Obstetrics and Gynecology Departments

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Study Objective: To describe the proportion of female faculty in departmental administrative and educational leadership roles in Obstetrics and Gynecology departments.
Design: Cross sectional observational study.
Setting: Accredited Obstetrics & Gynecology residency programs.
Patients or Participants: 288 accredited residency programs were identified from 2019 to 2020 with 1237 individuals in leadership positions.
Interventions: Similar to a 2012-2013 survey by Hofler et al., residency program websites and corresponding fellowships (Maternal Fetal Medicine, Female Pelvic Medicine and Reconstructive Surgery (FPMRS), Reproductive Endocrinology and Infertility (REI), Gynecologic Oncology), departmental, and divisional websites were queried for those in administrative and educational leadership positions. Information regarding gender (as determined by surrogates of name and photographic gender expression), medical and academic degrees, academic rank, and subspecialty certification was abstracted.
Measurements and Main Results: Within administrative leadership roles, women comprised 29% of chairs, 46% of vice chairs, and 47% of division directors; women held significantly fewer chair positions than men (p <.001). In educational leadership, women made up 71% of medical school clerkship directors, 58% of residency directors, and 50% fellowship directors. Women were more likely to hold educational leadership positions (56% vs 40%, p<.001) while men were more likely to hold administrative leadership positions (68% vs 52%, p <.001). There was greatest gender equity within FPMRS and least gender equity in Gynecologic Oncology and REI. Female leaders were more likely to have received additional academic degrees (ex. MBA, MPH) than their male counterparts (19% vs 13%, p=.002).
Conclusion: Women continue to be underrepresented in administrative leadership positions. Compared to 2012-2013, there is only a 9% increase in proportion of women chairing and 10% vice chairing Obstetrics and Gynecology departments; the increase is more substantial in other positions, such as division directors (17%). Our findings demonstrate ongoing gender disparity in the highest levels of departmental leadership and the need to further improve upon diversity and gender equality within leadership roles.

Open Communications 3: Basic Science
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The Use of 3D Motion Capture for the Quantitative Assessment of Surgical Tool Motion in Expert Laparoscopic and Naÿve Surgeons

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Study Objective: This proof-of-concept study sought to evaluate the efficacy of using quantitative variables derived from 3D motion analysis to differentiate laparoscopic surgical skill level.
Design: Observational case-control.
Setting: Simulation-based setting; surgical task completion.
Patients or Participants: Expert laparoscopic surgeons (n=7) and naïve surgeons (n=10).
Interventions: Participants were recruited to complete the Fundamentals of Laparoscopic Surgery (FLS) peg transfer task.
Measurements and Main Results: All participants watched an instructional video prior to data collection and completed the task three times. A 3D motion capture system recorded trajectories of retroreflective markers placed on two Maryland graspers and location of surgical tool tips were computed relative to a box trainer. Variables of interest: completion time, surgical tool translation (sagittal, frontal, coronal planes, surgical tool pathlength, and symmetry ratios (non-dominant vs. dominant tool motion). Independent one-tailed T-tests evaluated significant between group differences at the $p<0.05$ level.
Experts completed the task with significantly shorter (mean±stdev) times (119.4±61.7s) ($p=0.007$) compared to naïve surgeons (201.9±78.4s). This is complemented by significantly shorter tool pathlengths (dominant=195.1±108.7cm; non-dominant=187.1±103.9cm) ($p=0.038$,0.004) and more symmetrical grasper use (symmetry ratio=0.95±0.19) ($p=0.019$) in experts compared to naïve surgeons (dominant=297.6±110.7cm; non-dominant=356.9±118.3cm; symmetry ratio=1.24±0.29). No between group differences in surgical tool tip translations were observed.
Conclusion: 3D motion variables can be used to quantify between group differences in surgical tool motion. Not only did expert surgeons complete tasks more quickly, they also moved more efficiently and displayed more symmetrical use of their hands compared to naïve surgeons, who had greater movement of their non-dominant hands during the task. Objective, quantitative methods allowing trainees to improve surgical skill outside the OR are critical to ensure the highest possible standard of care is provided to patients. However, current evaluation models lack feedback relating to quality of movement. We believe motion capture can be a valuable adjunct to current skills acquisition models to improve self-directed surgical education and resident technicity.

Open Communications 3: Basic Science
(11:00 AM — 12:30 PM)

12:04 PM

Trends in Residents Volume and Route of Hysterectomy after the Implementation of a Minimally Invasive Gynecologic Oncology Program

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Study Objective: Minimally invasive surgery is used to provide progressive care in managing gynecologic diseases where our high-risk Hispanic population can benefit from the best possible surgical outcome. Resident exposure is of utmost importance as data continually demonstrates that volume matters. We sought to investigate the impact a Minimally Invasive Surgery − Gynecologic Oncology (MIS-GynOnc) Program had on hysterectomy routes and case volume among residents in an obstetrics and gynecology (ObGyn) program.
Design: A retrospective IRB approved study was performed involving the open versus minimally invasive hysterectomy routes and case volume trend by ObGyn residents in their Postgraduate Year 3 (PGY3) and Postgraduate Year 4 (PGY4) from academic years 2005-2020. This was achieved by using the Accreditation Council for Graduate Medical Education (ACGME) case log system. Recollected data was analyzed using MedCalc software.
Setting: N/A.
Patients or Participants: N/A.
Interventions: N/A.
Measurements and Main Results: Total number of hysterectomies from the years 2005-2013 (pre MIS-GynOnc) were 3,994 and from 2014-2020 (post MIS-GynOnc) were 4,249. Before 2014, 69.0% of hysterectomies were through an abdominal approach, 18.2 % were laparoscopic and 12.8% were through a vaginal approach; after 2014, 43.3% were abdominal and 51.3% were laparoscopic and 5.4% were vaginal ($X^2 = 1{,}010.8$; $p < 0.001$). A linear trend of decreasing percentage of total abdominal hysterectomies and increasing percentage of minimally invasive hysterectomies is observed between years 2005 - 2020 (X^2 for trend=25.4; $p < 0.001$). The same linear trend is observed when results of malignant and benign cases are analyzed separately.
Conclusion: We found a statistically significant increase in minimally invasive hysterectomy case volume performed by PGY3 and PGY4 residents since the implementation of the MIS-GynOnc Program. Introduction of an MIS-GynOnc Program has a positive impact on minimally invasive hysterectomy training for OBGYN residents.

Open Communications 3: Basic Science
(11:00 AM — 12:30 PM)

12:10 PM

Pelvic Neuroanatomy Learning from Fresh Frozen Cadaveric Dissections: Overview of Commonly Encountered Pelvic Nerves in Neuropelveology

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*Corresponding author.

Study Objective: To describe commonly encountered pelvic nerves and anatomical landmarks in neuropelveologic surgery.
Design: A narrated video explanation of the autonomic nerves and the somatic nerves in the pelvis, their origin, sensory and motor function.
Setting: An anatomic theater for cadaveric dissections and an urban general hospital for in vivo laparoscopy.
Patients or Participants: N/A.
Interventions: Neuropelveology is new groundbreaking discipline in medicine established by Prof. Marc Possover. Neuropelveology is concerned with the diagnosis of injuries and dysfunctions of the pelvic nerves and with the treatment of the symptoms and diseases caused by them. Sparing the pelvic nerves during surgery requires surgical expertise and an immense understanding of pelvic neuroanatomy. In this video, we educationally reviewed with laparoscopic viewpoint pictures of the superior and inferior hypogastric plexus, hypogastric nerves, pelvic splanchnic nerves,

sacral splanchnic nerves, femoral nerve, genitofemoral nerve, obturator nerve, lumbosacral trunk, sacral nerve roots (plexus), pudendal nerve (plexus), sciatic nerve, posterior cutaneous nerve of the thigh. Considering the anatomical relationships between these nerves and adjacent structures, we identified the external and iliac vessels, gluteal vessels, internal pudendal vessels, uterine artery, middle rectal artery, ureter, levator ani muscles, coccygeal muscle, piriform muscle, obturator internus muscle, sacrospinous ligament, sacrotuberous ligament, Alcock's canal, ischial rectal (anal) fossa, lesser sciatic foramen, greater sciatic notch, as well as other anatomical structures in the region of those mentioned.
Measurements and Main Results: Cadaveric laparoscopic dissection provided excellent visual information on essential pelvic neural pathways.
Conclusion: The fresh frozen cadaveric dissections are essential tool for acquiring the knowledge of pelvic anatomy, especially the nerve system. The most important nerves groups are the hypogastric plexus and the sympathetic trunk for the autonomic nerve system, and the sacral and the lumbar plexuses for the somatic nerve system. Preservation of the pelvic neural pathways is necessary to deliver the best patient outcomes while minimizing unwanted surgical complications.

Open Communications 1: Endometriosis
MONDAY, NOVEMBER 15, 2021

(11:00 AM — 12:30 PM)

11:03 AM

A Case of Small Bowel Obstruction Following Appendectomy

Afuape N.O.,[1,] Lee B.,[2] Castellanos M.E.,[1] Ballecer C.,III[2] Desai N.A.[1].*
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Study Objective: This video will identify clinical factors associated with potential benefit of appendectomy during surgical intervention for chronic pelvic pain. We will present a clinical example of a rare complication, internal hernia with associated small bowel obstruction following laparoscopic appendectomy and highlight management and potential prevention of this complication.
Design: N/A.
Setting: Academic teaching hospital.
Patients or Participants: N/A.
Interventions: Appendectomy at the time of surgical intervention for chronic pelvic pain/ endometriosis. Clinical management of post operative complication of small bowel obstruction.
Measurements and Main Results: N/A.
Conclusion: Appendectomy is an important intervention to consider in patients with chronic right-side pain. Small bowel obstruction is a rare but serious potential complication.

Open Communications 1: Endometriosis
(11:00 AM — 12:30 PM)

11:09 AM

Can Transvaginal Ultrasound Features Predict the Need for Laparoscopic Ureterolysis in Women with Suspected Endometriosis?

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Study Objective: Laparoscopic ureterolysis, an advanced laparoscopic skill, is difficult to predict pre-operatively, particularly in the absence of hydroureter or hydronephrosis on pre-operative imaging. This study assessed whether transvaginal ultrasound (TVU) markers (endometrioma, Pouch of Douglas 'POD' obliteration, uterosacral deep endometriosis 'USL DE' or ovarian fixation) are significantly associated with ureterolysis in women with suspected endometriosis.
Design: Prospective multicentre study assessed the diagnostic accuracy of TVU markers including endometrioma, POD obliteration, USL DE and ovarian fixation in predicting laparoscopic ureterolysis in women with suspected endometriosis who underwent laparoscopic surgery at Liverpool and Campbelltown Hospital during 2020-21 period.
Setting: N/A.
Patients or Participants: 63 women with suspected endometriosis were recruited.
Interventions: Participants underwent a specialised TVU by an expert sonologist, followed by laparoscopic surgery within 6 months by an advanced laparoscopic surgeon, who documented the intraoperative and histopathological findings.
Measurements and Main Results: The mean age was 35. 31/63 (49%) women with suspected endometriosis required ureterolysis, 14/31(45%) complete ureterolysis and 17/31 (55%) partial ureterolysis (for the excision of localised peritoneal endometriosis over the pelvic side wall). Of the 14 women requiring complete ureterolysis, 11/14 (Sensitivity 'Sn' 78.57%, accuracy 'Ac' 53.97%, p0.13) had fixed ovaries, 8/14 (57.14%, Ac 77.78%, p0.0042) had POD obliteration, 7/14 (Sn 50%, Ac 79.37%, p0.0052) had endometrioma and 6/14 (Sn 42.86%, Ac 74.60%, p0.0634) had USL DE on TVU. Of the 17 women requiring partial ureterolysis, 8/17 (Sn 47.05%) had fixed ovaries, 5/17 (29.41%) had USL DE, 3/17 (17.65%) had POD obliteration and 1/17 (5.88%) had endometrioma on TVU.
Conclusion: POD obliteration and endometrioma on TVU are significantly associated with the need for ureterolysis in women undergoing laparoscopy for suspected endometriosis, enabling improved surgical planning and patient counselling. Fixed ovaries and USL DE on TVU may be soft markers for the need for ureterolysis.

Open Communications 1: Endometriosis
(11:00 AM — 12:30 PM)

11:15 AM

Comparing Characteristics and Postoperative Outcomes of Hysterectomy for Endometriosis Versus Other Benign Indications: A NSQIP Study

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*Corresponding author.

Study Objective: Endometriosis is known to cause mild to significant intra-abdominal adhesions, theoretically making surgical procedures more challenging. However, little comparative surgical outcomes data is available.
Design: The American College of Surgeons National Surgical Quality Improvement Project (ACS-NSQIP) database was searched from 2018 to 2019 for all total hysterectomies. Hysterectomies for malignant conditions, emergent cases, and cases with pre-operative morbidity were excluded. Univariate comparisons were made between patients with hysterectomies for endometriosis vs other benign indications (abnormal bleeding, leiomyoma, prolapse, and pelvic pain). Unadjusted and adjusted logistic regression models were used to investigate the association between primary outcomes and hysterectomy indication, with covariates in the adjusted model including age, race, ethnicity and surgical route.
Setting: Within 30 days post operative.
Patients or Participants: Patients undergoing hysterectomy 18-55 years old.
Interventions: Hysterectomy.
Measurements and Main Results: A total of 29,742 women underwent hysterectomies, of which 3,596 (12.1%) were performed for endometriosis. Patients undergoing hysterectomy for endometriosis were statistically likely to be younger, predominately white, and had lower BMI. They were also more likely to have had prior abdominal surgery, prior pelvic surgery,

undergo a laparoscopic approach, and undergo lysis of adhesions (all p<0.001). Overall length of stay (1.1 vs 1.2 days, p<0.001) and operative time (130.8 vs 136.8 minutes, p<0.001) were lower in patients undergoing hysterectomy for endometriosis. Examining primary outcomes, patients with endometriosis were more likely to experience major morbidity (AOR 1.25, p=0.033), with no difference in minor morbidity (p=0.87). There were two mortalities. Endometriosis patients were more likely to develop deep surgical site infection (SSI) (OR 1.42, p=0.004), and less likely to receive blood transfusion (OR 0.58, p<0.001). There was no significant difference in occurrence of superficial SSI, sepsis, venous thromboembolism, readmission or re-operation between groups.
Conclusion: Patients undergoing hysterectomy for endometriosis were more likely to experience major morbidity and deep surgical site infection compared to patients with other benign indications.

Open Communications 1: Endometriosis
(11:00 AM — 12:30 PM)

11:21 AM

Near Infrared Imaging with Indocyanine Green for Resection of Diaphragmatic Endometriosis

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Study Objective: To describe the key principles of successful extra pelvic endometriosis excision, highlighting diaphragmatic endometriosis, and the potential role of indocyanine green and near infrared imaging.
Design: Case Report.
Setting: Multidisciplinary surgical case at an academic institution using robotic and near infrared technology.
Patients or Participants: Thirty-three-year-old para zero with chronic pelvic pain and laparoscopically proven stage IV endometriosis, new onset right shoulder pain and known diaphragmatic disease.
Interventions: Preoperative MRI followed by robotic-assisted laparoscopic diaphragmatic endometriosis excision using near infrared technology.
Measurements and Main Results: Complete excision of endometriosis was achieved with resolution of patient's pain.
Conclusion: Successful diaphragmatic endometriosis excision requires appropriate pre-operative imaging, coordination of a multidisciplinary team, and can be aided by the use of indocyanine green and near infrared imaging.

Open Communications 1: Endometriosis
(11:00 AM — 12:30 PM)

11:27 AM

Pre-Operative Risk Factors for Anastomotic Leak after Bowel Resection for Endometriosis

Gaughan T.J.,[1,] Movilla P.R.,[2] Andrews B.C.,[1] Hoffman M.R.,[2] Siewertsz van Reesema L.L.,[1] Bhakta A.S.[3]. [1]Obstetrics & Gynecology, University of Kentucky, Lexington, KY; [2]Obstetrics & Gynecology, Division of Minimally Invasive Gynecologic Surgery, University of Kentucky, Lexington, KY; [3]Department of Surgery, University of Kentucky College of Medicine, Lexington, KY*
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Study Objective: Determine the preoperative risk factors for anastomotic leak after bowel resection during non-emergent endometriosis related surgery.
Design: Retrospective population level case-control study.
Setting: Analysis of American College of Surgeons National Surgical Quality Improvement Program (NSQIP) dataset.
Patients or Participants: Patients undergoing a bowel resection for endometriosis related surgery from 2014-2019 at a NSQIP participating site. International Classification of Diseases codes (ICD 9/10) were utilized to identify bowel resection cases with a primary surgical indication for endometriosis.
Interventions: Evaluation of patient demographics, perioperative management strategies and surgical technique that were associated with the occurrence of an anastomotic leak following bowel resection for endometriosis.
Measurements and Main Results: 289 bowel resection cases (non-emergent, benign) for endometriosis were identified. Anastomotic leak occurred in 9 cases (3.11%). There were no baseline patient demographics, perioperative management strategies (mechanical bowel preparation, preoperative oral antibiotics) or differences in surgical technique (laparoscopic vs open) that demonstrated a statistically significant association with an anastomotic leak. Multivariable logistic analysis identified that an increased preoperative albumin level was associated with a reduced risk of anastomotic leak with an adjusted odds ratio of 0.11 (95% CI 0.01-0.95).
Conclusion: The majority of population level data for anastomotic leak after bowel resection has included mainly data involving surgery for cancer. Data on complications after bowel resection for endometriosis has primarily been published form single site, single surgeon case series. This study using multicenter national data identified decreased preoperative albumin level as a risk factor for anastomotic leak after bowel resection for endometriosis. Further prospective studies are warranted to identify possible optimization strategies before bowel resection for endometriosis, with a particular focus on nutritional status atop perioperative management strategies and surgical techniques.

Open Communications 1: Endometriosis
(11:00 AM — 12:30 PM)

11:33 AM

Rectal Shaving in Stage IV Endometriosis

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Study Objective: To describe rectal shaving as a surgical approach to perform resection of deep infiltrating endometriosis of the bowel and to highlight available evidence for surgical management of colorectal deep infiltrative endometriosis.
Design: Video presentation.
Setting: University tertiary care hospital.
Patients or Participants: 42-yo nulliparous patient with abnormal uterine bleeding, leiomyomas, pelvic pain, 3 cm rectovaginal nodule, and a 12 cm endometrioma who underwent an uncomplicated total laparoscopic hysterectomy, right salpingo-oophorectomy, left salpingectomy, rectal shaving, endometriosis resection, enterolysis, and cystoscopy for Stage IV endometriosis.
Interventions: Studies have shown that laparoscopic surgery can improve pain in the context of deep infiltrating endometriosis. A complete resection of deep infiltrative endometriosis with definitive hysterectomy and salpingo-oophorectomy was undertaken with rectal shaving as a technique to address the colorectal endometriosis.
Measurements and Main Results: At the 6-week postoperative follow up, the patient reported resolution of pain symptoms.
Conclusion: In conclusion given its low bowel complication rate of 1 % and acceptable recurrence rate we perform conservative bowel shaving technique whenever possible.

Open Communications 1: Endometriosis
(11:00 AM — 12:30 PM)

11:39 AM

Recurrent Hemorrhagic Ascites in Endometriosis: A Case Series and Systematic Review

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*Corresponding author.

Study Objective: To synthesize existing literature and contribute to the collective understanding of hemorrhagic ascites caused by endometriosis through a systematic review and description of three cases seen at our tertiary-care centre.
Design: The case series was conducted as a retrospective review of patients referred to our tertiary-care centre. The systematic review included all publications based on the keywords "endometriosis AND (plural effusion OR ascites) from CENTRAL (Cochrane Library, current issue), MEDLINE (Silver Platter) and EMBASE electronic databases between 1950-2021.
Setting: The three case series patients were seen at our tertiary-care centre.
Patients or Participants: All cases with endometriosis and ascites without any other identifiable cause were included in our systematic review.
Interventions: In Case 1, the patient underwent paracentesis and diagnostic laparoscopy followed by treatment with elagolix. In Case 2, the patient was treated conservatively with leuprolide acetate and norethindrone acetate. In Case 3, the patient underwent diagnostic laparoscopy followed by treatment with dienogest.
Measurements and Main Results: Data was collected from 130 cases (127 from the systematic review and 3 from our centre), including demographics, presenting symptoms, physical findings, management, and recurrence status. A strong correlation with nulliparity (78.2%) and black race (84.8%) was identified. Patients most commonly presented with bloating (62.1%) and abdominal distension on physical exam (54.4%). Ca-125 was frequently elevated (41.2%). A majority of patients received both medical (85.9%) and surgical management (85.7%).
Conclusion: This systematic review is the largest and most comprehensive review of hemorrhagic ascites in endometriosis. This rare form of endometriosis presents similarly to ascites of other etiologies, leading to diagnostic uncertainty, and may disproportionately affect black women. Although many patients undergo surgery as part of diagnosis, medical management may sufficiently treat this condition.

Open Communications 1: Endometriosis
(11:00 AM — 12:30 PM)

11:45 AM

Suburethral Endometriosis as a Clinical Finding of Extensive Disease - a Case Report and Review of Literature

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Study Objective: Endometriosis spreading to the vagina is rare, present in only 0.02% of women with symptomatic endometriosis. Suburethral lesion site is exceptional. Our objective is to present a case of primary vaginal suburethral endometriosis and a literature review of the only 4 previously published suburethral endometriosis cases.
Design: Case report and literature review using key words: urethral endometriosis, suburethral endometriosis and urethral diverticulum.
Setting: Video laparoscopy, hysteroscopy and cystourethroscopy were performed.
Patients or Participants: A 31-year-old patient who presented with chronic pelvic pain that worsened with menstruation, dyspareunia and dysuria. Physical exam revealed a 2 cm suburethral bluish cystic-appearing lesion. Her exam was also significant for enlarged, tender uterus and adnexa. Based on examination and imaging, adenomyosis and endometriosis were suspected.
Interventions: Surgical excision of a 2 cm suburethral lesion revealing a chocolate like material with a fibrocystic wall adherent to the paraurethral tissue with no urethral muscularis invasion. Cystourethroscopy examination revealed no evidence of mucosal involvement of the urethra and no evidence of bladder endometriosis. Laparoscopic treatment of endometriosis was performed with pelvic sidewall and rectovaginal dissection with vaporization, excision of endometriotic lesions and restoration of the anatomy. There was one enlarged presacral lymph node that was excised and was positive for endometriosis on frozen section. A wedge cytoreductive resection of fundal adenomyotic lesion was performed without cavity penetration. The uterus was reconstructed in multiple layers with absorbable polyglactin 910 sutures.
Measurements and Main Results: Surgical evaluation revealed extensive endometriosis with lymph node involvement at laparoscopic exploration. Suburethral endometriotic lesion was excised confirmed to be endometriosis by histopathology. Dysuria and dyspareunia symptoms completely resolved, and her pelvic pain markedly improved after the surgery.
Conclusion: Primary vaginal suburethral endometriosis, although rare, could be an indication of extensive endometriosis. This case highlights the importance of careful clinical examination, surgical excision and laparoscopic evaluation when identifying suburethral vaginal endometriotic lesions.

Open Communications 1: Endometriosis
(11:00 AM — 12:30 PM)

11:51 AM

Surgical, Mechanical, and Chemical Identification of the Ureter in Complex Pelvic Surgeries

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Study Objective: We aim to review surgical, mechanical, and chemical means of ureteral identification during pelvic surgery.
Design: This video will demonstrate surgical, mechanical, and medical techniques to identify the ureter in surgically complex pelvises.
Setting: Tertiary Care Center.
Patients or Participants: Patients with complex pelvic disease.
Interventions: This video provides examples of surgical, mechanical, and chemical strategies to make ureteral identification possible in even the most challenging surgical cases. Both a lateral and medial approach to ureterolysis are shown highlighting relevant anatomical landmarks as well as avascular spaces to aid in clean dissection. To aid with ureteral recognition during suspected complex ureterolysis ureteric stents can be placed preoperatively. We also describe the novel use of an infrared dye (IS-001) (Intuitive Surgical, Inc. Sunnyvale, CA) to identify the ureter.
Measurements and Main Results: N/A.
Conclusion: Not only will the early recognition of ureteral injury improve patient outcomes but it also can minimize the potential for litigation following such injuries. The ability to identify the course of the ureter even in the most complex surgical cases is paramount to avoiding injury. However, ureteral identification during surgery is not always straightforward and in certain circumstances even the most skilled surgeons must think creatively to aid with ureteral identification.

Open Communications 1: Endometriosis
(11:00 AM — 12:30 PM)

11:57 AM

Temporary Uterine Artery Occlusion and Surgical Techniques for Stage 4 Endometriosis

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Study Objective: To describe a surgical approach to minimize intraoperative blood loss and improve visualization for stage 4 endometriosis.
Design: Video presentation for surgical management of stage 4 endometriosis.
Setting: The procedure was performed with robot assisted laparoscopy in dorsal lithotomy position.
Patients or Participants: A 39-year-old patient G0 with stage 4 endometriosis and prior failed In Vitro Fertilization.
Interventions: In this Video we describe the surgical approach used for Stage 4 endometriosis after prior failed In Vitro Fertilization. Intraoperatively, Initial survey of the pelvis showed both small and large bowel adhesions to the posterior aspect of the uterus as well as obliteration of the cul-de-sac. We begin by opening the pelvic sidewall bilaterally, parallel and lateral to the infundibulopelvic ligament identifying the pararectal space. The ureters are identified bilaterally and are tagged with a vessel loop for easier identification and manipulation for ureterolysis. Further dissection into the pararectal space is performed to identify the uterine arteries at their origin and are temporarily ligated with vascular bulldog clamps. Ureterolysis is then performed followed by mobilization of the rectum using a lateral to medial approach towards the central pathology. The anatomy of the adnexa is then restored bilaterally and a bilateral salpingectomy was then performed due to hydrosalpinx to improve future attempts of In Vitro Fertilization. The vascular bulldog clamps are then removed at the end of the procedure.
Measurements and Main Results: Patient had significant improvement in pain post operatively and is pending In Vitro Fertilization.
Conclusion: Temporary uterine artery ligation during extensive endometriosis surgery could improve blood loss and visualization intraoperatively and can be utilized during pelvic side wall dissection and identification of critical anatomy.

Open Communications 1: Endometriosis
(11:00 AM — 12:30 PM)

12:03 PM

Transrectal High-Intensity Focused Ultrasound for the Management of Rectosigmoid DEEP Infiltrating Endometriosis

Dubernard G.,[1,] Philip C.A.,[1] Warembourg S.,[2] Lafon C.,[3] Maissiat E.[4].*
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Study Objective: Demonstrate the feasibility of Trans Rectal High intensity focused ultrasound (HIFU) treatment in patients presenting rectosigmoid endometriosis
Design: Phase I, non-controlled, prospective monocentric clinical study
Setting: Patients filled questionnaires on gynecologic and intestinal symptoms, and on quality of life (MOS-SF36 score, EHP-5) before and at one, three and six months after treatment.
Patients or Participants: patients older than 25 years, who presented a symptomatic single rectosigmoid location and after failure of hormonal therapy. All lesions were assessed using transvaginal sonography and MRI.
Interventions: Trans Rectal HIFU treatment Using the FocalOne Probe.
Measurements and Main Results: Twenty-three patients were included between September 2015 and October 2018. All the lesions were visualized. Twenty lesions were treated ("feasibility rate": 87.0%): thirteen entirely and seven partially. The mean duration of the procedure was 55.6 minutes. We observed a significant improvement in visual analogic scales at six month for dysmenorrhea (-3.6, p=0.004), dyspareunia (-2.4, p=0.006), diarrhea (-3.0, p=0.006), constipation (-3, p=0.002), dyschezia (-3.2, p=0.003), false urges to defecate (-3.3, p=0.007), posterior pelvic pain (-3.8, p=0.002), and asthenia (-4.3, p=0.002).There was also a significant improvement of the MOS-SF36 with an increase of both Physical Composite Score (+9.3%, p=0.002) and Mental Composite Score (+10.9%, p=0.017) at six months. No major complications occurred during and after the procedure.
Conclusion: HIFU therapy for rectosigmoid location is feasible. It could be an interesting minimally invasive alternative to surgery for the treatment of rectosigmoid endometriosis. A prospective multicentric study is presently performed in France to confirm these preliminary results.

Open Communications 1: Endometriosis
(11:00 AM — 12:30 PM)

12:09 PM

Excision of a Deeply Infiltrating Endometriosis Nodule and Neuroma Involving the Sacral Nerve Root Plexus Adjacent to the Ischial Spine

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Study Objective: Present a surgical video that demonstrates the use of anatomic landmarks and dissection techniques for the laparoscopic excision of deeply infiltrative endometriosis at the ischial spine. This video will highlight the anatomy relevant to performing a nerve sparing technique to minimize neurological sequelae when excising nodules adjacent to the sacral nerve plexus and inferior hypogastric nerve.
Design: Surgical Educational Video.
Setting: Tertiary Referral Center at an Academic Residency Program.
Patients or Participants: 30-yo G0P0 with cyclical dysmenorrhea, gluteal pain, & dyspareunia that presented with a 2cm deeply infiltrative endometriotic nodule at the level of the ischial spine.
Interventions: Laparoscopic excision of deeply infiltrative endometriotic nodule at the ischial spine utilizing a nerve sparing technique.
Measurements and Main Results: 3.5 × 1.7 × 1.8 cm endometriotic nodule was confirmed by pathology. Immunohistochemical findings of +CD-10 which is consistent with stroma surrounding endometriosis and +S-100 consistent with neuroma. Operative time 145 minutes. EBL 25mL.
Conclusion: Surgical excision of Deeply Infiltrative Endometriotic lesions at the level of the ischial spine present unique challenges. By employing knowledge of the anatomy of the sacral nerve root plexus in relation to the ischial spine, inferior hypogastric plexus, inferior hypogastric plexus, and avascular planes, safe nerve sparing excision can be accomplished.

Open Communications 4: Hysteroscopy
(2:00 PM — 3:00 PM)

2:00 PM

Complete Longitudinal Vaginal Septum Resection and Hysteroscopic Metroplasty

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Study Objective: To provide a brief overview of the negative fertility and pregnancy implications of a uterine septum, as well as to demonstrate the surgical management of a complete uterine and vaginal septum.
Design: Surgical video. Women with septate uterus have an increased relative risk of first trimester spontaneous abortion, second trimester spontaneous abortion, pre-term delivery, fetal growth restriction, malpresentation at delivery, and placental abruption.
Setting: Academic tertiary care hospital.
Patients or Participants: 31-year-old nulligravida who presents for consultation for a septate uterus. Pelvic MRI showed a subtle concavity of the external fundal uterine contour, with a complete fibromuscular septum which extended through the cervix.
Interventions: A hysteroscopic metroplasty was planned. An exam under anesthesia showed a previously unidentified complete longitudinal vaginal septum, which extended and communicated with a complete cervical/uterine septum. Kelly clamps were used to demarcate the anterior and posterior

attachments of the vaginal septum and a dilute solution of vasopressin along with bupivacaine/epinephrine was injected. The Bovie cautery was used to excise the intervening septum progressively up to the cervix.
Diagnostic hysteroscopy showed normal hemi-cavities with fluffy endometrium. The 24.5 French bipolar resectoscope with a roller barrel was used to divide the cervical and uterine septum. Care was taken to stay midline, and once the tubal ostia could be easily seen bilaterally, a slight convexity to the fundus was maintained ensuring integrity of the fundal myometrium. An intrauterine balloon stent was left in place for one week.
Measurements and Main Results: Office hysteroscopy after natural menses showed a normal vagina, cervix, and endometrial cavity.
Conclusion: MRI is the imaging of choice for identifying Müllerian anomalies and for surgical planning; however, a vaginal septum could be missed, reaffirming the importance of a careful examination under anesthesia. Hysteroscopic metroplasty is a safe and relatively simple procedure in those experienced with operative hysteroscopy and results in an improvement in fertility and pregnancy outcomes.

Open Communications 4: Hysteroscopy
(2:00 PM — 3:00 PM)

2:06 PM

Complicated Hysteroscopic Removal of Retained IUD Fragment

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*Corresponding author.

Study Objective: Demonstrate successful complicated hysteroscopic removal of retained Paragard IUD arm after prior attempts, highlight role of diagnostic imaging prior to the case, and emphasize entry and surgical technique to optimize successful removal.
Design: Case report.
Setting: Outpatient surgical center.
Patients or Participants: Single patient.
Interventions: In-office ultrasound, subsequent hysteroscopy.
Measurements and Main Results: Successful removal of retained fragment.
Conclusion: In a patient with prior failed attempts, imaging (particularly surgeon in-office ultrasound prior to hysteroscopy) in combination with good hysteroscopic practice pearls contribute to a successful complicated removal of a retained IUD fragment.

Open Communications 4: Hysteroscopy
(2:00 PM — 3:00 PM)

2:12 PM

Hysteroscopic Removal of Foreign Body

Arun J.[*] *Chavali N., Bechler S., Klindt D., Vilkins A.L.. Henry Ford Health System, Detroit, MI*
*Corresponding author.

Study Objective: To present a unique case of hysteroscopic removal of retained fetal bone
Design: This is a unique video case report of a patient whose infertility workup revealed evidence of suspected retained fetal bone from a remote second trimester abortion. She was counseled and consented for hysteroscopic removal of suspected foreign body.
Setting: Operating room.
Patients or Participants: There is one patient in this video. She presented for infertility workup with past medical history significant for surgical abortion at 20 weeks gestation, 17 years prior. She was unable to conceive following this procedure.
Interventions: Hysteroscopy to remove foreign object.
Measurements and Main Results: Ultrasound showed irregular echogenic structure 1.7 by 0.4 cm with dense posterior shadowing in the cervix of uncertain etiology. Differential included retained foreign body such as a fragmented IUD or retained fetal bone from her remote abortion, which was the leading diagnosis. Hysteroscopy was performed for direct visualization and removal of this foreign body. Pathology report confirmed it to be degenerated mature bone.
Conclusion: Multiple calcified bony remnants, likely from remote dilation and curettage for termination, were extending through the length of the endocervical canal. Hysteroscopy was utilized to directly visualize and remove these bony remnants to clear the endocervical canal and entrance to uterine cavity.

Open Communications 4: Hysteroscopy
(2:00 PM — 3:00 PM)

2:18 PM

Management of Retained Products of Conception with Office Hysteroscopy

Haber H.R.,[1,*] *Morris S.N.*[2]. [1]*Obstetrics and Gynecology, Brigham and Women's Hospital, Boston, MA;* [2]*Center for Minimally Invasive Gynecologic Surgery, MIGS Center Newton Wellesley Hospital, Newton, MA*
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Study Objective: The objective of this video is to demonstrate the feasibility of office hysteroscopy for the management of retained products of conception (POCs).
Design: N/A.
Setting: Two patients present weeks after early pregnancy loss with ongoing bleeding without fever or pain. Imaging is notable for heterogenous endometrial contents. After informed consent is obtained, office hysteroscopy is performed which visualizes retained POCs in the endometrial cavities.
Patients or Participants: Two patients with retained POCs are highlighted.
Interventions: A 5.5mm rigid hysteroscope with a 12-degree lens is used for office operative procedures so the working instrument is kept in the field of view. We routinely use vaginoscopy without a speculum or tenaculum to minimize patient discomfort. The first case has a smaller lesion which is taken down with blunt scissors in a targeted fashion. Given the large amount of products in the second case, a 5mm hysteroscopic morcellator facilitates efficient and directed removal, taking care to preserve normal endometrium.
Measurements and Main Results: Direct visualization of the endometrial cavities confirms complete removal of retained POCs.
Conclusion: Office hysteroscopy is a safe and effective approach for the management of retained POCs. It allows for targeted removal under visualization and reduces adhesion formation compared to traditional dilation and curettage. The vaginoscopic approach significantly reduces pain so no anesthesia is necessary, and patients are able to resume normal activities post-procedurally. It cost-effective compared to operating room procedures.

Open Communications 4: Hysteroscopy
(2:00 PM — 3:00 PM)

2:24 PM

One Stop Menstrual Disorders Clinic: Introduction of a New Service.

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*Corresponding author.

Study Objective: To implement a One-Stop Menstrual Disorders Clinic (MDC) as recommended by the Heavy Menstrual Bleeding (HMB) NICE guidelines. Specific outcomes include numbers undergoing USS, outpatient hysteroscopy, treatments, discharge and cost effectiveness.

Design: Prospective audit of a database including all patients attending MDC from July 2020 - April 2021, extrapolating demographics, investigations, subsequent findings, management, and follow-up for each patient.
Setting: Outpatient One-Stop MDC which accommodates 20 patients per month within a health board of population 655,000 in which menstrual disorders account for 20% of gynaecology referrals.
Patients or Participants: Patients are vetted against urgent criteria as per NICE HMB guidance. A total of 103 patients were identified aged between 21-58 years. 57% patients had a BMI over 30. 22% patients had a medical condition that increased their risk of endometrial pathology.
Interventions: Introduction of the MDC which incorporates USS, outpatient hysteroscopy and treatment options in one-stop format compared to the traditional pathway which included attendance at gynaecology clinic; referral for ultrasound and admission for daycase hysteroscopy under general anaesthetic.
Measurements and Main Results: 102 patients had a TVUSS. Findings included: normal endometrium in 88%, proliferative in 1%, and suspicious in 5%. 16% patients had polyps and 15% had fibroids.
72% patients had a hysteroscopy. Findings included: normal endometrium in 88%; proliferative in 9%; and 5% were suspicious. 27% patients had polyps and 6% had fibroids 66% patients initiated treatments in clinic. 49% patients were discharged after one appointment, 23% were referred for outpatient Myosure, 4% for hysterectomy and 5% for hysteroscopy under general anaesthetic.
Traditionally an USS and daycase hysteroscopy for 102 patients would cost £119,262. As a one stop clinic this cost £27,824.
Conclusion: The MDC has met the 2018 NICE recommendations by providing patients with gold standard assessment and investigations in a one-stop format resulting in efficient diagnosis, management, reduction in general anaesthetic and patient and health board costs.

Open Communications 4: Hysteroscopy
(2:00 PM — 3:00 PM)

2:30 PM

Operative Hysteroscopic Management of Persistent Retained Products of Conception

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Study Objective: The objective of this video is to demonstrate the use of operative hysteroscopy for persistent retained products of conception after failure of medical and/or surgical (i.e., suction, dilation & curettage) methods.
Design: N/A.
Setting: Academic Medical Center – A 22-year-old G3P1011 multigravida with one prior vaginal delivery presented to the emergency room with vaginal bleeding and was incidentally found to be pregnant with a serum bHCG value greater than 200,000. The patient was diagnosed with an embryonic pregnancy via transvaginal ultrasound and counseled on medical versus surgical management. The patient opted for a suction, dilation and curettage under ultrasound guidance. The procedure was uncomplicated, and the endometrial stripe was noted to be thin and uniform at the conclusion of the procedure. The patient continued to have vaginal bleeding and persistent serum bHCG levels in the post-operative period. Repeat transvaginal ultrasound demonstrated a thickened endometrium without a gestational sac and a small amount of free fluid in the pelvis. The bilateral adnexa were normal in appearance. The patient underwent operative hysteroscopy with successful resection of densely adhered, fibrotic-appearing retained products of conception. The patient had resolution of her vaginal bleeding and persistent serum bHCG levels with resumption of her normal menses.
Patients or Participants: N/A.
Interventions: Operative hysteroscopy with a tissue removal system.
Measurements and Main Results: N/A.
Conclusion: We propose that operative hysteroscopy be given consideration as a safe and effective surgical intervention option in a premenopausal, hemodynamically stable patient, with absent or stable vaginal bleeding, and diagnosed with one of the following: anembryonic pregnancy, missed abortion, retained products of conception, or an abnormally developing intrauterine pregnancy as demonstrated by inappropriate rise in serum bHCG, to offer more targeted treatment while considering future fertility goals.

Open Communications 4: Hysteroscopy
(2:00 PM — 3:00 PM)

2:36 PM

Primary Hysteroscopic Treatment of Early Pregnancy Loss

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Study Objective: To demonstrate safety and feasibility of primary hysteroscopic treatment of first trimester miscarriage
Design: A surgical video reviewing the evidence supporting a hysteroscopic approach to surgical treatment of miscarriage followed by a step-by-step demonstration of two cases of miscarriage successfully treated with hysteroscopic resection.
Setting: Operating room and office.
Patients or Participants: We present two patients presenting with pregnancy loss at 7 weeks and 9 weeks gestation.
Interventions: Both patients are managed surgically with hysteroscopic resection of miscarriage.
Measurements and Main Results: Our hysteroscopic approach to the treatment of first trimester miscarriage has been highly successful, and so far, we have treated 45 patients with this approach. We are able to achieve complete resection in one procedure and follow up shows no intrauterine adhesions or remnant products of conception. Additionally, as prior evidence has demonstrated, with a directed biopsy approach we see a much higher rate of successful genetic analysis. This technique is both highly efficacious and feasible.
Conclusion: Primary hysteroscopic treatment of first trimester miscarriage is superior to blind suction D&C as it allows directed retrieval of products of conception, leading to comparatively minimal rates of intrauterine adhesions, remnant products of conception, and higher rates of successful genetic analysis. Adopting this alternative surgical approach is a natural and necessary step in the evolution of the treatment paradigm.

Open Communications 4: Hysteroscopy
(2:00 PM — 3:00 PM)

2:42 PM

Role of Embryoscopy in Patients with Missed Abortion. A Preliminary Experience.

Artazcoz S.,[1,*] *Gonzalez A.M.,*[1] *Quiñonez A.,*[1] *Wachowicz S.,*[2] *Kwal J.,*[3] *Carugno J.A.*[4]. [1]*Obstetrics and Gynecology, Hospital Naval Pedro Mallo, Buenos Aires, Argentina;* [2]*Obstetrics and Gynecology, Sanatorio Finochietto, Buenos Aires, Argentina;* [3]*Obstetrics, Gynecology and Reproductive Sciences, University of Miami, Miami, FL;* [4]*Obstetrics, Gynecology and Reproductive Sciences, University of Miami. Miller School of Medicine. MIGS Unit, Pembroke Pines, FL*
*Corresponding author.

Study Objective: Missed abortion occurs in 10-20% of pregnancies, the most frequent cause being genetic alterations such as aneuploidies,

polyploidies, or monosomies. Embryoscopy is the direct visualization of the embryo by hysteroscopy. It allows to collect targeted biopsy of the embryo and trophoblast for genetic analysis minimizing the change of maternal contamination of the specimen
To describe the hysteroscopic findings and the genetic results of the embryoscopies performed between January 2020 and 2021 at the Sanatorio Finochietto in Buenos Aires Argentina.
Design: We present a case series of 55 consecutive embryoscopies performed in patients diagnosed with missed abortion during the first trimester. Embryo and trophoblast biopsies under direct visualization were collected when possible.
Setting: Ambulatory hysteroscopy unit.
Patients or Participants: Patients diagnosed with missed abortion during the first trimester of pregnancy.
Interventions: Diagnostic embryoscopy with embryo and trophoblast biopsy.
Measurements and Main Results: 55 embryoscopies were performed in patients between 28 and 45 years old with a diagnosis of missed abortion. The average gestational age was 7.2 weeks. Of these, 38 genetic biopsies were collected, 13 patients had a normal karyotype, 13 had chromosomal abnormalities (10 trisomies, 3 triploidies) and in 12 the specimen was inadequate for evaluation. Embryoscopy revealed 5 macroscopic malformations, 3 in patients with normal type, and two with alterations, which presented syndactyly and hydrocephalus, prominent umbilical herniation.
Conclusion: Embryoscopy allows direct visualization of the morphological alterations of the embryos, obtain a direct biopsy for its genetic study, and evaluate the uterine cavity. This procedure could be very useful in couples with missed abortions, since it provides significant information for genetic counseling.

Open Communications 5: Laparoscopy
TUESDAY, NOVEMBER 16, 2021

(11:00 AM — 12:30 PM)

11:00 AM

A Case of Déjà Vu: Surgical Correction of a Uterine Avm and Hysteroscopic Resection of Rpoc Secondary to Invasive Placenta

Tigdi J.,[1,] Kotait M.,[2] AlSalem H.N.,[1] Leyland N.A.[1]. [1]Minimally Invasive Gynecologic Surgery, Obstetrics and Gynecology, McMaster University, Hamilton, ON, Canada; [2]Obstetrics & Gynecology, McMaster University, Hamilton, ON, Canada*
*Corresponding author.

Study Objective: To demonstrate a unique case of both a laparoscopic correction of a uterine AVM and hysteroscopic resection of retained products of conception secondary to invasive placenta.
Design: A brief literature review and case report with demonstration of surgical technique.
Setting: Operating Room environment.
Patients or Participants: In this video we explore the case of a 28-year-old patient who in 2019 had a 20-week loss followed by PPH requiring manual removal of retained placenta and D&C. Subsequent to this first pregnancy she a delayed PPH with IR embolization of the left uterine artery for a uterine AVM. In 2020, the patient delivered vaginally, preterm at 27 weeks and again had a PPH requiring manual removal of retained placenta and D&C. After 2 months of continued spotting an ultrasound queried residual RPOC with hypervascularity in the right uterine wall suggestive of a right AVM with CT angiography confirming a uterine AVM.
Interventions: The patient wished for fertility preservation and ultimately underwent laparoscopic clipping of the feeding vessel, the right internal iliac artery followed by hysteroscopic removal of retained products of conception.
Measurements and Main Results: The patient's post-operative course was uncomplicated and final pathology confirmed normal placental tissue consistent with placenta accreta. The post-op sonohysterogram confirmed an empty uterine cavity and the 2D colour doppler US confirmed reduced right uterine wall vascularity.
Conclusion: A laparoscopic approach to uterine AVM management is possible and can be combined with hysteroscopic investigation and management of RPOC.

Open Communications 5: Laparoscopy
(11:00 AM — 12:30 PM)

11:06 AM

A Stepwise Approach to Hysterectomy Complicated By Mullerian Anomaly: A Case of a Bicornuate Uterus

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Study Objective: To demonstrate a stepwise laparoscopic approach to patients with Mullerian anomalies.
Design: N/A.
Setting: Patient with a bicornuate uterus and right ovarian teratoma undergoing total laparoscopic hysterectomy, bilateral salpingectomy, and right oophorectomy.
Patients or Participants: The patient is a 35-year-old G5P0141 female with menorrhagia, pelvic pain, and a right ovarian teratoma undergoing definitive surgical management with a total laparoscopic hysterectomy, bilateral salpingectomy, and right oophorectomy.
Interventions: The hysterectomy started on the side that appeared more anatomically normal. On the contralateral side, the uterine artery was ligated at its origin. A ureterolysis was performed to safely detach the left uterine horn from the side wall. A partial amputation of the accessory horn allowed for completion of the hysterectomy.
Measurements and Main Results: N/A.
Conclusion: Since Mullerian anomalies are uncommon, it is important to have a framework when approaching hysterectomies in patients with Mullerian anomalies.

Open Communications 5: Laparoscopy
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11:12 AM

Combined Laparoscopic-Assisted Robotic-Hysteroscopic Isthmoplasty Using Near-Infra Red Technology: A Novel Approach

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*Corresponding author.

Study Objective: To demonstrate a surgical technique of isthmoplasty for the treatment of symptomatic caesarean scar defect. The authors present a standardised approach using combined minimally invasive techniques and Near-Infra-Red technology (NIRT) to perform the procedure in a systematic manner.
Design: Step-by-step oral presentation of the surgical technique.
Setting: Macquarie University Hospital (MUH), Australia.
Patients or Participants: MUH Gynaecology Clinic.
Interventions: A 44-years-old with three previous Caesarean sections presented with intermenstrual bleeding and pelvic pain. Transvaginal ultrasound diagnosed a grade-3 (>25mm) isthmocoele. A combined robotic-assisted-laparoscopic-hysteroscopic isthmoplasty was performed using the Da-Vinci-Xi-robot.

The procedure began with hysteroscopy to explore the uterine cavity and identify the caesarean scar defect. At laparoscopy, the abdomino-pelvic cavity was explored systematically. To expose the isthmocoele, sharp dissection of the visceral peritoneal layer overlying the uterine isthmus was performed.
The hysteroscopic light was directed cephalad and the laparoscopic light was then switched off to demonstrate the "Halloween sign", helping to identify the upper and lower limits of the isthmocoele. NIRT mode was then activated, the green fluorescence of the scar defect in a dark background further demarcated the surgical margins. A colpotomiser was inserted; the cup stabilised the cervix relative to the uterine body while the central cannula defined the cervical canal and aligned the defect for excision and repair.
The scar tissue was excised robotically with removal of all edges of the pseudo-cavity. The myometrium was repaired in two layers with continuous barbed 2-0 suture ensuring a tension-free repair. NIRT was again activated to check for integrity of repair.
Measurements and Main Results: Operative time was 60 minutes. Patient was discharged same day with symptoms resolution.
Conclusion: Combined Laparoscopic-assisted-robotic-hysteroscopic isthmoplasty is safe and effective, giving the surgeon a comprehensive evaluation of the anatomy of the isthmocoele, and increasing the accuracy of complete resection and restoration of the anatomy. NIRT technology demarcates the resection margins and confirms complete closure of the defect.

Open Communications 5: Laparoscopy
(11:00 AM — 12:30 PM)

11:18 AM

Laparoscopic Approach to Conservative Management of Ovarian Ectopic Pregnancy

Dada J.,[1] Kroft J.[2]. [1]Obstetrics and Gynecology, University of Toronto, Toronto, ON, Canada; [2]Obstetrics and Gynecology, Sunnybrook Health Sciences Centre, Toronto, ON, Canada

Study Objective: This surgical video demonstrates a conservative approach to successful removal of ectoptic that maximizes future ovarian function and fertility while preserving the complete ovary; limiting the need for oophorectomy.
Design: Video Design/Clinical Case.
Setting: Operating Theatre.
Patients or Participants: Single Case Study.
Interventions: N/A.
Measurements and Main Results: Unconventional Approach to Ovarian Ectopic Pregnancy.
Conclusion: Laparoscopic treatment and conservative appears to result in similar tubal patency and future fertility rates compared with medical treatment in the case of extrauterine ovarian pregnancy.

Open Communications 5: Laparoscopy
(11:00 AM — 12:30 PM)

11:24 AM

Laparoscopic Management of Tubo-Ovarian Abscess Refractory to Percutaneous Drainage

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Study Objective: To demonstrate the feasibility and safety of a laparoscopic approach to a case of tubo-ovarian abscess (TOA) refractory to percutaneous drainage and antibiotic therapy.
Design: Case report.
Setting: Operating room with traditional laparoscopy.
Patients or Participants: 30-year-old female patient with refractory TOA.
Interventions: Laparoscopic lysis of adhesions, bilateral salpingectomy, right oophorectomy, wash out and drain placement.
Measurements and Main Results: The patient is a 30-year-old female who presented with a 16cm TOA, initially managed with parenteral antibiotics and percutaneous drainage. However, despite initial improvement, the abscess continued to re-accumulate, refractory to a total of three percutaneous drain placements over the course of 8 weeks. She was taken to the operating room for laparoscopic resection of the TOA. Four port sites were utilized, three 5mm ports and one 10mm port. Survey of the pelvis revealed dense adhesions, bilateral pyosalpinx, and residual large abscess encompassing the right ovary. Given the patient's prolonged pre-operative course and her consent for loss of future fertility, the decision was made to proceed with bilateral salpingectomy and right oophorectomy. The right adnexal structures were densely adherent to the pelvic side wall and cul de sac; therefore, retroperitoneal dissection was utilized to identify important landmarks including the medial umbilical ligament, uterine artery and ureter in order to safely remove the diseased tissue without injuring the surrounding vital structures. The pelvis was irrigated and a JP drain was placed. She was discharged home on the same day. She had an uncomplicated post-operative course. Final surgical pathology revealed chronic and active salpingitis as well as focal endometriosis.
Conclusion: Laparoscopy is a safe and feasible surgical approach to the management of tubo-ovarian abscess refractory to percutaneous drain placement. The surgeon should be adept and familiar with retroperitoneal dissection to ensure safety of surrounding structures in the setting of dense adhesive disease and inflammation.

Open Communications 5: Laparoscopy
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11:30 AM

Laparoscopic Mitrofanoff Withradical Utethrectomy Withmartius FLAP Reconstructionforvaginal Tumour Infiltrating Urethra

Puntambekar S.P.,[1,] Kulkarni S.,[2] Dubey Sharma R.,[3] Sharma V.,[2] Joshi P.[2]. [1]Managing Director and Consultant Oncosurgeon, Galaxy CARE Multispeciality Hospital, Pune, India; [2]Kulkarni Endosurgery Institute, Pune, India; [3]Gynaec Onco, Galaxy CARE Multispeciality Hospital Pvt. Ltd, Pune, India*
*Corresponding author.

Study Objective: Laparoscopic Mitrofanoff with Radical Utethrectomy for Vaginal Tumour Infiltrating Urethra
Design: Laparoscopic.
Setting: Open and Laparoscopic.
Patients or Participants: One.
Interventions: Laparoscopic Mitrofanoff with Radical Utethrectomy with Martius Flap Reconstruction.
Measurements and Main Results: Tumour clearence with uterus and bladder preservation with continent pouch.
Conclusion: In locally advanced urethro vaginal tumours inspite of radical procedures like anterior exenteration we should consider preservation of bladder and uterus function by Laparoscopic Mitrofanoff procedure.

Open Communications 5: Laparoscopy
(11:00 AM — 12:30 PM)

11:36 AM

Laparoscopic Neocervix Creation in a Woman with Secondary Infertility Following a Radical Trachelectomy for Adenocarcinoma of the Cervix

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Study Objective: Cervical cancer continues to affect young woman of childbearing age even though its incidence is on the decline in Australia. [1] Laparoscopic-assisted vaginal radical trachelectomy and pelvic lymphadenectomy for patients with FIGO stage IA1 with lymphovascular space invasion, stage IA2, and stage IB1 cervical cancer is considered to be an appropriate and fertility-sparring alternative to a radical hysterectomy [2]. Unfortunately, cervical stenosis and agenesis/shortening is a known complication of this procedure causing reduced fertility in these women [3]. We present a case of a 32-year-old woman with secondary infertility due to a radical trachealectomy for stage 1 cervical adenocarcinoma. Her cervical agenesis was treated via a laparoscopic-assisted vaginal neocervix creation.
Design: Case Study.
Setting: Theater.
Patients or Participants: A 32-year-old female presented to our infertility clinic with a background of laparoscopic-assisted vaginal trachelectomy, pelvic lymphadenectomy and concomitant cerclage 6 years prior for stage 1 cervical adenocarcinoma. She remained amenorrhoeic post-surgery, but she was ovulatory based on serology and with follicles noted on ultrasound. A HyCoSy failed due to inability to locate and cannulate the cervix. We offered a hysteroscopic dilatation of the cervical canal with laparoscopic assistance and stitch removal as a means to re-canalize the cervix. The surgery is outlined as be our video submission.
Interventions: Laparoscopically-assited vaginal neocervix creation.
Measurements and Main Results: Patent cervix 5 days post-operatively.
Conclusion: We present a novel and minimally invasive technique for a woman with secondary infertility due to cervical agenesis. This may have the potential improve the fertility of women who face cervical stenosis post radical trachelectomy. Advances in oncological surgery and fertility will potentially help solve the question of fertility preservation in women treated for cervical cancer.

Open Communications 5: Laparoscopy
(11:00 AM — 12:30 PM)

11:42 AM

Laparoscopic Removal of Ovarian Ectopic Pregnancies

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Study Objective: To illustrate laparoscopic management of ovarian ectopic pregnancy in an emergent setting with preservation of the ovary.
Design: Case series.
Setting: Emergent diagnostic laparoscopy for the management of suspected ectopic pregnancy with resection of ovarian ectopic pregnancy.
Patients or Participants: Case series of two patients requiring emergent management of ovarian ectopic pregnancy.
Interventions: Ovarian ectopic pregnancies are a rare and potentially life-threatening condition[1,2,3,4,5]. In this video, both patients were taken from the emergency department to the operating room for diagnostic laparoscopy where they were found to have ruptured ovarian ectopic pregnancies with otherwise unremarkable pelvic anatomy. After visual confirmation of suspected diagnosis, pelvic survey, and evacuation of hemoperitoneum, both patients underwent laparoscopic resection of ovarian ectopic pregnancy with ovarian preservation.
Measurements and Main Results: This case series demonstrates the use of two minimally invasive laparoscopic techniques for emergent management of ovarian ectopic pregnancy. These techniques can also be applied to non-emergent patient presentations. Postoperative course was uncomplicated for both patients and they were discharged in excellent condition on the day of surgery. Ovarian ectopic pregnancy was confirmed by pathology and resolution of pregnancy demonstrated by normalization of beta-HCG at postoperative follow up for both patients.
Conclusion: Ovarian ectopic pregnancy can be effectively managed using minimally invasive laparoscopic technique with preservation of the ovary, including in an emergent setting.

References:

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Open Communications 5: Laparoscopy
(11:00 AM — 12:30 PM)

11:48 AM

Optimizing Visualization in the Pelvis: When More Trendelenburg Is Not Enough

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Study Objective: To identify challenges to visualizing the pelvis during laparoscopy, demonstrate pre-operative steps to aid visualization, and illustrate intraoperative techniques to improve visualization.
Design: Video demonstration.
Setting: Operating room – room set-up, patient positioning, surgical techniques.
Patients or Participants: N/A.
Interventions: Video demonstration.
Measurements and Main Results: NA.
Conclusion: While several barriers to optimal access and exposure in the pelvis may exist, visualization can be improved by: having a consistent and deliberate approach to operating room setup and patient positioning; using a midline port, robust uterine manipulator, and angled laparoscope; and employing temporary retraction sutures when necessary. Maximizing visualization maximizes patient safety by preventing inadvertent injury, surgeon frustration, and prolonged operating times.

Open Communications 5: Laparoscopy
(11:00 AM — 12:30 PM)

11:54 AM

Safe Approaches to Laparoscopy in the 3rd Trimester of Pregnancy

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*Corresponding author.

Study Objective: To review to preoperative, intraoperative, and postoperative considerations to optimize laparoscopic surgical care of the pregnant patient.
Design: Review of current recommendations for surgical care of pregnant patients followed by demonstration of technique with narrated video footage.
Setting: Non-obstetric surgery is performed in 1: 200-500 pregnant women in the US annually. As surgeons have gain more experience with laparoscopy it has become the preferred surgical route in pregnancy and can be performed at any gestational age. Anatomic and physiologic changes of pregnancy requite modifications to laparoscopic technique to optimize outcomes for both the mother and fetus. We demonstrate a case of laparoscopy on a patient at 28 weeks gestational age who presented with ovarian torsion.
Patients or Participants: N/A.
Interventions: Salpingo-oophorectomy for ovarian torsion during pregnancy at 28w gestational age.
Measurements and Main Results: This video highlights the laparoscopic approach to salpingo-oophorectomy for ovarian torsion with key strategies for patient positioning, port placement in the gravid patient, visualization with the gravid uterus, and intraoperative fetal monitoring.
1. Patient positioning with left lateral tilt and deflection of the uterus for left upper quadrant entry point
2. Supraumbilical entry at the left upper quadrant using the Veress needle
3. Reduced force for trocar placement
4. Laparoscopic retraction of the gravid uterus to identify the ureter
5. Intraoperative fetal monitoring via intermittent transabdominal fetal cardiac ultrasound.
Conclusion: Laparoscopy can be safely preformed in pregnancy, even at advanced gestational ages. In this video we review pre-operative, intraoperative and post-operative management to optimize maternal and fetal outcomes and demonstrate intraoperative technique to minimize risks of laparoscopy in the pregnant patient.

Open Communications 5: Laparoscopy
(11:00 AM — 12:30 PM)

12:00 PM

Successful Staged Management of Cervico Vaginal Agenesis- Seven Cases

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Study Objective: Cervicovaginal Agenesis with a functional Uterine Corpus, poses a unique challenge. Earlier, hysterectomy was the resultant treatment as initial canalization attempts reported fatal ascending infections and failures. We report our successful staged approach to create a neovagina for its coital function and save the functional uterine corpus for its menstrual and reproductive functions.
Design: retrospective single center experience.
Setting: tertiary referral center.
Patients or Participants: Seven girls confirmed to have Cervicovaginal Agenesis with hematometra after clinical and MRI evaluation. Five had associated endometrioma.
Interventions: They were planned for staged management.
At the first stage, they underwent laparoscopic assessment of pelvis, correction of endometrioma and creation of neovagina. All had an anomalous uterine corpus. Hematosalphinx and endometriosis were treated when noted. Neovagina was created in four by conventional Mc Indoe's vaginoplasty, one needed a simple Frank's method. Girls were taught self vaginal dilatation in between for 3 months to obtain a wide and long neo vaginal lumen with mature epithelial lining. They were given GnRH to be symptom free in between.
At the second stage once the neovagina matures girls underwent laparoscopic utero-neovaginal anastomosis. After preparing both the lower uterine segment and neovaginal apex for at least 0.5 cm, anastomosis was done using 0 barbed sutures. A silicone Foley stent was used in the initial period. To make it a tension free anastomosis, ligaments were released to mobilize the corpus down, carefully preserving uterine vascularity. After 3 months of cyclical pills a hysteroscopic assessment of the anastomosis and endometrial cavity was done.
Measurements and Main Results: On long follow-up, now all have established menstrual cycles. Two are married, having vaginal intercourse presently considering fertility options.
Conclusion: The staged procedure helps relieve immediate symptoms, manage endometriosis, directly assess the corpus, reduces ascending infection at first and then help the neovaginal graft mature and pliable for a successful anastomosis at second stage.

Open Communications 5: Laparoscopy
(11:00 AM — 12:30 PM)

12:06 PM

Uterine Dehiscence: Laparoscopic Uterine Repair in Early Pregnancy

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Study Objective: This is a video demonstrating a case of complete uterine dehiscence in early pregnancy. The objective of this video is to describe the approach to complete uterine dehiscence in the first trimester, review current literature and to demonstrate surgical uterine repair in early pregnancy to facilitate a term live birth.
Design: Compilation of anatomy schematics, medical imaging and surgical video clips that introduces a case of complete uterine dehiscence, the workup and imaging involved in counselling followed by demonstration of a laparoscopic surgical repair.
Setting: Tertiary Care Academic Center.
Patients or Participants: This video is a case presentation of a single patient encountered in our clinical practice. Surgical video and medical images have been extracted from this patient's chart after consent was obtained.
Interventions: Anatomy schematics and dissection video clips demonstrating the diagnosis, anatomy and surgical intervention while repairing the caesarean scar defect in this patient.
Measurements and Main Results: The video shows the diagnosis of a large 2.6cm uterine scar defect in early pregnancy and through ultrasound guided surgical repair we are able to demonstrate that there is restoration of approximately 8mm of myometrial thickness across the defect on follow up. This case resulted in a term live birth delivery via caesarean section.
Conclusion: With an increased number of caesarean sections and improved quality of ultrasound imaging, we are seeing an increase in incidental findings of caesarean scar defects. The risk of spontaneous prelabour uterine rupture remains unknown as there is a literature gap in this area regarding the appropriate standard of care. In this video we demonstrate that ultrasound guided laparoscopic repair is possible; however, further studies are required to establish safety and efficacy of the approach.

Open Communications 6: Robotics
(11:00 AM — 12:30 PM)

11:04 AM

Vertical Vaginal Cuff Closure Technique

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*Corresponding author.

Study Objective: To demonstrate our technique of vertical cuff closure.
Design: Video presentation.
Setting: Academic Medical Center.
Patients or Participants: N/A.
Interventions: Robotic Vertical Vaginal Cuff Closure.
Measurements and Main Results: N/A.
Conclusion: Vertical cuff closure is a reasonable alternative to horizontal cuff closure.

Open Communications 6: Robotics
(11:00 AM — 12:30 PM)

11:10 AM

Number of Myomas Is the Most Important Risk Factors for Blood Loss of Robotic Myomectomy: Analysis of 242 Cases

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Study Objective: To find out factors affecting estimated blood loss (EBL) during reduced port robotic myomectomy.
Design: Retrospective study.
Setting: University-based hospital.
Patients or Participants: Two hundred forty-two patients who underwent reduced port robotic myomectomy (RM) between 1 January 2019 and 28 February 2021 by two gynecologic surgeons.
Interventions: Among 448 patients who underwent RM during the study period at our hospital, 47 patients who underwent single site RM (n=34) or single port RM (n=13) were excluded. For surgical proficiency, 242 cases of two surgeons who performed over 80 cases of RM during the study periods were included in this study.
Measurements and Main Results: The primary endpoint was to identify the factors affecting EBL and the secondary endpoint was to identify the factors of total OT during multi-port RM. Univariate and multivariate analysis were used to identify the factors affecting the EBL and OT during RM.
Medians of the maximal diameter and weight of the removed myomas were 9.00 (IQR: 7.00-10.00) cm and 249.75 (IQR: 142.88-401.00) g, respectively. The median number of myomas was 2 (IQR: 1-4) with the range of (1−34). There were 155 cases with low EBL and 87 cases with high EBL. The most common main type of myomas was intramural type (n=179). The odds of having EBL>320ml increased by 251% (OR=2.51; 95%CI: 1.16-5.42) for 5-9 myomas and by 647% (OR=6.47; 95%CI: 1.87-22.33) for ≥10 myomas. The odds of subserosal type myomas decreased by 77% (OR=0.33; 95%CI: 0.14-0.80). History of abdominal surgery other than c-section were positively correlated with EBL. Weights of the retrieved myomas and previous c-section were not correlated with EBL.
Conclusion: Number of myomas (5-9 and ≥10), maximal diameter, and history of abdominal surgery other than c-section affect EBL in RM.

Open Communications 6: Robotics
(11:00 AM — 12:30 PM)

11:16 AM

Quantifying a Comprehensive Training Protocol for a Novel Transvaginal Robotic System

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Study Objective: It is essential to optimize the learning curve of new medical technology to ensure patient safety and successful surgical outcomes. This abstract describes the training platform and the quantification methods designed to assess a novel transvaginal robotic technique for benign hysterectomy.
Design: The training platform covers review of surgical anatomy, guided vaginal entry into the posterior cul-de-sac, insertion and retroflexion of the humanoid robotic arms, fundus-to-cervix hysterectomy technique using the robotic arms, safe use of energy, specimen extraction through the colpotomy and vaginal cuff closure.
Setting: Simulation Laboratory and Operating Room.
Patients or Participants: New surgeon users of transvaginal robotics.
Interventions: The training platform is implemented in 4 phases. Phase 1 is an Introduction to the Technology and includes case observations, video reviews and peer-to-peer workshops. Phase II is the Technology Training which includes online modules, skills drills on a desktop trainer and a vaginal access trainer plus 10-13 hours of simulation and wet lab training followed by a system skills assessment. Phase III is the initial first case series. Phase IV is a continuing Training Continuum including surgeon-led webinars, advanced master courses, surgeon lecture programs.
Measurements and Main Results: Effectiveness of the surgeon training pathway will be assessed according to the Kirkpatrick Model of learning evaluation. This includes the Reaction, which quantifies the surgeon satisfaction with training, Learning, which measures the increase in knowledge and skills, the Impact on Behavior, which assesses the change in behavior both with the 6 months after training and finally the Results, which quantifies the overall impact of training on the outcomes. Learning curve will be assessed using Cumulative Summation (CUSUM) Analysis which is a sequential analysis technique developed in statistical quality control.
Conclusion: This systematic and objective approach to training is critical to successful implementation of new surgical technology.

Open Communications 6: Robotics
(11:00 AM — 12:30 PM)

11:22 AM

Robotic Assisted Laparoscopic Isthmocele Repair

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Study Objective: The purpose of this video is to demonstrate repair of an isthmocele utilizing robotic-assisted laparoscopy.
Design: Video demonstration.
Setting: Academic affiliated community hospital.
Patients or Participants: 33-yo G6P1051 who presented with complaints of postmenstrual bleeding, vaginal discharge, pelvic pain, and dyspareunia. On transvaginal US patient was found to have a 2.0 cm echogenic mass anterior to the uterine isthmus near the prior cesarean scar. The myometrium at distal portion of niche was not clearly visualized concerning for extension to the serosal layer. Patient strongly desired future fertility and opted for repair.

Interventions: After dissection of the vesicouterine space and mobilization of the bladder, excision of isthmocele was performed. The defect was closed in two layers with barbed suture.
Measurements and Main Results: Patient tolerated the procedure well and was discharged home the same day. Pathology results were consistent with a benign mucinous cyst.
Conclusion: An isthmocele can present as a pouch-like defect at the uterine isthmus or a cystic mass between the bladder and lower uterine segment. These defects can accumulate blood and mucus which can cause abnormal bleeding, pain, and infertility. Robotic assisted laparoscopy is one method to successfully repair these defects.

Open Communications 6: Robotics
(11:00 AM — 12:30 PM)

11:28 AM

Robotic Assisted Laparoscopic Resection of a Cesarean Section Scar Ectopic Pregnancy

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Study Objective: Demonstrate the removal of a cesarean section scar ectopic pregnancy performed robotically.
Design: Video Demonstration.
Setting: Operating Room.
Patients or Participants: One.
Interventions: Uterine artery embolization was performed prior to surgery.
Measurements and Main Results: Cesarean section scar ectopic pregnancy was resected with minimal blood loss in a minimally invasive surgery.
Conclusion: Resection of a cesarean section scar ectopic pregnancy was safely performed after uterine artery embolization using robotic assisted laparoscopy.

Open Communications 6: Robotics
(11:00 AM — 12:30 PM)

11:34 AM

Robotic Assisted Laparoscopic Wedge Resection of a Large Cornual Ectopic Pregnancy

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Study Objective: To demonstrate the steps of a wedge resection of a large cornual ectopic pregnancy using a robotic assisted approach.
Design: A guided explanation of the surgery using video.
Setting: The surgery was completed at a university hospital using the Da Vinci Xi Robot.
Patients or Participants: A 38-yo G7P1051 with a history of chronic hypertension who was incidentally found to have a cornual ectopic pregnancy measuring 11 weeks 4 days on her initial prenatal ultrasound.
Interventions: Robotic Assisted Laparoscopic Cornual Wedge Resection.
Measurements and Main Results: On initial prenatal ultrasound, the patient was found to have a cornual ectopic pregnancy on the right. Crown rump length measured 47mm corresponding with a gestational age of 11 weeks and 4 days. She was asymptomatic. She presented immediately to the hospital and underwent an urgent robotic assisted laparoscopic cornual wedge resection that evening. Estimated blood loss was 100cc. She did well postoperatively and went home the same day.
Conclusion: We present a case of a robot assisted wedge resection of a large cornual ectopic pregnancy as an alternative to straight stick laparoscopy or laparotomy. Although robotic assisted cases are known to have longer operating times, as with myomectomy, a robot approach can potentially help to decrease blood loss when managing large cornual ectopic pregnancies.

Open Communications 6: Robotics
(11:00 AM — 12:30 PM)

11:40 AM

Robotic Hysterectomy for Large Fibroid Uterus – 5 Strategies

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Study Objective: Minimally invasive hysterectomy has several benefits but is not universally offered for large fibroid uterus as it is technically challenging to perform by laparoscopy. The main objective of this video is to discuss 5 strategies that can make robot assisted hysterectomy for large uterus feasible using only two operative ports.
Design: Step-by-step video demonstration of the five strategies.
Setting: A tertiary care teaching hospital.
Patients or Participants: Robot Assisted Laparoscopic Hysterectomy in patients with large fibroids. All cases were clinically more than 16 weeks.
Interventions: Robotic assisted Laparoscopic Hysterectomy Surgery using the DaVinci Si system.
Measurements and Main Results: Five strategies are demonstrated in this video. Strategy 1-Port placement at Umbilicus irrespective of the size; Strategy 2- Finding the space for the utero-vesical fold and bladder dissection; Strategy 3- "Hugging the uterus" technique for intraoperative uterine manipulation; Strategy 4 -"The Salsa" maneuver for coagulating and transecting uterine pedicles; Strategy 5- Colpotomy with skillful rotation of a 30^0 telescope, intraoperative myomectomy and partial amputation of uterus.
Conclusion: We have used these strategies for more than 200 cases with large and multiple fibroids with conversions in only two cases. Using two instruments to perform robotic hysterectomy even for large uterus thus making it economical. These simple strategies can be adopted across the globe making robotic hysterectomy economical and feasible.

Open Communications 6: Robotics
(11:00 AM — 12:30 PM)

11:46 AM

Robotic-Assisted Laparoscopic Resection of a Cornual Ectopic Pregnancy: Video Presentation

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Study Objective: A cornual ectopic pregnancy is a pregnancy that implants in the cornua, the most proximal portion of the fallopian tube lying within the myometrium. Cornual ectopics comprise only 2-3% of cases of ectopic pregnancy, however, they have a significantly higher risk of maternal death, at 2-2.5%. This is due to the abundant blood supply to the cornua from both uterine and ovarian vessels leading to greater risk of hemorrhage and hypovolemic shock. This video demonstrates how a cornual ectopic pregnancy can be treated using minimally invasive technique with minimal blood loss. We also explore the use of vasopressin as an adjunct in surgery to minimize blood loss.
Design: Case Report.
Setting: Tertiary care center outside of a major city in the United States.
Patients or Participants: We present a case of a 24-year-old G3P1011 at 7 weeks gestation by last menstrual period who presented to the

Emergency Department with severe left lower quadrant pain for 1 day. She was found to have a cornual ectopic pregnancy.
Interventions: The cornual ectopic was treated by robotic-assisted laparoscopy. Her treatment was further enhanced by the use of dilute vasopression injected into the cervix and the cornua. The ectopic was dissected using monopolar scissors and removed from the uterus intact. The defect in the uterus was closed with a barbed suture.
Measurements and Main Results: The entire procedure took 50 minutes with an estimated blood loss of less than 10cc. Postoperative course was uncomplicated with a negative bhCG at follow-up on postoperative day 27.
Conclusion: Robotic-assisted laparoscopy is a safe and effective approach for resection of cornual ectopic pregnancies. Vasopressin can be used as an adjunct to minimize blood loss. Future research should continue to explore minimally invasive techniques for cornual ectopic resection, focusing on the use of adjunct procedures and medications to reduce surgical time and minimize blood loss.

Open Communications 6: Robotics
(11:00 AM — 12:30 PM)

11:52 AM

Using Machine Learning to Predict Operative Time and Enhance Operating Room Scheduling for Robotic Hysterectomies

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Study Objective: To create a machine learning based predictive analytic model in order to improve estimation of operative time for robotic hysterectomies.
Design: Four machine learning models were tested including linear regression, XGboost, random forest, and catboost. The models incorporated patient characteristics (age, body mass index, surgical history, uterine size, diagnosis, and history of pelvic adhesive disease) and surgical characteristics (presence of trainees, number of procedures performed concomitantly, and surgeon median times for prior 5 and 50 surgeries). Shapely values were used to interpret feature importance. Hyperparameter tuning determined that the XGBoost model performed best. The XGBoost model was compared to current institutional practice of scheduling based on the median time of last 50 surgeries.
Setting: N/A.
Patients or Participants: A dataset of N = 1090 patients undergoing robotic hysterectomy from January to December 2019 across three hospital campuses was utilized. Seventy percent of the data were used for training, 15% for validation and 15% for testing.
Interventions: N/A.
Measurements and Main Results: The XGBoost model outperformed current practice as noted in Table 1. The features that most contributed to this difference were uterine size, body mass index, and number of concomitant procedures.
Conclusion: Machine learning is a valuable tool that may be useful in predicting operative times with the potential to reduce operating room inefficiencies for robotic hysterectomies. Limitations of this model such as the small dataset will be addressed in future work to strength the model's predictive capability.

Open Communications 6: Robotics
(11:00 AM — 12:30 PM)

11:58 AM

Hysteroscopic and Robotic Assisted Laparoscopic Repair of Uterine Niche

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Study Objective: This is a demonstration of hysteroscopy and robotic assisted laparoscopic revision of uterine isthmocele.
Design: This is video demonstrating a surgical technique.
Setting: Patient was placed in dorsal lithotomy, hysteroscopy and robot assisted laparoscopy were used.
Patients or Participants: One patient's case was depicted in video.
Interventions: Cesarean scar defect was visualized by trans-illumination with intrauterine hysteroscopy. A needle was passed through the anterior abdominal wall and vasopressin was injected around defect to aid with hemostasis. The borders of the cesarean scar defect were identified with trans-illumination and resected using cold laparoscopic scissors. The myometrium was repaired in a layered fashion. Hysteroscopy revealed no defect at conclusion of case.
Measurements and Main Results: This video depicts surgical revision of cesarean scar defect.
Conclusion: Hysteroscopy and robotic assisted laparoscopy can be used to repair uterine isthmocele, this is a demonstration of the surgical technique.

Open Communications 6: Robotics
(11:00 AM — 12:30 PM)

12:04 PM

Minimally Invasive Anesthesia for Minimally Invasive Surgery: A Prospective Cohort Study

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Study Objective: In the minimally invasive era, laparoscopic gynecological surgery is currently performed under general anesthesia (GA), which

Table 1. XGboost Performance on the Test Set

Model	Mean Absolute Percentage Error	Overage *(avg min)** Case duration > (predicted + 10%)	Underage *(avg min)** Case duration < (predicted − 10%)	Predictive Capability (Cases within 15%)	Predictive Capability (Cases within 30 min)
Current Practice	64.50	42.15% (27.12)	37.66% (56.60)	31.39%	54.39%
XGboost	28.23	28.88% (24.24)	42.67% (47.00)	40.81%	61.88 %

although considered a safe technique, is accountable for different adverse effects and delayed recovery. Regional anesthesia (RA) from an anesthesiology perspective could be considered the "minimally invasive technique". Aim of this study was to assess the feasibility and the perioperative outcomes of laparoscopic gynecological surgery in regional anesthesia from the point of view of the surgeon, anesthesiologist and patient.
Design: Prospective cohort study.
Setting: Tertiary care University of Naples Federico II.
Patients or Participants: 90 women (class I ASA, BMI <30) who were planned to undergo gynecologic laparoscopy surgery for benign pathology. All women were enrolled from March 2020 to April 2021.
Interventions: All patients underwent surgical laparoscopy under regional (Group A) or general anesthesia (Group B). Postoperative surgical and anesthesiological variables were recorded. Intraoperatively pain score on a Likert scale during all the stages of laparoscopy in RA was assessed.
Measurements and Main Results: Duration of surgery were comparable between the two groups and no conversion to general anesthesia was required. Postoperative pain was significantly lower in Group A up to 6 h ($p< 0.005$) with no statistically significant differences between the two groups at 24 h. The procedure was very acceptable from the patients. In all steps a maximum of 2 points on the Likert scale was recorded. A faster resumption of bowel motility ($p <0.001$) and patient's mobilization (<0.001) was observed in the group A as well as a lower incidence of postoperative nausea and vomit. Early discharge and greater patient's satisfaction were recorded in patients who underwent RA.
Conclusion: RA showed to decrease the impact of surgical stress and to guarantee a quicker recovery without compromising surgical results. As well as different surgical approaches can be selected to treat different pathologies, RA technique could be a viable option for patients.

Open Communications 6: Robotics
(11:00 AM — 12:30 PM)

12:10 PM

Efficiencies in Robotic Radical Trachelectomy

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Study Objective: To demonstrate an efficient and stepwise approach to performing a robotic radical trachelectomy.
Design: Video description of dissection of the retroperitoneal space and identification of key structures, the nerve sparing technique, creation of a deep and lateral bladder flap, cerclage placement and specimen removal, and reapproximation of the vagina to the uterus. Patient provided consent for the video and publication. This video with no identifying patient data was exempt from Institutional Review Boards Approval.
Setting: Robotic-assisted laparoscopy was performed.
Patients or Participants: We present a patient with early-stage cervical adenocarcinoma who was an appropriate candidate for fertility-sparing surgery.
Interventions: After the right retroperitoneum space is entered, key landmarks are noted. After finding the ureter, the paravesical and obturator spaces were created. The superior vesical artery, obturator nerve, and uterine artery are identified and dissected. The ureter is dissected off the flap to the level of the right uterine artery and uterosacral ligament. The rectovaginal septum is then dissected as the next natural field. The same steps are repeated on the left side. The bladder flap is created, making sure that it is both deep and lateral for easier dissection of the vesicovainal ligament and visualization during robotic surgery. The uterocervical junction is incised circumferentially. The round ligaments and uterine manipulator are left in place to aid in the placement of the cerclage, removal of the specimen, and suturing of the vagina to the uterus.
Measurements and Main Results: Utilizing these efficiencies resulted in a shorter operative time of 2 hours and 38 minutes (versus 5 hours and 8 minutes) in this robotic radical trachelectomy.
Conclusion: The efficiencies were the following: an orderly fashion in going from field to field which resulted in less movements, dissecting the bladder flap deep and lateral which aided in taking down the vesicovaginal ligament and visualization, and utilizing the uterine manipulator throughout the case.

Open Communications 7: Oncology
(11:00 AM — 12:30 PM)

11:04 AM

Identification of Inguinal Sentinel Lymph Nodes in Recurrent Vulvar Melanoma

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Study Objective: To demonstrate the feasibility of inguinal sentinel lymph node detection in recurrent vulvar melanoma using ICG fluorescence technique.
Design: Radical local excision and sentinel lymph node biopsies for recurrent vulvar melanoma. The injection of ICG tracer was followed by visualization of sentinel lymph nodes using an Image1 S Rubina system (Karl Storz, Germany).
Setting: Tertiary hospital.
Patients or Participants: one patient, 17 months after primary surgical excision and sentinel lymph biopsy for vulvar malignant melanoma.
Interventions: Injection of ICG tracer around the border of the lesion.
Measurements and Main Results: Bilateral sentinel nodes were successfully identified and removed.
Conclusion: Detection of sentinel lymph nodes in recurrent vulvar melanoma is feasible. ICG tracer can be considered for sentinel mapping in recurrent vulvar cancer.

Open Communications 7: Oncology
(11:00 AM — 12:30 PM)

11:10 AM

Incidence of Venous Thromboembolic Events with Long Term Enoxaparin in Patients Undergoing Robotic Surgery for Endometrial Cancer

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Study Objective: To determine the incidence of venous thromboembolic (VTE) events in patients undergoing robotic surgery for endometrial cancer who receive postoperative enoxaparin for 28 days starting before surgery versus those receiving only a single dose of preoperative prophylaxis with enoxaparin.
Design: Retrospective cohort study.
Setting: University hospital.
Patients or Participants: All patients undergoing robotic assisted surgical staging between 1/2017 to 8/2020 for endometrial intraepithelial neoplasia (EIN), endometrial adenocarcinoma (EAC), uterine serous carcinoma (USC), and uterine carcinosarcoma (MMMT). Exclusion criteria included a history of a prior thromboembolic event prior to surgery (i.e., DVT, PE), thrombophilia, history of a prior CVA, or use of anti-coagulant therapy prior to surgery.
Interventions: N/A.

Measurements and Main Results: A total of 190 patients had robotic assisted surgical staging for endometrial cancer by two attending surgeons at a single gynecologic oncology practice during the study period. One hundred fifty-nine patients met inclusion criteria. In this cohort, 35 (22%) patients received 28-days of prophylactic enoxaparin postoperatively and 124 (78%) patients did not receive postoperative enoxaparin.
There was no significant difference between the 2 groups with respect to age, BMI, tobacco use, aspirin use, and ASA classification. There was no significant difference between the 2 groups with respect to postoperative diagnosis, tumor grade, and stage. There was no significant difference between length of stay and postoperative complications.
The rate of clinical VTE diagnosed within 30 days postoperatively was 0 (0%) in the group receiving 28-days of enoxaparin postoperative and 1 (0.81%) in the group receiving no prophylactic enoxaparin (p= 1.0).
Conclusion: In our patient population, no significant increase in rate of clinical VTE was observed in patients who did not receive 28-days of postoperative enoxaparin compared to those receiving one dose of preoperative enoxaparin who were undergoing robotic surgery for endometrial cancer.

Open Communications 7: Oncology
(11:00 AM — 12:30 PM)

11:16 AM

Innovative Protocol of ART in Women with LNG-Ius for Fertility-Sparing Treatment of Endometrial Intraepithelial Neoplasia

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Study Objective: to evaluate the safety and efficacy of an Assisted Reproductive Technology (ART) program based on controlled ovarian stimulation with Levonorgestrel Intrauterine System (LNG-IUS) *in situ* in women affected by endometrial intraepithelial neoplasia.
Design: prospective observational study.
Setting: young women conservatively treated for FIGO IA G1 early endometrial cancer (EEC) and atypical endometrial hyperplasia (AEH) who underwent ART program with LNG-IUS *in situ*.
Patients or Participants: 6 patients undergoing conservative treatment for EEC (n=1) or AEH (n=5), from January 2019 to March 2021.
Interventions: patients with focal EEC were treated by hysteroscopic resection of the lesion according to Mazzon's technique; patients with AEH were treated by superficial endometrial resection preserving the basal layer of the endometrium. LNG-IUD was inserted in all patients after surgery. Patients were followed with histological evaluation at 3 months by endometrial biopsy, until two subsequent negative biopsies were obtained. At this time, controlled ovarian stimulation was started, oocytes retrieval was performed, and mature oocytes were cryopreserved. After removal of LNG-IUS, embryo transfer procedure was performed. Rates of oocytes retrieved, mature frozen oocytes and pregnancies were assessed. Rates of response and recurrence were also evaluated
Measurements and Main Results: out of 6 patients, 100% had a complete response and no subsequent relapse. Oocytes retrieved were 9.33±2.28 (mean±SD); mature oocytes were 7.5±1.89 (mean±SD). Embryo transfer was performed three months after the LNG-IUS removal. 4 pregnancies were obtained (66.67%),2(50%) of whom resulted in live birth, 1(25%) is still ongoing, 1(25%) resulted in a miscarriage in the first trimester. 2 patients (33.33%) experimented implantation failure and they are waiting for a further attempt
Conclusion: the presence of LNG-IUS during controlled ovarian stimulation has no detrimental effects on ovarian quality, while allowing to balance the potentially dangerous effect of hyperestrogenism on the endometrium of patients affected by AEH or EEC, with promising results about pregnancy outcomes.

Open Communications 7: Oncology
(11:00 AM — 12:30 PM)

11:22 AM

Laparoscopic Purse-String Technique for Containment of Gynecologic Malignancy

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Study Objective: The objective of this video is to demonstrate a robotic-assisted laparoscopically placed purse-string for containment of gynecologic malignancy.
Design: Step-by-step demonstration of a laparoscopic purse-string technique to create a vaginal cerclage and contain malignant tumor cells.
Setting: Academic tertiary referral center.
Patients or Participants: The patient was a 66-year-old female who presented with postmenopausal bleeding. After undergoing physical examination, biopsy of the tumor, and diagnostic imaging, she was ultimately diagnosed with endometrial cancer.
Interventions: The patient underwent a robotic-assisted, laparoscopic total hysterectomy, bilateral salpingo-oophorectomy, bilateral pelvic lymph node dissections, peri-aortic lymph node dissection, and distal omentectomy. Prior to the start of the laparoscopic procedure, methylene blue was injected in the vagina to delineate the most distal portion of the tumor. A purse-string suture was placed to create a vaginal cerclage abdominally prior to creation of colpotomy to help decrease tumor cell dissemination.
Measurements and Main Results: A purse-string suture was successfully placed to encapsulate tumor cells prior to colpotomy. The patient tolerated the procedure well and did not have any post-operative complications.
Conclusion: Placement of a purse-string suture laparoscopically is a feasible surgical technique to help minimize tumor dissemination.

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11:28 AM

Minimally Invasive Surgery in Advanced Endometrial Carcinoma Is Associated with an Increased Risk for Local Recurrence

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Study Objective: To compare oncological outcomes of women with stage II -IIIc endometrial cancer (EC) who underwent minimally invasive surgery (MIS) versus laparotomy.
Design: A retrospective cohort study.
Setting: Academic multi-center.
Patients or Participants: Consecutive women with EC treated at 11 Israeli institutions between 2002 and 2017 were recorded in an assimilated database with a median follow-up of 52 months (range 12-120 months). Women with stage II -IIIc were stratified into groups by intentional route of surgery; MIS vs. laparotomy. Clinical, pathological and outcome data were compared.
Interventions: MIS and laparotomy.
Measurements and Main Results: Three hundred and four women met criteria: 200 underwent laparotomy and 104 MIS. Women in the MIS group were younger, had lower rate of diabetes and lower CA-125 level. Women who underwent laparotomy had higher grade EC and more advanced stage disease; Odds Ratio (OR) and 95% Confidence Interval (CI) 0.34 (0.21-0.56) and 0.56 (0.34-0.92), respectively. Brachytherapy rate was comparable between groups (p=0.715). In a multivariable analysis, including age, comorbidities, disease stage, tumor grade and lymph-vascular space invasion, MIS was not associated with an increased risk for recurrence, progression or decreased overall survival. However, patients operated by MIS had higher risk to recur locally (vaginal cuff or pelvic) (26.9% vs. 16.5%, p=0.032, OR, 1.86, 95% CI 1.05-3.30). MIS was the only independent factor associated with local recurrence, adjusted OR, 2.09, 95% CI 1.12-3.90.
Conclusion: In women with stage II-IIIc EC, MIS was associated with an increased risk for local recurrence compared to laparotomy.

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Mini-resectoscopy Endometrial Biopsy Accuracy Respect Dilatation and Curettage in Endometrial Cancer: A Retrospective Analysis

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Study Objective: Dilatation and curettage (D&C) biopsy is a "gold standard" to confirm the histology and grade of endometrial cancer but the concordance rate was only 70% between D&C and hysterectomy.
Design: We retrospectively reviewed 187 cases of endometrial cancer that were treated at our institution from January 2017 to June 2019. We analyzed all patients who underwent Trans Cervical mini-Resectoscopy (TCR) or D&C biopsy at our institution and received laparoscopic/laparotomic hysterectomy or staging as the treatment by our surgical team.
Setting: We categorized the patients into the TCR group or the D&C group. For each group, we compared the biopsy histological grade and histology with the final hysterectomy of all patients.
Patients or Participants: We analyzed 187 cases of endometrial cancer aged from 29 to 81 years.
Interventions: TCR was carried out, with lidocaine local cervical injection and awake sedation. Resectoscopy was performed with a 7mm bipolar resectoscope. D&C was carried out in general anesthesia and the cervix is dilated up to 10mm Hegar dilators. Two different pathologies analyzed the initial and hysterectomy specimens.
Measurements and Main Results: Endometrial biopsy was obtained by D&C in 103 (55%) cases and by TCR in 84 (45%) of cases.
the median operative time was 17,5 for TCR and 17,41 for D&C without significant differences between the two methods (p<0,99).
The second stage was preoperative detective only with the use of TCR biopsy 5 (100% of cases) respect none of D&C.
Among 72 patients who underwent TCR biopsy, only 4 patients have been grading misdiagnosed in the final pathology, which gives a rate of 5,5% (K 0,918 IC 95% 0,958-0,878 p<0,001).
In the D&C group of 87 patients, 17 (19,5%) patients have been grading misdiagnosed (K 0,699 IC 95% 0,764 - 0,634 p<0,001).
Conclusion: Our data, although retrospective, demonstrate that Trans cervical mini-resectoscopy provides a more accurate reflection of FIGO grade than D&C endometrial sampling.

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Performance of a Multi-Cancer Detection Test as a Tool for Diagnostic Resolution of Symptomatic Gynecological Cancers

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Study Objective: Assess performance of a multi-cancer detection (MCD) test.
Design: Circulating Cell-free Genome Atlas (CCGA; NCT02889978) is a prospective, longitudinal, case-control study. Samples from the second CCGA substudy were used to validate performance of an MCD test, which uses targeted methylation-based cell-free DNA sequencing and machine learning classifiers to detect cancer signal, including from clinically presenting gynecologic cancers, and predict cancer signal origin (CSO).
Setting: N/A.
Patients or Participants: MCD test sensitivity and CSO prediction accuracy were evaluated in a subgroup of participants with clinically presenting cancers (CPCs). Specificity was assessed in noncancer participants and a subgroup with significant nonmalignant conditions, including endometriosis.
Interventions: N/A.
Measurements and Main Results: Specificity was 99.5% (95% confidence interval [CI]: 98.2-99.9%; 396/398) for the noncancer group and 93.8% (71.7-99.7%; 15/16) for the significant nonmalignant conditions noncancer subgroup. Overall sensitivity was 66.4% (62.2-70.3%; 344/518) for CPC participants, 50.0% (15.0-85.0%; 2/4) for cervical, 70.6% (46.9-86.7%; 12/17) for ovarian, and 25.0% (13.8-41.1%; 9/36) for uterine cancers and varied by stage (Table). CSO prediction accuracy was broadly consistent with CSOs for CPC participants with cancers detected (excluding those with multiple, unknown primaries, or "other" cancer; 91.7% [88.3-94.3%; 300/327]).
Conclusion: Consistent with the overall CCGA study, this MCD test performed with high specificity and accuracy of CSO prediction in this subgroup analysis of CPCs, including gynecological cancers. Findings support potential use of this test for diagnostic workup of symptomatic disease.

Cancer	Stage, Positive Test/Total Cancer; Sensitivity (95% CI)				CSO Prediction Accuracy, n/N(95% CI)
	I	II	III	IV	
Cervix	1/3; 33.3% (1.7-79.2%)	-	1/1; 100.0% (5.1-100.0%)	-	2/2; 100.0% (34.2-100.0%)
Ovary	0/1; 0.0% (0.0-94.9%)	0/1; 0.0% (0.0-94.9%)	10/12; 83.3% (55.2-95.3%)	2/3; 66.7% (20.8-98.3%)	12/12; 100% (75.8-100.0%)
Uterus	5/32; 15.6% (6.9-31.8%)	-	3/3; 100.0% (43.9-100.0%)	1/1; 100.0% (5.1-100.0%)	8/9; 88.9% (56.5-99.4%)
Vagina	-	-	1/1; 100.0% (5.1-100.0%)	-	1/1; 100% (5.1-100%)
Vulva	-	-	1/2; 50.0% (2.6-97.4%)	-	0/1; 0% (0.0-94.9%)

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Perioperative Outcomes Following Opportunistic Bilateral Salpingo-Oophorectomy at the Time of Sacrocolpopexy

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Study Objective: Surgeons commonly opt to perform an opportunistic bilateral salpingo-oophorectomy (BSO) for peri- and postmenopausal women who undergo pelvic reconstructive surgery (PRS) in order to prevent future development of malignancy. The prevalence of underlying gynecologic malignancy amongst this population is not well defined in medical literature. There is also limited information on the impact of an opportunistic BSO on perioperative outcomes. This study aims to investigate the oncologic incidence and perioperative outcomes for those undergoing robotic-assisted laparoscopic sacrocolpopexy (RA-SCP) for pelvic organ prolapse (POP) with and without a concomitant BSO.
Design: Retrospective descriptive analysis.
Setting: University-affiliated community hospital.
Patients or Participants: Cases of patients who underwent a RA-SCP without hysterectomy (n=283) by one surgeon between March 2017 and March 2020.
Interventions: RA-SCP with concomitant BSO (n=150) versus without BSO (n=133).
Measurements and Main Results: A total of 2 patients (0.7%) were found to have malignant adnexal pathology: 2 high grade serous cancers of the fallopian tube with no ovarian cancers detected. Cases with concomitant BSO required statistically significant longer operative times (215 vs 197 mins, $p<0.05$). Morphine milligram equivalents (MME) used in the post-anesthesia care unit (PACU) and the recovery floor were comparable between with and without BSO groups (2.95 and 20.09 MME, vs 3.14 and 22.55 MME, $p=0.59$, $p=0.49$), respectively. Quantitative blood loss was similar amongst both groups (-2.12 and -2.31 g/dL, $p=0.08$). Demographics were without statistical differences between groups.
Conclusion: Performing opportunistic BSOs at the time of PRS with a RA-SCP is a well-tolerated procedure. A small subset of patients were found to have gynecologic cancer. Surgeons should counsel patients regarding the safety profile of opportunistic BSO and the potential to detect cancer in patients with POP who otherwise have no suspicion for adnexal malignancy.

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Primary Debulking Via Robotic-Assisted Laparoscopy for Stage IIIc Poorly Differentiated Endometrioid Adenocarcinoma of the Ovary.

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Study Objective: It has been demonstrated that minimally invasive surgery (MIS) is feasible and effective for interval cytoreduction after neoadjuvant chemotherapy for advanced ovarian cancer patients. MIS is also widely used to assess resectability in the setting of newly diagnosed advanced ovarian cancer. However, the role of MIS in the primary debulking of advanced ovarian cancer is less clear. Here, we present a case of a patient with stage IIIC high-grade endometrioid ovarian cancer, which was optimally debulked to no gross residual(R0) via robotic-assisted laparoscopy.
Design: This is a presentation of a patient who underwent primary ovarian cancer debulking via robotic-assisted laparoscopy.
Setting: The patient was taken to the operating for a planned robotic left ovarian oophorectomy, myomectomy and resection of endometriosis. Diagnostic laparoscopy revealed peritoneal tumor implants consistent with advanced ovarian cancer. The frozen section confirmed epithelial ovarian cancer.
Patients or Participants: This case involves a 37-yo patient who was found to have advanced ovarian cancer at the time of a planned robotic surgery for a complex left ovarian cyst and resection of fibroids and endometriosis.
Interventions: The patient underwent robotic-assisted total hysterectomy, bilateral salpingo-oophorectomy, infracolic omentectomy, resection of pelvic peritoneal, rectosigmoid, and diaphragmatic tumor nodules, pelvic and paraaortic lymph node dissection as well as pelvic washing. Final pathology showed stage IIIC poorly differentiated endometrioid adenocarcinoma of the ovary.
Measurements and Main Results: Complete gross resection (R0) was achieved. The estimated blood loss was 50 cc. The operative time was 3 hours and 10 mins. She was discharged on postoperative day 1. Her postoperative course was uncomplicated. Adjuvant chemotherapy with IV carboplatin and paclitaxel was initiated three weeks after surgery.
Conclusion: MIS is a feasible option for primary debulking in select cases of advanced ovarian cancer.

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Sentinel Node Mapping in Endometrial Cancer Using Hysteroscopic Injection of Indocyanine Green and Near-Infrared Fluorescence Imaging

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Study Objective: To report on the performance of hysteroscopic injection of indocyanine green (ICG) for sentinel lymph node mapping (SNM) in endometrial cancer.
Design: This is a retrospective cohort study of consecutive patients who had SNM via hysteroscopic injection of IGC. Detection rate, accuracy, and oncologic outcomes were evaluated.
Setting: Cancer center.

Patients or Participants: Consecutive patients with apparent early-stage endometrial cancer.
Interventions: Laparoscopic staging including hysterectomy, bilateral salpingo-oophorectomy, and SNM. SNM was performed using a hysteroscopic injection of IGC and near-infrared fluorescence imaging (Video).
Measurements and Main Results: Chart of 52 patients were evaluated. At least one sentinel node was detected in 95% of patients. Bilateral pelvic mapping was found in 74% of cases. In 45% of cases, SLNs mapped in both pelvic and para-aortic nodes, and four cases (8%) in the para-aortic area, only. In three patients (6%) sentinel nodes were found in aberrant (parametrial/presacral) areas. Seven (13.5%) patients were diagnosed with nodal involvement. Low volume disease was observed in four (8%) patients (2 with isolated tumor cells and 2 with micrometastasis). After a median (range) follow-up of 34.7 (10, 61) months, five (9.6%) patients developed recurrences: two abdominal/distant, one vaginal, and one nodal (in the para-aortic area in a patient diagnosed with endometrioid G1 endometrial cancer and isolated tumor cells in a pelvic node). No patient died of disease.
Conclusion: Hysteroscopic injection of ICG ensures delineation of lymphatic drainage from the tumor area, thus achieving accurate detection of sentinel nodes. Further evidence is warranted to assess the role of hysteroscopic injection in identifying extrapelvic sentinel nodes.

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The Association of Endosalpingiosis with Gynecologic Malignancy

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Study Objective: Endosalpingiosis (ES) has been shown to potentially have a relationship with gynecologic malignancy based on case reports and case series. This study sought to determine the association of ES with gynecologic cancer and provide details regarding cancer type and time until diagnoses.
Design: A retrospective cohort analysis from 2000 through 2020 of all patients who underwent a gynecologic surgery with pathology consistent with ES at a nationwide, multi-site institution. Data was obtained by searching pathology reports for the search term "endosalpingiosis."
Setting: Academic tertiary care centers including three distinct institutions.
Patients or Participants: Patients with pathology-proven ES.
Interventions: Gynecologic surgery.
Measurements and Main Results: A total of 505 patients met inclusion criteria. Demographic data showed a mean age of 52.9 years at the time of surgery (range 15.7 – 95.4), white race (91.7%), and married marital status (64.6%). Mean body mass index (BMI) was 29.8kg/m^2 (range 15.3kg/m^2 – 58.5kg/m^2). Of patients with ES on pathology, 97 (19.2%) had concurrent endometriosis. Indications for surgery varied, with 145 (28.7%) having surgery for a pelvic mass, 149 (29.5%) for known or suspected cancer, and 80 (15.8%) for pelvic pain. There were 57 (11.3%) ES patients with a pre-existing diagnosis of malignancy and 218 (43.2%) with a post-operative diagnosis of malignancy. Of those with a post-operative diagnosis of malignancy, 204 (93.6%) were diagnosed concurrently during surgery for ES. The most common associated cancers were ovarian (n=96, 44.0%) and uterine (n=90, 41.3%). Mean time from ES diagnosis until malignancy diagnosis was 6.3 months. At the time of analysis, 415 patients (82.2%) were still living, with a total mean follow-up time of 75.6 months (range 0 – 249.9).
Conclusion: The presence of ES has an association with malignancy, specifically, uterine and ovarian cancers. Additional analysis comparing ES and endometriosis is warranted to determine if this association remains significant.

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Uterine Transposition after Radical Trachelectomy for Fertility Preservation: Step By Step of the Surgical Technique.

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Study Objective: To demonstrate the technique of a laparoscopic uterine transposition for fertility preservation in a patient with a previous radical trachelectomy.
Design: A technical video showing step-by-step a laparoscopic uterine transposition.
Setting: A tertiary referral hospital in Argentina. For surgery, the patient was placed in a dorsal modified lithotomy position. During the pelvic part of the procedure, the surgeon was on the patient's left side, the first assistant on the right, and the second assistant between the patient's legs. When working in the upper abdomen the surgeon moved to the patient's right side, the first assistant was between the patient's legs, and the second assistant to the left side.
Patients or Participants: A 27-year-old woman with a FIGO stage IB1 squamous cell cervical carcinoma who had had a radical trachelectomy, and after histopathological assessment fulfilled the criteria for pelvic external radiation therapy.
Interventions: This intervention for fertility preservation consists of three main steps. During the first one, a minimally invasive surgery is performed to detach the uterus and adnexa from the vagina and to place them in the right upper abdomen, out of the pelvic radiation field. Afterwards, the patient is able to start the radiotherapy without delays, and after finishing it, the last step is to reposition the uterus and adnexa in the pelvis with a laparoscopic approach.
Measurements and Main Results: Two months after surgery, the patient has regular uterine bleeding with oral contraceptives. A transvaginal doppler ultrasound shows normal blood flow to the uterus, and the cervix exhibits a normal appearance on physical examination.
Conclusion: Uterine transposition is a feasible surgery, and it should be considered as an alternative for fertility preservation in women who have a pelvic tumor and require pelvic radiation therapy.

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Diagnostic Accuracy of Intraoperative Tools for Detecting Endometriosis

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Study Objective: To evaluate the diagnostic accuracy of intraoperative laparoscopic imaging tools in reference to that of histopathology for detecting endometriotic lesions and to compare them with conventional white-light inspection by performing a systematic review with meta-analysis.
Design: We performed a systematic review and meta-analysis and searched the MEDLINE, EMBASE, and CENTRAL databases in addition to citations and reference lists. Two authors screened 1038 citations for eligibility.

Setting: Randomized controlled trials or prospective cohort studies published in English.
Patients or Participants: Women with endometriosis undergoing laparoscopic surgery.
Interventions: The accuracy of intraoperative imaging tools (narrow-band imaging, 5-aminolevulinic acid–induced fluorescence, autofluorescence imaging, indocyanine green, and a 3-dimensional robotic laparoscopy) for diagnosing endometriosis during laparoscopy was assessed.
Measurements and Main Results: Seven studies were eligible, representing 472 women. Two authors extracted data and assessed the validity of the included studies. In all studies, additional endometriotic lesions were diagnosed with the enhanced imaging tool compared with white-light inspection alone. In the 4 studies that appropriately performed control biopsies, enhanced imaging techniques were associated with a higher sensitivity and specificity compared with white-light inspection (0.84 and 0.89 compared with 0.75 and 0.76, p ≤.001, bivariate random-effect model). Biopsies of normal-looking peritoneum were not performed to verify the results in 3 studies leading to the overestimation of the sensitivity and underestimation of the specificity of imaging tools. Adverse events were uncommon (n = 5) and reported only with the use of exogeneous photosensitizers. There were no reports of long-term changes in patient-reported outcomes arising from better detection of endometriosis lesions.
Conclusion: Studies report that enhanced imaging allows for the detection of additional endometriotic lesions missed by conventional white-light laparoscopy. The benefits of finding these additional lesions using enhanced imaging compared with white-light inspection alone on long-term postoperative outcomes have not been determined, and these tools should be considered only in a research context at this time.

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Novel Articulated Laparoscopy in Gynecologic Surgery

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Study Objective: To discuss the advantages and disadvantages of articulated laparoscopy versus conventional laparoscopy. To demonstrate the benefits of a novel articulated laparoscopic device in a cadaveric model.
Design: Educational video.
Setting: Cadaver Laboratory and Simulation Center- Laparoscopic surgery performed in a cadaveric model.
Patients or Participants: We present a novel articulated laparoscopic instrument and our experience with the implementation of this device in a cadaveric model.
Interventions: Cadaveric laparoscopic wristed dissection including adhesiolysis, retroperitoneal dissection, salpingo-oophorectomy, and hysterectomy.
Measurements and Main Results: The advantages of robotic surgery include that it represents a less morbid alternative to laparotomy, it gives a minimally invasive surgery option for a broader patient population, and it improves precision with wristed instruments. On the other hand, Limitations of robotic surgery include the absence of haptic or tactile feedback and a higher cost. Additionally, depending on the practice setting, availability may be a problem. We present a novel hand-held articulated laparoscopic device that provides haptic feedback, short set up time, lower cost while improving precision and dexterity with wristed instruments.
Conclusion: This novel articulated laparoscopic instrument may be an option to offer MIS surgery with potential increased dexterity at a lower cost compared with robotic surgery. This option potentially combines the benefits of conventional laparoscopy and robotic surgery. Future research is needed to determine the learning curve and operative cost of this device.

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Smarther MRI. Novel Software Generates 3d Renderings of Fibroid Uterus for Preoperative Surgical Planning and Intraoperative Approach.

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Study Objective: To compare the effects of conventional MRI and 3D Smart MRI for myomectomies by evaluating operative times, conversion rates, bleeding. A secondary objective is to compare patient satisfaction and perceived understanding of surgery for pre-surgical counseling.
Design: Use hospitalization records on patients who underwent myomectomies with standard MRI and collect data on the length of the case, EBL, conversion rate. This will be compared with the same measures in patients where 3D Smart MRI was employed to render anatomy adapted from coronal, sagittal, and axial 2D MRI imaging. The operating surgeons in both arms will be qualified MIGS surgeons.
For our secondary objective, we design patient questionnaire for patients undergoing myomectomies using the standard 2D MRI during pre-surgical counseling and comparing it to the questionnaire of patients counseled with 3D Smart MRI renderings. The questionnaire will gauge patient 's understanding of the amount/size of the fibroids, their understanding of the procedure, and their satisfaction of pre-surgical counseling.
Setting: Major Academic Medical Center.
Patients or Participants: Population consist of 90 patients who have undergone or will undergo a laparoscopic and/or robot-assisted myomectomy, with 45 patients receiving conventional pre-surgical MRI and 45 patients receiving 3D Smart MRI.
Interventions: Primary endpoints: Operative time, blood loss, and conversion rate from laparoscopic to open surgery, in patients whose pre-surgical and/or intra-operative imaging consultation was a standard MRI or Smart MRI technology. The three primary endpoints will be compared between the two MRI modalities.
Secondary endpoints: Patient satisfaction with pre-surgical counseling and patient perceived pre-surgical understanding in each of the two MRI groups.
Measurements and Main Results: TBD.
Conclusion: Hypothetically, 3D imaging of the leiomyomatous uterus with relationships of fibroids to one another and surrounding organs could help plan and execute surgical techniques more efficiently, leading to shorter operative times, less blood loss, fewer complications, and more complete excisions of myomas.

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The Cerene Cryoablation Device for the Treatment of Heavy Menstrual Bleeding: 36-Month Outcomes from the Clarity Study

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Study Objective: To evaluate the safety and effectiveness of a novel cryoablation device (*Cerene Cryotherapy Device, Channel Medsystems,*

Berkeley, CA) in premenopausal women with heavy menstrual bleeding (HMB) due to benign causes.
Design: A prospective, multi-center, single-arm, open-label study.
Setting: 8 sites in the USA, 1 in Mexico, 2 in Canada.
Patients or Participants: 242 Intent-to-Treat women, 25 to 50 years of age, with HMB, uterine sound ≤10 cm, and endometrial cavity between 2.5 to 6.5 cm.
Interventions: The Cerene single-use disposable device, delivered a 2.5-minute cryoablation of the endometrium. Analgesia and local anesthesia were administered per investigator discretion: 97% of subjects received a paracervical block with or without oral medications, 3% IV sedation, and none received general anesthesia. 180 USA treatments were performed in the physician office setting and none in the operating room. Subjects were evaluated through Month 12 and long term at Month 24 and 36.
Measurements and Main Results: 201 women were evaluated at Month 36. 88.6% (178/201) reported amenorrhea, a lighter than normal, or normal period. 91% (182/201) reported no or slight limitations in life activities in their Menorrhagia Impact Quality of Life (QoL) questionnaire. 85% (171/201) reported premenstrual symptoms (PMS) at a low frequency (none, rarely, or sometimes) in their PMS Impact QoL Survey. 84.5% (153/181) of subjects who reported level of satisfaction at the final study visit stated that they were satisfied or very satisfied with their treatment outcome. 7% (17/242) underwent a post ablation intervention for menstrual bleeding.
Conclusion: The Cerene endometrial cryoablation device maintains safety and effectiveness for the treatment of HMB through the long-term study visit at 36 months. It is a global endometrial ablation technique that can be performed consistently in the office setting requiring minimal anesthesia or analgesia.

Open Communications 8: New Instrumentation
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The Use of Intra-Abdominal Ultrasound during Robotic Myomectomy

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Study Objective: To describe a technique for use of an intra-abdominal ultrasound during robotic myomectomy and review clinical results using ultrasound to identify additional fibroids for removal.
Design: Step-by-step demonstration of intra-abdominal ultrasound during robotic myomectomy including a case example and case series.
Setting: Academic Medical Center.
Patients or Participants: The case example highlights a 31-year-old G0 with heavy bleeding and MRI showing a dominant 7cm submucosal fibroid, and a possible small intramural fibroid. The case series includes 51 robotic myomectomy cases with intra-abdominal ultrasound of the uterus performed from July 2019- March 2021 by a single surgeon.
Interventions: Robotic myomectomy was performed in standard fashion. After removal of all known fibroids, the ultrasound transducer was introduced into the abdominal cavity and examination of the uterus was performed to identify any additional fibroids that were not visually evident. The additional fibroids identified were removed.
Measurements and Main Results: In the case example, after removal of the dominant fibroid, ultrasound examination of the uterus revealed an additional 1.5 cm intramural fibroid which was removed. In the case series, additional fibroids were identified using the intra-abdominal ultrasound and removed in 14 cases (27.5%). 1-2 additional fibroids were noted, ranging in size from 1-2.5cm. In eight cases, visual inspection and the ultrasound located more fibroids than were noted on MRI. In six cases, MRI noted all fibroids that were subsequently removed, but the ultrasound inspection was needed to find a fibroid that was not visually apparent.
Conclusion: Intra-abdominal ultrasound technology can be utilized to maximize candidacy for minimally invasive robotic myomectomies, while ensuring more complete fibroid removal and sparing of crucial structures.

Open Communications 8: New Instrumentation
(2:00 PM — 3:00 PM)

2:34 PM

Transcervical Fibroid Ablation with the Sonata® System in an Ambulatory Setting with Local Anesthetic Is Highly Tolerable

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Study Objective: To assess the adequacy of pain control in women symptomatic uterine fibroids undergoing transcervical fibroid ablation (TFA) under multimodal local anesthesia in an ambulatory care setting.
Design: Prospective single center study.
Setting: Single hospital in the UK.
Patients or Participants: Women undergoing TFA with the Sonata® System.
Interventions: After oral premedication (generally diclofenac or other NSAID, paracetamol and ondansetron), cervical block and intramyometrial local anesthesia, TFA was used to ablate fibroids under integrated real-time intrauterine sonography. Patients were eligible for discharge 20-30 minutes post-procedure.
Measurements and Main Results: Thirteen women, five (38%) of whom desired fertility, have been treated to date. Up to 4 fibroids 2.6 cm-7.7 cm in maximum diameter were ablated in a single treatment session. The duration in the treatment room were all <50 minutes. The mean pain score (0-10 range) was 0.5. Nine women had pain scores of 0, two had scores of 1 and the remaining two patients reported scores of 2. No procedure was terminated early due to pain, and no patient had a recovery room length of stay >60 minutes. There were no patients admitted or readmitted for any reason, and 100% of patients would recommend the procedure to others.
Conclusion: Transcervical fibroid ablation with the Sonata System may be performed under multimodal local anesthesia with a high degree of tolerability and low pain scores.

Open Communications 8: New Instrumentation
(2:00 PM — 3:00 PM)

2:40 PM

Virtual Reality Effects on Acute Pain during Office Hysteroscopy: A Randomized Control Trial

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Study Objective: To evaluate the use of virtual reality (VR) as a noninvasive and nonpharmacologic analgesic during office hysteroscopy procedures.
Design: Single site, parallel group, unblinded randomized controlled trial.
Setting: Single academic outpatient minimally invasive gynecology surgery clinic.
Patients or Participants: Women over 18 years of age scheduled to undergo in office hysteroscopy were invited to participate in the study. 85 participants were approached, 50 consented to participate and were randomized using a computerized random number generator (n=25 in VR group and n=25 in standard group).
Interventions: Patients were randomized to VR intervention or standard of care from May to November 2020. The VR intervention consisted of listening to a 10-minute guided Zen meditation using The Guided Meditation VR App through an Oculus Go headset.

Measurements and Main Results: Primary outcome was peak pain score during the procedure based on a 100 mm visual analogue scale (VAS) score. The secondary outcomes were change in pain score (peak pain score minus baseline pain score) and change in participant's HR (average BPM before procedure − average BPM during procedure). Data was also collected to assess patient and surgeon satisfaction.
The peak pain score during the procedure for the VR group was 35 [15, 60] vs 30 [9, 54] for the standard hysteroscopy group (P=0.317). Compared with the standard of care, VR had no significant effect on median heart rate change during the procedure (-4.6 [-0.5,11.1] vs +2.8 [0.1,7.7] P=0.327). Participants in the VR group had a positive experience with VR and 88% reported the music was very or slightly calming and 84% reported meditation was very or slightly helpful. No serious adverse events occurred.
Conclusion: This study found no statistically significant difference in pain scores or change in heart rate prior to, during, or after hysteroscopic procedures with VR compared to standard of care. Participants were satisfied with the VR intervention.

Open Communications 9: Natural Orifice
(3:15 PM — 4:15 PM)

3:19 PM

Bilateral Salpingo-Oopherectomy for BRCA Mutation Carriers Via Transvaginal Natural Orifice Transluminal Endoscopic Surgery Approach

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Study Objective: As the experience of Transvaginal Natural Orifice Transluminal Endoscopic Surgery (vNOTES) has been accumulating, it has been questioned whether it can serve as an alternative approach for laparoscopic salphingo-oopherectomy for BRCA mutation carrier women, due to challenging accessibility and perhaps limited visualization of the abdominal cavity. The aim of this study is to report preliminary results using the vNOTES approach for risk reducing bilateral salphingo-oopherectomy for BRCA carrier women.
Design: A retrospective cohort study, February 2019 to January 2021.
Setting: Single medical center.
Patients or Participants: BRCA mutation carrier women that underwent risk reducing bilateral salphingo-oopherectomy via vNOTES approach.
Interventions: Data were collected from women's' medical files including demographics, medical and obstetrical history, operative characteristics and pathology results. All operations were performed by a single high skilled surgeon. Primary outcome was defined as successful bilateral salpingo-oopherectomy removal by vNOTES approach.
Measurements and Main Results: Thirty-seven women met inclusion criteria. Of them, 43% (n=16) and 57% (n=21) BRCA1 and BRCA2 mutations carriers, respectively, and 8% (n=3) both mutations carriers. Median age conducting risk reducing operation was 41(IQR39-54) years. Median parity was 2(2-3) with none of the women having past cesarean deliveries. All operations were completed using the vNOTES approach only. Diaphragmatic screening was reported normal in all of the women. No complications were documented in any of the operations including: Bleeding, damage to adjacent organ and need to transfer to laparoscopy. Operation median time was 60(57-68) minutes. All women were released from hospitalization the following day of the surgery. On follow up visit a month post operation, only one woman reported withdrawal bleeding, and all others reported being satisfied from the operation. Histo-pathological examination were clear in all of the women.
Conclusion: Risk reducing bilateral salphingo-oopherectomy by vNOTES provides a feasible new approach for the treatment of BRCA mutation carriers, with improved women comfort and better cosmetic results.

Open Communications 9: Natural Orifice
(3:15 PM — 4:15 PM)

3:25 PM

Simplifying Vaginal Natural Orifice Transluminal Endoscopic Surgery (VNOTES) in Ten Steps

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Study Objective: To present an overview of Vaginal Natural Orifice Transluminal Endoscopic Surgery (VNOTES) and to demonstrate a simple 10-Step approach based on our preliminary cases.
Design: Demonstration of VNOTES surgical technique.
Setting: Philippine tertiary training hospital.
Patients or Participants: Women undergoing Vaginal Natural Orifice Transluminal Endoscopic Surgery (VNOTES) for benign indications.
Interventions: Vaginal Natural Orifice Transluminal Endoscopic Surgery (VNOTES) adnexal procedures and hysterectomy.
Measurements and Main Results: Learning VNOTES can be quite daunting even for the most experienced laparoscopic surgeon. We will present ten simple steps that helped us in our VNOTES journey. These include: (1) insertion of anterior and posterior retractor, (2) infiltration of epinephrine, (3) posterior colpotomy (and anterior colpotomy for hysterectomy), (4) positioning of the port, (5) placement of cherry ball, (6) placement of port cover, trocars and creation of pneumoperitoneum, (7) proceed with adnexal procedure/hysterectomy, (8) removal of the specimen, (9) removal of cherry ball, trocars, and port (10) suturing of vaginal cuff or posterior cul-de-sac.
Conclusion: Vaginal Natural Orifice Transluminal Endoscopic Surgery (VNOTES), although safe and feasible, is a daunting procedure for surgeons who are beginning to perform it. We hope that these ten simple steps will help guide future surgeons interested in performing Vaginal Natural Orifice Transluminal Endoscopic Surgery (VNOTES) surgery.

Open Communications 9: Natural Orifice
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3:31 PM

Stepwises Technique in Robotic Assisted Notes Sacrocolpopexy

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Study Objective: To demonstrate stepwise techniques for the successful utilization of the single-site technique for safely performing transvaginal sacrocolpopexy for pelvic organ prolapse.
Design: Stepwise demonstration with narrated video footage.
Setting: An academic tertiary care hospital.
Patients or Participants: The patient is a 69-year-old G2P2002 with a history of SVD x2 who presented with symptomatic stage II anterior vaginal prolapse (Aa +1) and stage II posterior vaginal prolapse (Ap -1). The preoperative vaginal length was measured at 9 cm.
Interventions: Laparoscopic transvaginal single-site sacrocolpopexy has been demonstrated to be feasible and safe in the surgical management of pelvic organ prolapse. However, retroperitoneal dissection or suturing/knot tying can be technically challenging to perform, especially in the event of an anatomical variation of a deeply angled S1 vertebra. Wristed robotic instrumentation may overcome some of these obstacles and result

in easier suturing and knot tying. Integration of a robotic platform for sacrocolpopexy is a novel alternative minimally invasive approach that is more cosmetic, safer and effective.
Measurements and Main Results: The procedure was successfully performed in approximately 227 minutes with a measured postoperative vaginal length of 7 cm. The patient's postoperative pelvic organ prolapse quantification was stage 0.
Conclusion: Robotic-assisted transvaginal single-site sacrocolpopexy for pelvic organ prolapse is feasible, effective, and safe in patients with pelvic organ prolapse.

Open Communications 9: Natural Orifice
(3:15 PM — 4:15 PM)

3:37 PM

Surgical Outcomes of Hysterectomy Via Robotic Assisted Versus Traditional Transvaginal Natural Orifice Transluminal Endoscopic Surgery

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Study Objective: To evaluate the safety and feasibility of robotic assisted transvaginal natural orifice transluminal endoscopic surgery (R-vNOTES) hysterectomy when compared to traditional vNOTES (T-vNOTES) hysterectomy.
Design: A retrospective chart review.
Setting: An academic tertiary setting.
Patients or Participants: 114 patients with benign gynecologic indication for hysterectomy.
Interventions: T-vNOTES or R-vNOTES hysterectomy performed by a single minimally invasive gynecologic surgeon in the study period.
Measurements and Main Results: The primary outcome of this study was surgical equivalence, measured principally by total operative time between T-vNOTES and R-vNOTES hysterectomy. Secondary operative outcomes measured included estimated blood loss, length of hospital stay, reported postoperative pain levels, and number of conversions. 79 women underwent T-vNOTES hysterectomy and 35 women underwent R-vNOTES hysterectomy without differences in operative time ($p = .37$), estimated blood loss ($p = .27$), length of hospital stay ($p = .06$), or reported postoperative pain levels at weeks 1, 2, and 3 after surgery ($p = .78$, $p = .36$, $p = .38$, respectively). 6 patients underwent conversion in the T-vNOTES hysterectomy group compared to 0 in the R-vNOTES hysterectomy group; however, this was not statistically significantly different, and there were no conversions to laparotomy.
Conclusion: Robotic vNOTES hysterectomy is a feasible approach to surgery when compared to traditional vNOTES hysterectomy and warrants further consideration as a skillset in a gynecologic surgeon's toolbox. Wristed instruments may allow surgeons unexperienced in single site laparoscopy to more quickly adopt vNOTES as a new technique when performing hysterectomy through a comparable minimally invasive approach.

Open Communications 9: Natural Orifice
(3:15 PM — 4:15 PM)

3:43 PM

Systematic Review on Hysterectomy By Vaginal Natural Orifice Transluminal Endoscopic Surgery Compared to Laparoscopic Hysterectomy

Noori N.,[1,] Housmans S.,[2,3] Kapurubandara S.,[4] Bosteels J.J.A.,[2,5] Cattani L.,[2,3] Alkatout I.,[6] Deprest J.,[2,3] Baekelandt J.F.[7]. [1]Department of Obstetrics and Gynaecology, Westmead Hospital, Sydney, NSW, Australia; [2]Department of Development and Regeneration, Faculty of Medicine, Group Biomedical Sciences, Leuven, Belgium; [3]Department of Obstetrics and Gynaecology, University Hospitals Leuven, Leuven, Belgium; [4]Westmead Hospital, Obstetrics and Gynecology, Parramatta, NSW, Australia; [5]Department of Obstetrics and Gynaecology, Imelda Hospital, Bonheiden, Belgium; [6]Kiel School of Gynaecological Endoscopy, Department of Gynaecologiy and Obstetrics, University Hospitals Schleswig-Holstein, Kiel, Germany; [7]Gynecological Oncology and Endoscopy, Imelda Hospital, Boortmeerbeek, Belgium*
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Study Objective: We aimed to report an update of the systematic review and meta-analysis published in 2016, comparing hysterectomy by vaginal natural orifice transluminal endoscopic surgery (vNOTES) to the laparoscopic approach for benign indications.
Design: This was a systematic review and meta-analysis. We searched MEDLINE, EMBASE, CENTRAL and additional sources and aimed to retrieve randomised controlled trials (RCTs), controlled clinical trials (CCTs) and prospective/retrospective cohort studies in human subjects that allowed direct comparison of vNOTES to laparoscopy. Primary outcome was the proportion of women successfully treated with the intended approach to perform hysterectomy without conversion to any other technique.
Setting: N/A.
Patients or Participants: We included studies in the adult female population, undergoing removal of the uterus for benign gynecological disease. Studies on interventions for genital prolapse or gynecological malignancy were excluded.
Interventions: N/A.
Measurements and Main Results: Our search yielded one RCT and five retrospective cohort trials. Pooled analysis of two subgroups showed that, compared to conventional laparoscopy, vNOTES is equally effective to successfully remove the uterus in individuals meeting the inclusion criteria. vNOTES had significantly lower values for operation time, length of stay and estimated blood loss. There was no significant difference in intraoperative and post-operative complications, readmission, pain scores at 24 hours post-operative and change in haemoglobin on day 1 post-operative.
Conclusion: The available randomised and observational data show that vNOTES hysterectomy is an effective and safe novel technique for women eligible for endoscopic surgery.

Open Communications 9: Natural Orifice
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3:49 PM

The Original Minimally Invasive Hysterectomy, - Safe, Teachable, and More Relevant Today Than Ever

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Study Objective: TVH is most minimally invasive hysterectomy, but experience with this is decreasing due to lack of training and emphasis on vaginal approach. Yet competence in vaginal surgery allows one to expand their minimally invasive surgical repertoire, including adoption of vNOTES into their practice, vaginal laparoscopic entry into peritoneal cavity in the difficult surgical abdomen, vaginal morcellation after TLH, and drainage of pelvic abscess vaginally. We present 8 years of data showing that the majority of patients presenting to resident clinic at an academic medical center can safely have a resident performed TVH. The benefits of TVH make it vital to expand teaching of this procedure in residency programs and minimally invasive fellowships. Additional objectives: present ideas to incorporate simulation into TVH training and make intraoperative vaginal teaching easier and safer.
Design: retrospective review of resident hysterectomy experience with a single academic surgeon from 2012-2020.
Setting: academic medical center, resident teaching clinic.

Patients or Participants: women needing hysterectomy.
Interventions: Hysterectomy, with over 95% of cases performed with resident as primary surgeon.
Measurements and Main Results: -379 hysterectomies: 63% TVH, 31% LAVH/TLH, 8% abdominal.
- Demographics of the 231 TVH patients: 29% obese, 23% morbidly obese, 22% with prior C/S, and 4.7% nulliparous
- TVH without morcellation: average time 146 mins, uterine weight 170 gm (27-235).
- TVH with morcellation: average time 188 mins, average weight 308 gms (55-895).

-TVH complications:
- Cystotomy 1.3%
- Ureteral or bowel injury - 0
- EBL>1000 1.7%
- Urgent conversion 1.2%
- Return to OR 0.8%
- Surgical site infections: 0.8%
- Chronic femoral nerve pain: 0.4%

Conclusion: TVH is safest, least invasive invasive hysterectomy route, even when performed primarily by resident physicians, with low complication rates. Surveys show recent graduates are more likely to perform and prefer TVH over other approaches when they've had more exposure and experience. Support is needed from national organizations and minimally invasive fellowship programs to increase competence among young physicians.

Wednesday, November 17, 2021 Open Communications 10: Endometriosis
(11:00 AM — 12:30 PM)

11:04 AM

Acute Bowel Obstruction Complicating Peritoneal Endometriosis Resection.

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Study Objective: Describe a rare complication of laparoscopic surgery, acute bowel obstruction, and review ways to prevent it.
Design: Case report.
Setting: Hospital.
Patients or Participants: Patient submitted to peritoneal endometriosis resection complicating with acute bowel obstruction due to internal hernia.
Interventions: Diagnosis and treatment of internal hernia after endometriosis surgery.
Measurements and Main Results: Steps to diagnosis and surgical treatment.
Conclusion: Low threshold to re-operate is needed.

Open Communications 10: Endometriosis
(11:00 AM — 12:30 PM)

11:10 AM

Data from a Cohort of Newly Diagnosed with Endometriosis Do Not Demonstrate That Endometriosis Is Always a Progressive Disease.

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Study Objective: To study the correlation between age and the severity (assessed with the rAFS score, deep nodule ≥ 2 cm) of the disease in patients newly and histologically diagnosed with endometriosis.
Design: A prospective multicenter cohort study.
Setting: Public and private gynecologic departments of Auvergne (geographical area).
Patients or Participants: A prospective multi-center cohort of patients leaving in 3 French departments, aged 15 to 50 years, newly and histologically diagnosed with endometriosis.
Interventions: At surgery, the endometriosis was treated thus allowing an adequate staging of the disease.
Measurements and Main Results: The severity of endometriosis was assessed using the RAFS score and the diameter of the largest deep nodule. The R-FS stage and the presence of a ≥ 2 cm nodule was correlated with age. The 981 patients were divided in 6 groups according to age: ≤ 20, 20-25, 26-30, 31-35, 36-40 and > 40. The percentage of patients with stage I endometriosis was respectively 76%, 26%, 24%, 24%, 33%, 19%. The percentage of stage II was 17%, 30%, 27%, 28%, 27%, 33%. The percentage of stage III was 6%, 26%, 22%, 22%, 18%, 14%. The percentage of stage IV was 0%, 16%, 25%, 24%, 20%, 32%. The percentage of patients with a deep nodule ≥ 2cm was respectively 0%, 23%, 19%, 22%, 16%, 10%. Patients with stage I disease were found in all age groups. The percentage of each stage and of patients with large nodules was similar and did not increased in all age groups after 20.
Conclusion: Prospective data obtained in patients newly diagnosed with endometriosis did not confirmed that endometriosis is always a progressive disease.

Open Communications 10: Endometriosis
(11:00 AM — 12:30 PM)

11:16 AM

Endometriosis Affecting the Base of Appendix and the Middle Rectal Artery: A Case Report

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Study Objective: To demonstrate the rare case of deep endometriosis affecting the base of appendix and the middle rectal artery. Also, highlight the robotic approach assisting for a precise dissection and landmark identification.
Design: Case report for anatomical study and description of the procedure using video.
Setting: Tertiary Hospital.
Patients or Participants: A 38-year-old nulliparous woman presents with acyclic pelvic pain for one year, worse during sexual intercourse. She also had diarrhea during menstrual cycles and constipation the rest of the month. She underwent two failed *in vitro* fertilizations (IVF) and still had one frozen embryo. In the physical examination her uterus was partially fixed, and she felt pain in the posterior vaginal fornix touch. The MRI evidenced an 83.5 cc uterus, bilateral uterosacral thickening, bilateral round ligament nodules measuring 0.9 cm in the right and 1.7cm in the left. There were also an irregular fibrous tissue and adhesions on the anterior and lateral uterine aspects measuring 3.3 × 1.3 × 1.8 cm in proximity with the posterior vesical wall and right adnexa.
Interventions: We performed a robotic-assisted laparoscopic resection of superficial and deep lesions of endometriosis including peritoneum, uterosacral ligaments, retrocervix, round ligaments, uterus and bladder, rectum, a rare lesion in proximity with de middle rectal artery on the right and a large lesion in the base of appendix, affecting the cecum and the ileum, treated with ileocecal resection (typhlectomy) with primary ileocolic anastomosis.

Measurements and Main Results: Patient was discharged in the sixth postoperative day, with mild abdominal pain. The histological diagnosis confirmed endometriosis of all specimens.
Conclusion: We had a favorable outcome regarding the surgical approach in resecting an extensive disease with atypical lesions, including proximity to an arterial vessel and a large intestinal nodule that compromised the base of appendix.

Open Communications 10: Endometriosis
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11:22 AM

How Ovarian Reserve Changes after Deep Infiltrative Endometriosis Surgery?

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*Corresponding author.

Study Objective: To study the ovarian response to surgical treatment of deep infiltrative endometriosis (DIE) in women of reproductive age.
Design: Prospective cohort-controlled study.
Setting: Surgical treatment of patients was performed by laparoscopic access using a standard closed technique under conditions of endotracheal anesthesia.
Patients or Participants: The main cohort was 70 women of reproductive age who underwent surgery for DIE. The comparison group consisted of 50 fertile women who underwent plastic surgery on the uterus.
Interventions: Surgical treatment of the patients of the main group consisted in maximum excision of foci of DIE and enucleation of endometrioid ovarian cysts.
Measurements and Main Results: Before and 6 months after surgery underwent determination of the level of anti-Müllerian hormone (AMH), follicle-stimulating hormone and estradiol in the blood by enzyme immunoassay, as well as counting the number of antral follicles (AFC) in the ovaries by transvaginal ultrasound.
The baseline AMH level was significantly lower in patients with DIE (2.4±2.1 ng/ml) than in the comparison group (3.8±3.2 ng/ml), $p<0.05$. Surgical treatment of DIE led to a significant decrease in the level of AMH, the average level of AMH in patients of the main group 6 months after surgery was 1.6±1.6 ng/ml compared with the initial level of 2.4 ng/ml, $p<0,05$. In the patients of the comparison group after surgery the AMH level remained at the initial level (3.8±3.2 ng/ml).
The initial AFC according to transvaginal ultrasound was also significantly lower in the main group (8.3±4.5) than in the comparison group (11.8±4.1), $p<0.001$. After surgical treatment of DIE, there was a slight decrease in the AFC according to ultrasound (7.2±3.5), but the difference with the preoperative level did not reach statistical significance.
Conclusion: Surgical treatment of DIE leads to a decrease in the initially compromised ovarian reserve in patients of reproductive age.

Open Communications 10: Endometriosis
(11:00 AM — 12:30 PM)

11:28 AM

Qualitative ICG Imaging to Assess Rectal Anastomotic Perfusion in Deep Infiltrating Endometriosis Surgery

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Study Objective: To present a practical approach to assess bowel perfusion at anastomotic site using ICG Imaging during Deep Infiltrating Endometriosis (DIE) surgery.
Design: Case report.
Setting: OR. Use of ICG imaging after segmental resection for DIE. Test results prompted a second resection/Anastomosis.
Patients or Participants: 43-year-old-woman, G1P1A0, Partial right oophorectomy (open surgery), 8 years before. Seven years of progressive dysmenorrhea (8/10), dyspareunia (7/10) and Dyschezia (9/10) with occasional hematochezia. After imaging and colonoscopy, posterior compartment and biparametrial DIE was diagnosed, including a 4 cm rectal nodule with submucosal involvement.
Interventions: Video shows surgical procedure in which after colorectal anastomosis, there was a vascular impairment detected by ICG imaging, that prompted the team to perform a further colonic resection with a new anastomosis.
Measurements and Main Results: Uneventful postoperative course. Discharged on POD 3. No bladder voiding or defecatory disfunctions. After two years follow up the symptoms have not reappeared.
Conclusion: ICG imaging, in the context of colorectal anastomosis, is a valuable tool which probably reduces the rate of anastomotic leakage detecting microvascular impairment in the anastomotic site.

Open Communications 10: Endometriosis
(11:00 AM — 12:30 PM)

11:34 AM

Real-World Effectiveness of Elagolix in Reducing Endometriosis Pain: 6-Month Results from Elagolix Longitudinal Outcomes (LOTUS) Study

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Study Objective: To evaluate the real-world effectiveness of Elagolix, a GnRH receptor antagonist approved for endometriosis-associated pain management at 150mg once daily (QD) or 200mg twice daily (BID) in the United States (US), Canada, and Israel.
Design: Interim 6-month (M) analysis of a 24M prospective, observational, electronic survey study that collected data through a patient support program in the US.
Setting: US.
Patients or Participants: Pre-menopausal women, aged 18-49yrs with self-reported history of endometriosis.
Interventions: Elagolix 150mg QD or 200mg BID prescribed under physician's guidance.
Measurements and Main Results: Analysis focused on women who reported taking Elagolix every month for 6M (n=44), with 89 women starting Elagolix either at baseline (within 7 days prior to baseline assessment) or by M1 assessment. Monthly pain assessments evaluated dysmenorrhea, non-menstrual pelvic pain (NMPP) and dyspareunia, using the numeric rating scale (NRS) and Patient Global Impression

of Change (PGIC). Paired t-tests were used as appropriate. Pain score reduction was 64.2% (8.0±1.5 vs. 2.9±3.1), 47.9% (6.2±1.8 vs. 3.1± 2.6), and 46.6% (7.4±2.1 vs. 4.0±3.4), (mean±SD, baseline vs. 6M, all p<0.0001) for women with baseline moderate to severe (M/S) dysmenorrhea (NRS≥4) (n=44), NMPP (n=37) and dyspareunia (n=27), respectively. PGIC, no less than "Much Improved", was reported by 70.5%, 67.5% and 59.2% of women with baseline M/S dysmenorrhea, NMPP, and dyspareunia, respectively.
Treatment efficacy and tolerability satisfaction was measured using the Endometriosis Treatment Satisfaction Questionnaire (ETSQ). Satisfaction, no less than "Somewhat Satisfied", at 6M was reported by 78.6%, 77.8% and 73.1% of women for overall treatment effect, and by 64.3%, 61.1% and 42.3% of women for tolerability (lack of bothersome side effects) who had baseline M/S dysmenorrhea, NMPP, or dyspareunia and completed the ETSQ (n=42, 36, and 26, respectively).
Conclusion: This real-world study demonstrated that Elagolix had a beneficial impact by improving endometriosis-associated pain outcomes at 6M, consistent with previously reported 3M real-world data and Elagolix clinical trial results.

Open Communications 10: Endometriosis
(11:00 AM — 12:30 PM)

11:40 AM

Robotic Approach to Ectopic Endometriosis in a Patient with Duplicated Ureters

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Study Objective: To demonstrate a minimally invasive approach to excision of ectopic urinary tract endometriosis in a patient with an anomalous duplicated left renal collecting system.
Design: Case report surgical video.
Setting: Single center academic institution.
Patients or Participants: A 45-year-old female with a history of endometriosis with prior robotic hysterectomy and left salpingo-oophorectomy presented with worsening urge incontinence, flank and pelvic pain. Patient was referred after evaluation revealed a mass adjacent to the left ureterovaginal junction and bladder trigone.
Interventions: Initial cystoscopy revealed a left non-intrusive bladder mass near the left ureteral orifices. A 2 cm firm, fixed nodule in the left fornix of the vagina was excised. Endometriosis was confirmed on frozen section. Upon laparoscopic entry, anatomy was noted to be distorted due to extensive scarring in the left pelvic sidewall including the vaginal cuff and bladder. The posterior cul-de-sac, pararectal, and paravesical spaces were then dissected open, allowing for visualization of the intersigmoid recess and the double ureters encased in scar tissue. After creating two small windows to open the peritoneum, continued dissection proceeded laterally along the pelvic sidewall. En bloc endometriosis was noted on the left infundibulopelvic ligament, vaginal cuff, bladder, and ureters. The scarred peritoneum was excised by encircling the affected areas. Concomitant ureteral dissection ensued with simultaneous removal of endometriotic nodules at the vaginal cuff and ureterovaginal junction. The patient then had an uncomplicated right salpingo-oophorectomy.
Measurements and Main Results: The patient was discharged home on postoperative day one and had an overall uncomplicated postoperative course. Final pathology was consistent with endometriosis. At her post-operative appointment, the patient experienced complete resolution of her symptoms.
Conclusion: In a patient with a known history of endometriosis and a newfound bladder mass, ectopic endometriosis should be considered. Robotic surgical excision is an appropriate minimally invasive approach after adequate preparation.

Open Communications 10: Endometriosis
(11:00 AM — 12:30 PM)

11:46 AM

Robotic-Assisted Laparoscopic Treatment of Bladder Endometriosis

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Study Objective: To show the combined surgical approach of cystoscopy and robotic-assisted laparoscopy for a complete and safe resection of bladder endometriosis.
Design: A clinical case and surgical cystoscopic and robotic approach of bladder endometriosis resection demonstrated by video.
Setting: Bladder endometriosis is defined as the presence of endometrial glands and stroma in the detrusor muscle and is the most common site affected in urinary tract endometriosis. Surgical treatment should guarantee complete removal of the bladder nodule to minimize recurrence, so transurethral surgery alone should be avoided in favor of segmental bladder resection. Robotic-assisted laparoscopy provides advantages as 3D visualization and facilitation of suturing techniques compared to conventional laparoscopy.
Patients or Participants: A 32-year-old nulliparous patient, complaining of sensation of incomplete emptying of the bladder and dysuria, with worsening in the menstrual period. Patient had been using combined oral contraception but reported worsening of symptoms since she stopped the use in 2019. During letrozole treatment for infertility she discovered a bladder nodule of probable endometriotic origin. MRI showed signs of deep endometriosis in the vesicouterine recess, with infiltration of the anterior uterine serosa and left round ligament, measuring around 3.0 × 2.0 × 0.9 cm, in addition to the nodular lesion that infiltrates and retracts the upper wall of the bladder, projecting to the bladder lumen of 3.8 × 2.5 × 2.1 cm.
Interventions: It was performed cystoscopy and bilateral double-J catheter passage, followed by robotic-assisted laparoscopic resection of bladder endometriosis with partial cystectomy. Surgical field was prepared and the paravesical accessed to the bladder nodule. Bladder was sutured with barbed thread and surgical specimen removed by colpotomy.
Measurements and Main Results: Anatomopathological exam confirms endometriosis.
Conclusion: Endometriosis of urinary tract can have an appropriate surgical resection by laparoscopic management with or without robotic assistance. Having knowledge of the surgical technique and the platform allows a safe and complete resection, minimizing complications.

Open Communications 10: Endometriosis
(11:00 AM — 12:30 PM)

11:52 AM

Role of Concurrent Appendectomy in Management of Advanced Endometriosis

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Study Objective: The objectives of this video were to acknowledge the importance of performing a thorough abdominal survey when performing endometriosis surgery and to review the steps of a laparoscopic appendectomy.
Design: Video presentation.
Setting: The patient was in the operating room in lithotomy position throughout surgery.

Patients or Participants: One patient was included in this video presentation. A 43-year-old female undergoing definitive endometriosis surgery.
Interventions: Total laparoscopic hysterectomy, bilateral salpingoophorectomy, lysis of adhesions, excision of endometriosis, and cystoscopy.
Measurements and Main Results: Procedure completed uneventfully without complications. Postoperative period without complications and reported improvement of pelvic pain 3 weeks after procedure.
Conclusion: A thorough survey of the abdomen and pelvis must be performed in search for endometriosis in atypical locations, including the appendix. Patients should be counseled about the possibility of finding appendiceal endometriosis and properly consented for appendectomy. The chosen technique of appendectomy is dependent on surgeon preference and equipment availability. As gynecologic surgeons, we should be prepared to carry out this procedure or have the availability of a general surgeon who can perform it at the time of gynecologic surgery.

Open Communications 10: Endometriosis
(11:00 AM — 12:30 PM)

11:58 AM

Treating Women with Endometriosis-Associated Pain during the COVID-19 Pandemic

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Study Objective: The COVID-19 pandemic has affected the world in unforeseen ways, particularly healthcare. This study evaluated the impact of the COVID-19 pandemic on women with endometriosis-associated pain, including its influence on quality of life, healthcare access, and pain symptoms.
Design: This is a cross-sectional study using an online, anonymous 30-question survey. Women were invited to participate via e-mail or invitations posted on the Facebook page for MyEndometriosisTeam (a social network support group for women living with the disease) between December 9, 2020, to January 31, 2021.
Setting: United States (US).
Patients or Participants: 155 women with a self-reported history of endometriosis, 21yrs or older, living in the US completed the survey.
Interventions: None. This was an observational study.
Measurements and Main Results: Most women (76%) were 30-49 years old, 51% had daily pain symptoms, 25% experiencing pain a few times a week. Of a separate group of women who reported that that their endometriosis-associated pain worsened since the beginning of the pandemic (52%), the most common triggers for worsening pain were stress (80%), fatigue (74%), depression/anxiety (71%), financial concerns (45%), inability to undergo surgery (40%) and inability to exercise (38%). More than a third of women conveyed (38%) challenges with obtaining prescription medications and scheduling surgeries. Of the 17% for whom surgery was postponed, 50% of the women reported this as indefinite.
Women's concerns about their endometriosis in relation to COVID-19 included whether it makes COVID-19 symptoms worst (53%), whether they are at a greater risk of acquiring COVID-19 (44%), and whether it is safe to visit a doctor/hospital (28%). Only 32% spoke with their doctor about treating their pain and 35% had no interaction with their doctor during the pandemic.
Conclusion: The COVID-19 pandemic has had a multifaceted impact on women with endometriosis, from worsened endometriosis-associated pain due to stress and reduced quality of life, challenges with prescriptions/surgeries, and financial concerns.

Open Communications 10: Endometriosis
(11:00 AM — 12:30 PM)

12:04 PM

Treatment of Deep Infiltrative Endometriosis with Methotrexate Carried in Lipid Core Nanoparticles (LDE): A Pilot Study

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Study Objective: To assess the safety and efficacy of intravenous methotrexate carried in lipid core nanoparticles (LDE-ddMtx) in women with deep infiltrative endometriosis (DIE) for a 180-day period.
Design: Pilot, cohort study.
Setting: Tertiary, academic hospital.
Patients or Participants: Women over 18 years with bowel endometriosis with VAS pain score equal or higher than 7 (n=11), diagnosed by transvaginal ultrasound (TVUS).
Interventions: LDE-ddMtx with body surface dosage of 25 (n=3) or 50 (n=8) mg/m^2. When two doses were applied, it was given one week interval between them.
Measurements and Main Results: Women presented 30-49 years, were primiparous (54.55%), and overweight (BMI=26.16±6.50). Eight women used hormonal medication, and nine, non-hormonal drugs. Most of women did not report any severe adverse effects during LDE-ddMtx infusion (54.54%); however, late effects such as nausea (n=7) and abdominal pain (n=6) were the most reported symptoms. Dyspareunia (p=0.001) and dyschaezia (p=0.021) VAS scores have significantly reduced between baseline/90/120/180 days; differences within dyspareunia were noticed between baseline and 120 (p=0.026) / 180 (p=0.027) days; about dyschaezia, between baseline and 180 days (p=0.027) or 90/180 days (p=0.041). Dysmenorrhea (p=0.075) and acyclic pain (p=0.067) presented a reduction on VAS scores, but it was not statistically significant. About the bowel endometriotic lesions seen by US, no significant differences about its size/diameter were found in all assessments. No hepatic or hormonal changes were noticed during drug administration. Anti-mullerian hormone reduced after 180 days, but this was not significant (p=0.059). Subgroup analysis about the dosage found differences in the dysmenorrhea(p=0.024) and dyspareunia(p=0.034) scores, but interaction between dosages and interval follow-up did not find any associated variable.
Conclusion: LDE-ddMtx significantly reduced dyspareunia and dyschaezia VAS scores in DIE women in a 180-day period. However, no differences were perceived in bowel lesions by TVUS. Further studies, with a control group and larger sample are needed to confirm these findings and provide external validity to use in clinical scenarios.

Open Communications 11: Laparoscopy
(11:00 AM — 12:30 PM)

11:04 AM

Colostomy-Free Bowel Injury Repair

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Study Objective: To examine procedures of bowel repair after accidental bowel injury during gynecologic surgery and consider the role of colostomy. Demonstrate the appropriate management of accidental bowel injuries.
Design: Retrospective cohort study.
Setting: Urban general hospital in Japan.
Patients or Participants: From January 2010 to December 2020, 7,154 underwent laparoscopic or robotic hysterectomy for benign pathology. From these cases, the videos of surgeries where bowel injury was experienced were viewed.
Interventions: 21 cases suffered an intraoperative bowel injury that may normally be recommended for colostomy. These cases were managed by same-session intraoperative repair. In one case where multiple bowel injuries occurred during vaginal retrieval, a colostomy was performed. In the other 20 cases, intraoperative repair was safely completed, and no patients experienced pan-peritonitis after the original surgery.
It is important to suture the bowel in two layers. Needle driving needs to be precise with the driving and pull-through perpendicular to the bowel wall. Tissue involvement needs to be both precise and consistent across all sutures. The seromuscular suture is placed to push the mucosa into the lumen. In very severe cases we use LAR (one case). After trimming of the damaged cut end of the rectum, a double stapling technique is very effective for event free anastomosis.
Measurements and Main Results: One case experienced leakage from the repair site and this was resolved with drainage and no colostomy was required. All other patients had an event-free recovery.
Conclusion: Bowel injuries have been routinely managed by colostomy. In our series, we have examined the effectiveness of our methods of repair without using colostomy and have found that when repair is sound, colostomy is not required. Colostomy-free surgery is more patient friendly and should be practiced in scenarios where repair training is adequate and suture repair can be performed safely.

Open Communications 11: Laparoscopy
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11:10 AM

Deep Pelvic Side Wall Anatomy; A Case of Laparoscopic Management of Vaginal Vault Fistula to the Presacral Area

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Study Objective: Video presentation showing retroperitoneal dissection and deep pelvic side wall anatomy.
Design: Case presentation.
Setting: Tertiary medical center.
Patients or Participants: 74-year-old female with history of type 2 diabetes, hypertension, and a vaginal hysterectomy with left sacrospinous ligament suspension nine years ago, presented with fever and found to have bacteremia. Abdominal and pelvic MRI showed a presacral and precoccygeal loculated collections, sacral osteomyelitis, and fistula from the left superior vaginal vault to one of the presacral collections.
Interventions: Laparoscopic resection of sacrospinous fistula tract.
Measurements and Main Results: The patient showed significant improvement in her symptoms with resolution of low back pain, vaginal discharge and bleeding.
Conclusion: Gentle dissection with maintained hemostasis, creating windows, and starting from less distorted anatomy are key points in retroperitoneal dissection.

Open Communications 11: Laparoscopy
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11:16 AM

Gravid Laparoscopic Abdominal Cerclage

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Study Objective: Step-by-step tutorial for placement of laparoscopic abdominal cerclage during second trimester of pregnancy demonstrating two different suturing techniques.
Design: N/A.
Setting: Operating room in a large private not-for-profit hospital.
Patients or Participants: 31-year-old G5P0130 at 16w2d with a history of recurrent pregnancy loss in first trimester and one second trimester loss. Patient had a transvaginal McDonald cerclage placed at 13 weeks of gestation. However, the McDonald cerclage became displaced 2 weeks later leading to a cervical laceration and arterial bleed and was subsequently removed. Patient elected for laparoscopic abdominal cerclage placement at 16 weeks of gestation.
Interventions: First, the peritoneal bladder reflection was dissected to expose the cervicoisthmic junction. The lateral aspect of the broad ligament was dissected bilaterally. A window was created in the posterior leaf of the broad ligaments with further dissection bilaterally, skeletonizing the uterine vessels. Two different suturing techniques can be used for cerclage placement including using a CTX needle and a Carter-Thomason suture closure device.
Measurements and Main Results: This patient underwent an uncomplicated laparoscopic abdominal cerclage. Total operating time was about 180 minutes. She was discharged from PACU and was doing well at her 2-week follow up visit. She had an uncomplicated delivery via scheduled cesarean section at 37 weeks of gestation.
Conclusion: In this video, we demonstrate a step-by-step procedure for the safe and successful performance of a minimally invasive approach to abdominal cerclage in a gravid uterus in a patient with poor obstetric history who failed a transvaginal cerclage earlier in the pregnancy. We demonstrate two different suturing techniques that can be used at the time of cerclage placement. We also show the benefits of pexing the ovaries, as well as the use of a laparoscopic liver retractor and a Rumi manipulator handle, in order to help mitigate the challenges of performing this procedure in a 16-week gravid uterus.

Open Communications 11: Laparoscopy
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11:22 AM

Laparoscopic Excision of an Ectopic Pregnancy in a Non-Communicating Uterine Horn

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Study Objective: Describe an approach to a laparoscopic excision of a uterine horn ectopic pregnancy.
Design: N/A.
Setting: The patient was positioned in dorsal lithotomy in stirrups. Four ports were placed including an infra-umbilical port, a supra-pubic port, and two right or left lower quadrant ports 10mm from the midline above the level of the anterior superior iliac spine.
Patients or Participants: N/A.
Interventions: The right round ligament was coagulated and cut. The vesicouterine peritoneum was incised and the perivesical space was opened. The right fallopian tube was coagulated along the mesosalpinx. The right uterine artery and vein were isolated laterally and traced to the right horn pregnancy as well as to the left unicornuate uterus. A purse-string suture was performed using a running unidirectional barbed suture to isolate the vasculature pedicle feeding the horn pregnancy. The horn was separated from the uterus using the Harmonic Ace. The resulting pedicle was oversewed with barbed suture.
Measurements and Main Results: N/A.
Conclusion: Use of a purse string suture can be considered to minimize blood loss and spare the uterine vasculature at the time of uterine horn ectopic excision.

Open Communications 11: Laparoscopy
(11:00 AM — 12:30 PM)

11:28 AM

Laparoscopic Management of an Abdominal Ectopic Pregnancy

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Study Objective: To describe the diagnostic challenge and laparoscopic management of an ectopic abdominal pregnancy.
Design: Clinical history, brief literature review, and video documentation.
Setting: Patient was placed in dorsal lithotomy for the laparoscopic resection of an abdominal ectopic pregnancy in a tertiary care centre.
Patients or Participants: The patient was a 39-yo G5P2 female presenting with a live 11-week abdominal ectopic pregnancy. We demonstrate the diagnostic challenge of this rare presentation with clearly labelled ultrasound and MRI images. Due to the high morbidity and mortality associated with abdominal ectopic pregnancies, intra-sac potassium chloride was administered in conjunction with systemic methotrexate. Repeat imaging months after initial treatment revealed significant persistent pregnancy tissue intimately involved with the bladder and bowel. The patient was consented for a laparoscopic removal of abdominal ectopic pregnancy.
Interventions: Laparoscopy.
Measurements and Main Results: Diagnostic laparoscopy was undertaken where pelvic inspection revealed the large bowel to be completely adherent to the underlying uterus and abdominal pregnancy. Anatomy was severely distorted, and the bladder could be seen significantly adherent anteriorly. Careful step-by-step dissection with well labelled diagrams demonstrated the isolation of the abdominal ectopic pregnancy from surrounding organs. The abdominal pregnancy was confirmed by revealing macerated skeletal tissue confined to a pseudosac located anterior to the uterus and posterior to the bladder.
We utilized energy, sharp, and blunt dissection to reveal landmark anatomical structures and progressively restore an initially unrecognizable pelvis to a mobile uterus and free posterior cul-de-sac.
Conclusion: Abdominal ectopic pregnancies are rare and pose a diagnostic challenge. Complications are common with high morbidity and mortality to both mother and fetus, thus resection is often recommended. We demonstrate that laparoscopy is a safe and feasible option to manage such pregnancies.

Open Communications 11: Laparoscopy
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11:34 AM

Uterine Rupture at 18 Weeks in a Short Interval Pregnancy Following Uterine Surgery

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Study Objective: We examine a case of uterine rupture at 18 weeks gestation in a short interval pregnancy following uterine surgery and review literature on uterine rupture following myomectomy.
Design: N/A.
Setting: N/A.
Patients or Participants: N/A.
Interventions: N/A.
Measurements and Main Results: Rates of uterine rupture following myomectomy are around 1%. There is a paucity of data and risk factors remain ill-defined. One study found that 50% of cases occurred with resection of subserosal or pedunculated fibroids alone and that the endometrial cavity was not entered in 80% of cases of rupture. Data loosely suggests that single layer closure, extensive electrocautery use, and lack of hemostasis with hematoma formation may increase risk. Rupture following myomectomy is difficult to predict because the majority occur prior to the onset on labor. There is no consensus on recommended interval to conception given limited data, however 3 to 24-month intervals have been used. One study found full uterine healing in 86% of patients on MRI at 12 weeks post-op with 14.2% of patients having persistent hematoma or edema formation. Entry into the endometrial cavity is widely thought to necessitate delivery by c-section. ACOG recommends c-section from 37w0d to 38w6d for a previous myomectomy but notes that delivery as early as 36w0d may be indicated for an extensive myomectomy.
Conclusion: Abdominal pain in the setting of second trimester uterine rupture is often attributed to alternative etiologies however suspicion for rupture must remain high. Patients should be counseled explicitly on interval to conception, delivery method, and risk for possible uterine rupture at time of initial myomectomy. In the setting of postsurgical sequelae such as hematoma formation, a longer interval to conception should be considered. Additional data is needed on uterine rupture following myomectomy to better understand risk factors so we can more uniformly counsel patients and decrease the morbidity and mortality associated with rupture.

Open Communications 11: Laparoscopy
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11:40 AM

Vaginal Cuff Dehiscence: Tips for Laparoscopic Repair and Prevention

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Study Objective: To define vaginal cuff dehiscence, identify risk factors for dehiscence, understand steps needed for laparoscopic cuff revision, and review techniques for cuff closure.
Design: Vaginal cuff dehiscence, defined as a full thickness separation of the vaginal cuff, is a rare but morbid complication after hysterectomy. After a total laparoscopic hysterectomy, the incidence of vaginal cuff dehiscence is 0.7% (range 0.64 − 1.27%). Risk factors include poor vaginal cuff closure technique, smoking, low body mass index, conditions that

cause poor wound healing such as infection, hematoma, prior radiation, or immunosuppression, and increased pressure on the vaginal incision line such as trauma, pelvic organ prolapse, or excessive valsalva. In this video we will demonstrate a laparoscopic repair of a vaginal cuff dehiscence.
Setting: Patients should be positioned in lithotomy position in the operating room. Standard GYN laparoscopic setup should be used. The authors prefer placing the camera via a 5mm trocar in the umbilicus, with 2 accessory 5mm ports laterally and a 5mm suprapubic port.
Patients or Participants: N/A.
Interventions: In this video we describe the 5 steps of a laparoscopic repair of a vaginal cuff dehiscence. We also discuss tips and tricks to optimize cuff closure.
- Identify and normalize anatomy
- Identify the vaginal cuff defect
- Mobilize the cuff
- Excise cuff edges
- Close the cuff

Measurements and Main Results: N/A.
Conclusion: Although vaginal cuff dehiscence is rare, knowledge of safe and effective laparoscopic repair technique is crucial for the gynecologic surgeon, both for repair and for prevention of future cuff dehiscence.

Open Communications 11: Laparoscopy
(11:00 AM — 12:30 PM)

11:46 AM

Variables Affecting Opening Intra-Abdominal Pressure in Laparoscopic Surgery

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Study Objective: To evaluate the correlation between patient characteristics and opening pressures noted during laparoscopy.
Design: Retrospective observational study.
Setting: The operating room of a single institution; standardized laparoscopic closed-entry technique performed.
Patients or Participants: All patients who underwent laparoscopy for gynecologic indications between January 1, 2020, and December 31, 2020, were eligible. Exclusion criteria included: unknown opening pressure, unavailable demographic information or unsuccessful intra-abdominal entry via closed-entry technique. 210 patients were included in the final analysis.
Interventions: N/A.
Measurements and Main Results: Patient demographics including: Parity, age, race, mode of previous deliveries, previous abdominal surgeries, and body mass index (BMI) were collected; and the opening pressure was recorded intraoperatively. Linear regression was performed to assess the contribution of age, parity, previous surgeries and BMI on the opening pressure. Data analysis showed average opening pressure of 3.64 mmHg. The data showed a positive correlation between obesity and opening pressure (correlation coefficient 0.27, $p < 0.001$). The data also showed a negative correlation between patient age and opening pressure (correlation coefficient 0.14, p 0.04). Neither variation in parity nor number of previous surgeries explained the variation in opening pressure ($p > 0.05$). By contrast, variation in BMI explained 7.1% of the observed variation in opening pressure ($p < 0.001$), and variation in age explained 1.9% of the observed variation in opening pressure (p 0.04).
Conclusion: Current teaching in laparoscopy is that an opening pressure ≤10 mmHg reliably predicts successful intraperitoneal entry. However, there is little published data on which demographic characteristics affect opening pressure, and no study has evaluated several characteristics simultaneously while directly comparing them to data collected within the operating room. Based on the outcome of this study, surgeons can expect an average opening pressure of 3.64 mmHg and should expect an increase in this value with elevated patient BMI, and a decrease with increasing patient age.

Open Communications 11: Laparoscopy
(11:00 AM — 12:30 PM)

11:52 AM

Very Low Rates of Ureteral Injury in Laparoscopic Hysterectomy Performed by Fellowship-Trained Minimally Invasive Gynecologic Surgeons

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Study Objective: The incidence of ureteral injury with laparoscopic hysterectomy reported in the literature is 0.78%. The objective of this study was to evaluate the rates of ureteral injury at the time of laparoscopic hysterectomy among high-volume fellowship-trained surgeons.
Design: We performed a retrospective chart review, evaluating gynecologic surgery cases between January 2009 and May 2019 performed exclusively by fellowship-trained surgeons in the Minimally Invasive Gynecologic Surgery (MIGS) Department at Harvard Medical School teaching hospitals in Boston. The rate of ureteral injury was assessed.
Setting: Patients were positioned in dorsal lithotomy with legs in Allen stirrups. A central (typically umbilical) camera port was placed along with bilateral lower quadrant ports and a third ipsilateral port to the left of the umbilicus.
Patients or Participants: A total of 5,160 cases were performed by MIGS surgeons between 2009-2019 at Brigham & Women's Hospital and Brigham & Women's Faulkner Hospital. Patients undergoing laparoscopic hysterectomy were selected for this review.
Interventions: N/A.
Measurements and Main Results: Out of the 5,160 MIGS cases, 2,396 laparoscopic hysterectomies were performed. Only 1 ureteral injury was noted intraoperatively (0.04%). No additional delayed ureteral injuries were observed.
Conclusion: Ureteral injury is associated with significant patient morbidity and high economic burden. Despite taking on medically and surgically complex cases at our tertiary referral center, we observed very low rates of ureteral injury at the time of laparoscopic hysterectomy. Putting this into context given that approximately 600,000 hysterectomies are performed annually in the US; the literature-reported ureteral injury rate would result in approximately 4,680 injuries versus an estimated 240 injuries in a high-volume center. This study highlights the benefits of fellowship-training and high-volume practice on patient outcomes.

Open Communications 11: Laparoscopy
(11:00 AM — 12:30 PM)

11:58 AM

"Does a Two-Layer Vaginal Cuff Closure at the Time of Laparoscopic Hysterectomy Reduce Complications Vs. a One-Layer Closure?"

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Study Objective: This video reviews findings from our retrospective cohort study demonstrating that a two-layer vaginal cuff closure (2-LVC) decreases postoperative complications compared to a standard one-layer vaginal cuff

closure (1-LVC) at time of time total laparoscopic hysterectomy (TLH). The 2-LVC technique is demonstrated in a stepwise approach.
Design: Results from our retrospective cohort study analyzing all postoperative complications within 30 days and vaginal cuff complications within 180 days of TLH are reviewed. The two-layer closure technique is demonstrated with narrated footage.
Setting: A single tertiary care center.
Patients or Participants: All women undergoing TLH for benign indications by Minimally Invasive Gynecology surgeons from 2011-2017.
Interventions: 1-LVC and 2-LVC at time of TLH are compared. Surgeon skill, colpotomy technique and suture material remained standardized. The 2-LVC technique is demonstrated with reapproximation of the vaginal mucosa followed by imbrication of the endopelvic fascia.
Measurements and Main Results: Of 2973 women who underwent TLH for benign indications, 40.8% (n= 1213) of vaginal cuffs were closed with 2-LVC and 59.2% (n=1760) with 1-LVC. There was no difference in intraoperative complications between groups. There were significantly less postoperative complications in the 2-LVC, due to the difference in cuff complications. No mucosal separations or cuff dehiscence in the 2-LVC occurred as compared to 16 cases in the 1-LVC.
Conclusion: 2-LVC significantly reduces total postoperative complications by lowering vaginal cuff complications and reducing the rate of vaginal cuff dehiscence. Although a rare event, the prevention of vaginal cuff dehiscence by adapting a two-layer vaginal cuff closure, as demonstrated in this video, into routine TLH practice patterns could notably diminish patient morbidity and health care cost.

Open Communications 11: Laparoscopy
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12:04 PM

Combined Robotic-Assisted Laparoscopic-Hysteroscopic Isthmoplasty Using Near-Infra Red Technology: A Novel Approach

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Study Objective: To demonstrate a surgical technique of isthmoplasty for the treatment of symptomatic caesarean scar defect. The authors present a standardised approach using combined minimally invasive techniques and Near-Infra-Red technology (NIRT) to perform the procedure in a systematic manner.
Design: Step-by-step Video demonstration of the surgical technique.
Setting: Macquarie University Hospital (MUH), Australia.
Patients or Participants: MUH Gynaecology Clinic.
Interventions: A 44-years-old with three previous Caesarean sections presented with intermenstrual bleeding and pelvic pain. Transvaginal ultrasound diagnosed a grade-3 (>25mm) isthmocoele. A combined robotic-assisted-laparoscopic-hysteroscopic isthmoplasty was performed using the Da-Vinci-Xi-robot.
The procedure began with hysteroscopy to explore the uterine cavity and identify the caesarean scar defect. At laparoscopy, the abdomino-pelvic cavity was explored systematically. To expose the isthmocoele, sharp dissection of the visceral peritoneal layer overlying the uterine isthmus was performed.
The hysteroscopic light was directed cephalad and the laparoscopic light was then switched off to demonstrate the "Halloween sign", helping to identify the upper and lower limits of the isthmocoele. NIRT mode was then activated, the green fluorescence of the scar defect in a dark background further demarcated the surgical margins. A colpotomiser was inserted; the cup stabilised the cervix relative to the uterine body while the central cannula defined the cervical canal and aligned the defect for excision and repair.
The scar tissue was excised robotically with removal of all edges of the pseudo-cavity. The myometrium was repaired in two layers with continuous barbed 2-0 suture ensuring a tension-free repair. NIRT was again activated to check for integrity of repair.
Measurements and Main Results: Operative time was 60 minutes. Patient was discharged same day with symptoms resolution.
Conclusion: Combined robotic-assisted-laparoscopic-hysteroscopic isthmoplasty is safe and effective, giving the surgeon a comprehensive evaluation of the anatomy of the isthmocoele, and increasing the accuracy of complete resection and restoration of the anatomy. NIRT technology demarcates the resection margins and confirms complete closure of the defect.

Open Communications 11: Laparoscopy
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12:10 PM

Transvaginal Sonography Accurately Determines Infiltration Length of Rectosigmoid Deep Endometriosis.

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Study Objective: Investigate agreement of the three diameters of the rectosigmoid deep endometriosis (DE) lesion size between pre-surgical evaluation with transvaginal sonography (TVS) and post-surgical specimen measurements (PSM).
Design: A prospective observational study. TVS was performed pre-surgically to evaluate lesion size compared to PSM in accordance with the International Deep Endometriosis Analysis (IDEA) group consensus statement. The agreement between the two methods regarding lesion dimensions were assessed by Bland-Altman plots, limits of agreement, and intraclass correlation coefficient (ICC) for additional analysis. Systematic and proportional bias was assessed with paired t-test.
Setting: Three tertiary referral centers for endometriosis.
Patients or Participants: Consecutive symptomatic women undergoing surgical treatment for DE of the rectosigmoid by either discoid or segmental resection.
Interventions: Surgical treatment for rectosigmoid deep endometriosis by either discoid or segmental resection. TVS was performed pre-surgically to evaluate lesion size i.e., length, thickness and transverse measurement and was compared to PSM on the fresh bowel specimen.
Measurements and Main Results: A total of 207 consecutive women were eligible for inclusion from April 2017 to December 2019. Forty-one were excluded, leaving 166 women for final analysis. A total of 123 segmental resections and 46 discoid excisions were performed. The limits of agreement for lesion length were 0.44 mm (95% CI 0.44-0.49 mm) to 1.82 mm (95% CI 1.67-1.99 mm), lesion thickness 0.53 mm (95% CI 0.48-0.58 mm) to 2.01 mm (95% CI 1.84-2.20 mm), and lesion transverse measurement 0.37 mm (95% CI 0.33-0.41 mm) to 1.90 mm (95% CI 1.7-2.12 mm). Our study found good reliability between TVS and PSM for lesion length with ICC 0.82 (95% CI: 0.75-0.87). There was moderate reliability for lesion thickness

with ICC 0.76 (95% CI: 0.67-0.82), and moderate-to-poor for transverse diameter with ICC 0.58 (95% CI: 0.39-0.71).
Conclusion: Pre-operative TVS accurately determines rectosigmoid DE lesion length. TVS can contribute to improved planning of surgical treatment of women with rectosigmoid DE.

Open Communications 11: Laparoscopy
(11:00 AM — 12:30 PM)

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Robotic-Assisted Laparoscopic Surgery: Lower Insufflation Pressures Reduced the Risk of Hemodynamic Instability

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Study Objective: The objective is to assess hemodynamic changes with lower abdominal insufflation pressures of pneumoperitoneum during robotic-assisted laparoscopic surgery.
Design: Quality improvement project in robotic surgical patients with an intervention to improve hemodynamic changes during insufflation and positioning.
Setting: All patients were placed in standard dorsal lithotomy, standardized to a Trendelenburg position of 23 degrees after abdominal insufflation.
Patients or Participants: A total of 21 patients undergoing robotic-assisted laparoscopic gynecologic surgery were selected, all of which operated on by the same surgeon.
Interventions: Patients were randomized to two groups: (1) standard insufflation pressure of 15 mmHg and, (2) low insufflation pressure of 12 mmHg.
Measurements and Main Results: Baseline hemodynamics and ventilator readings were noted. Changes in these parameters following insufflation and positioning were then recorded, including any interventions necessary to maintain homeostasis over the subsequent 15 minutes. Data were tabulated and compared amongst the two groups. Independent sample T-tests were used to analyze hemodynamic outcome means between groups. Insufflation groups did not differ based on BMI status ($p = 0.72$) and had equal quality of visualization as determined by a single surgeon. Patients at higher insufflation pressures on average had significantly more hemodynamic instability events requiring treatments than the lower insufflation pressure group, 2.0 vs 0.33, respectively ($p=0.005$). Systolic blood pressures (BP), Diastolic BP, and mean arterial pressures showed clear trends of improvements in the low-insufflation group, with mean deltas of +10.0, +19.6, and +16.6, respectively.
Conclusion: This quality improvement project showed that a lower abdominal insufflation pressure decreased hemodynamic instability events during robotic-assisted laparoscopic gynecology surgeries without impacting the surgical visualization.

Open Communications 12: Research
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11:04 AM

Clinical Predictors of Failed Medical Treatment in Patients with Tubo-Ovarian Abscess

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Study Objective: To estimate the risk of failed medical treatment in patients with tubo-ovarian abscess (TOA) and assess the external validity of a clinical risk score.
Design: External validation study. The probability of failed medical treatment predicted from the reference risk score was compared with the observed rates in a retrospective cohort of patients with TOA.
Setting: Safety-net teaching hospital system in Houston, Texas.
Patients or Participants: 169 consecutive patients admitted with TOA between 2011 and 2018 were included. Some were treated conservatively with IV antibiotics; others required a drainage procedure.
Interventions: Predictors of failed conservative treatment were captured. The previously published predictors by Fouks et al, included age>36, WBC $\geq$ 16000), abscess diameter ($\geq$ 7 cm) and bilateral abscesses. A clinical risk score was calculated for each patient and correlated with the risk of failed medical treatment. A multivariate logistic regression using the patient characteristics was created, in addition to the prediction model using the risk score. Then the calibration, discrimination and accuracy of the model were evaluated to perform the external validation analysis.
Measurements and Main Results: Among 169 eligible patients, 50.2% were successfully treated with IV antibiotics and 49.8% needed drainage via minimally invasive or traditional surgery. Patients undergoing the intervention were more likely to be older, diabetic, to present with elevated white blood cell count, have fever and a large abscess size on univariate analysis. Large abscess size was found to be the strongest independent predictor for intervention in our cohort. The AUC curve for the adjusted model was 0.77 (0.71-0.84), indicating good discrimination. The Brier score was favorable (0.19) and the observed and predicted rates were similar ranging across different risk scores.
Conclusion: Our results provide external validation to a simple clinical risk score predicting failed medical treatment in patients with TOA. Large abscess size was found to be the strongest independent predictor for intervention.

Open Communications 12: Research
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Effect of Training the Mentor on Quality of Instruction and Trainees' Performance in Laparoscopic Oophorectomy Telementoring

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Study Objective: Our study explores whether providing surgeon mentors with formal training on a novel telementoring software improves the experience of teaching laparoscopic oophorectomy remotely.
Design: Mentor, in a separate room, used the telementoring technology - a shared screen for annotations and a microphone to enable verbal instruction - to remotely coach the trainee through a simulated laparoscopic oophorectomy. A between-subject study was conducted. Mentors assessed their Cognitive Load using Paas 9-point likert scale, and trainees' performance using Global Rating scale (GRS). Trainees evaluated Quality of Instruction (QoI). GRS and QoI are validated 5-point Likert scales. Linear mixed model analysis was conducted to compare the two conditions.
Setting: A lab-developed telementoring technology was utilized. Stryker laparoscopic boxes were used for oophorectomy simulations on plastic models at a community hospital.
Patients or Participants: A total of 16 trainees - 5 OB-Gyn interns and 11 third-year medical students - and 2 faculty gynecologic surgeons as mentors.
Interventions: Prior to the second cohort of trainees, mentors watched a video on effective use of the telementoring technology and took a quiz.

Measurements and Main Results: Task completion time was significantly lower in the trained mentors' condition (P=0.007). Mentors did not find higher cognitive load in providing instructions when they were trained (P=0.84). QoI was perceived relatively higher in the intervention condition (M=4.8, SD=0.2) as compared to standard (M=4.5, SD=0.3)(P=0.12). Mentors tended to rate trainees' performance relatively higher in intervention condition (M=3.5, SD=0.7) compared to non-trained mentors' condition (M=3.5, SD=0.4) although not significant (P=0.49).
Conclusion: Providing surgical mentors with formal training in telementoring technologies in laparoscopic oophorectomy could improve quality of instruction and trainees' performance without a significant increase in mentors' cognitive load. More participants may make these findings more evident. This study shows the benefit of training expert surgeons on optimal use of telementoring technology as part of an emerging curriculum of remote surgical training and coaching.

Open Communications 12: Research
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Evaluating Surgical Complexity of Endoscopic Hysterectomy: An Inter-Rater Agreement Study for Novel Scoring Tool

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Study Objective: Evaluate inter-rater reliability of a novel scoring tool for surgical complexity assessment of endoscopic hysterectomy.
Design: Validation study.
Setting: Academic medical center.
Patients or Participants: 11 academic OB/GYNS with varying years of post-training practice and surgical volumes
Interventions: Application of a novel scoring tool to evaluate surgical complexity of 150 sets of surgical images taken in a standardized fashion (global pelvis, anterior cul-de-sac, posterior cul-de-sac, right adnexa, left adnexa). Surgical complexity was staged on a scale of I-IV (low to high complexity). Raters were asked to assess uterine size, number and location of fibroids, adnexal and uterine mobility, need for ureterolysis, and presence of endometriosis or adhesions.
Measurements and Main Results: Number of post-residency years in practice for participating surgeons ranged from 2 − 15, with an average of 8 years. 8 (72.73%) OB/GYNs had completed a fellowship in minimally invasive gynecologic surgery. 6 (54.55%) reported annual volume of hysterectomy >50 cases.
Raters reported 95.4% of images were satisfactory for assessment. Of the 150 sets of images, most were found to be Stage I-II complexity (Stage I: 46.4%, Stage II: 30.6%, Stage III: 16.4%, Stage IV: 6.6%).
Level of inter-rater agreement regarding Stage I-II vs. III-IV complexity was moderate (k=0.493, CI [0.43-0.56]). Moderate inter-rater agreement persisted between surgeon raters with annual hysterectomy volume > 50 (k=0.484, CI [0.42-0.56]) as well as between surgeon raters with fellowship experience (k=0.498, CI [0.434-0.57]).
Conclusion: Current methods for assessment of surgical complexity for clinical and research purposes rely on seemingly objective markers like uterine weight, estimated blood loss, and operative time, which can be limited or flawed. In contrast, this novel scoring tool has rich and comprehensive evaluation capabilities and achieved moderate inter-rater agreement. The complexity scoring tool can be used in conjunction with or instead of traditional methods for assessment of surgical complexity of endoscopic hysterectomy.

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Non-Contraceptive Progestins and Risk of Venous Thromboembolism: A Nested Case-Control Study of the Marketscan Databases

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Study Objective: To evaluate for a dose-response relationship in the association between progestins used for non-contraceptive indications (e.g., endometriosis) and venous thromboembolism (VTE).
Design: Nested case-control study.
Setting: The IBM® MarketScan® Databases include routinely collected inpatient, outpatient, and pharmacy claims data among privately insured individuals in the US.
Patients or Participants: Records of 45 million women aged 15-49 years old were evaluated from 2009-2018. Cases with VTE (n=21,405) were identified by validated ICD-9/10 codes and excluded for recent pregnancy, recent estrogen prescription, or indications for ultra-high dose progestins (e.g., endometrial intraepithelial neoplasia). Controls (n=107,025) were individually age-matched 5:1 by risk set sampling.
Interventions: N/A.
Measurements and Main Results: Oral progestin exposures and covariates were defined by prescription claims and ICD-9/10 codes, respectively, within 1 year before the index date. Multivariate conditional logistic regression models determined odds ratios with 95% confidence intervals adjusted for VTE risk factors. The dose-response relationship was assessed by two separate exploratory analyses. The first analysis compared new and chronic use with non-use. The second analysis evaluated progestin exposure as a weighted average daily dose. Significance was set at $p<0.01$ to allow for multiple comparisons. Odds of VTE were significantly increased for current use of norethindrone acetate (new users aOR 4.97 [2.96-8.35], n=83; chronic users aOR 2.28 [1.48-3.51], n=118) and current use of medroxyprogesterone acetate (new users aOR 2.08 [1.47-2.96], n=194; chronic users aOR 1.76 [1.18-2.63], n=145), compared with non-use. Comparisons between new and chronic use were not significant. Odds of VTE were directly proportional to progestin dose: +22% (aOR 1.22 [1.09-1.36]) for each 2.5 mg/day increase in norethindrone acetate and +19% (aOR 1.19 [1.08-1.30]) for each 5 mg/day increase in medroxyprogesterone acetate.
Conclusion: Non-contraceptive progestins are associated with increased VTE risk. This study provides the first assessment and support of the dose-response relationship. Clinicians should consider using the lowest effective dose to balance risks and benefits.

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Peri-Operative Opioid Prescribing Practices of Resident Trainees Compared with Staff Surgeons

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Study Objective: To evaluate the opioid prescribing practices of resident trainees compared to academic and community staff surgeons following elective hysterectomy. We also sought to identify surgeon characteristics associated with high-dose opioid prescriptions.
Design: A retrospective population-based cohort study.
Setting: We used linked administrative data in Ontario, Canada where all legally dispensed opioids in the province are recorded, regardless of insurance status.
Patients or Participants: We included opioid-naïve adult women (age≥18 years) who underwent elective hysterectomy, by any route, between 2013-2019. We excluded emergency surgeries and patients with malignancy. We limited the cohort to patients who filled at least one opioid prescription in the perioperative period (on the day of, to 7-days after hysterectomy).
Interventions: The main exposure was the opioid prescriber (trainee versus academic or community surgeon).
Measurements and Main Results: To account for confounding, we used inverse-probability of exposure weighting where we generated a propensity score for being in a given prescriber group regressed on baseline covariates. Observations were weighted according to the inverse of the calculated probability of being in a particular prescriber group. We included 20,352 patient-prescriptions (4,362 by trainees, 1,727 by academic surgeons, 14,263 by community surgeons). After weighting, baseline covariates were balanced between prescriber groups. Primary outcome: Trainees prescribed less perioperative opioids (oral morphine equivalent) compared to academic surgeons (MD 13.01mg, 95% CI 1.85 to 25.77) and community surgeons (MD 16.75mg, 95% CI 6.99 to 26.21). In a subset of 15,990 patients with prescription written by a staff surgeon, 1841 (11.5%) received a high-dose opioid prescription (>225mg OME). Surgeons with >25 years' experience (adjRR 1.38, 95%CI 1.03-1.81) and higher hysterectomy case volumes ($adjRR_{highest\text{-}quintile}$ 1.59, 95% CI 1.07-2.36) were most likely to write high-dose opioid prescriptions.
Conclusion: Resident trainees prescribed less perioperative opioids compared to staff surgeons. Prudent opioid prescribing education should target experienced, high-volume staff surgeons, with a focus on community hospitals, where majority of hysterectomies are performed.

Open Communications 12: Research
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Post-Operative Opioid Use with a Modified ERAS Protocol: A before-and-after Comparison

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Study Objective: To determine if limited, post-operative changes to patient care in the model of enhanced recovery after surgery are sufficient to decrease post-operative opioid prescriptions.
Design: A pre- and post-implementation study of a modified Enhanced Recovery protocol.
Setting: Post-operative setting in a tertiary academic medical center.
Patients or Participants: Included women undergoing scheduled gynecologic surgery at one hospital system where minimally-invasive procedures are predominant, aged 18-95 years. Procedures included hysterectomy or urogynecologic procedures performed by physicians involved in the study. The cohorts were broken up into a year prior to implementation of the intervention (n=175), and a year after (n=149). Excluded were patients discharged on the same calendar day.
Interventions: A post-operative order set including scheduled non-opioid analgesics and anti-emetics, expedited diet advancement, and standardized order sets for post-operative prescriptions.
Measurements and Main Results: The primary outcome was the amount of opioid prescribed through post-discharge day 14. Opioids were converted today's supply and morphine milligram equivalents (MME). Baseline demographics were similar between the two groups, with exceptions being race (White race 96% in the first cohort vs. 89% in the second, p=0.0369) and tobacco use (19% use in the first cohort vs. 10% in the second, p=0.0288). Percent of patients with baseline chronic opioid use was similar between the two groups (15 vs. 10, p=0.5318). Mean pain scores before and after the intervention were not significantly different. There was a significant decrease in both day's supply (3.23 vs. 2.43, p=0.0311) and MME prescribed following the intervention (47.98 vs. 41.42, p=0.0022). There was a non-significant decrease in cumulative MME through post-discharge day 14 (210.8 vs. 143.2, p=0.3631), as well as total day's supply through post-discharge day 14 (3.45 vs. 3.15, p=0.4604).
Conclusion: Simple changes to the post-operative experience in line with an enhanced recovery protocol are sufficient to decrease post-operative opioid use in a population including patients with baseline chronic opioid use.

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Satisfaction with Opioid Use after Minor Gynecologic Surgery: A Pilot Prospective Study

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Study Objective: The primary objectives of this study are to 1) describe the current postoperative opioid prescribing practices following minor gynecologic and urogynecologic surgery and 2) determine patients' satisfaction with these practices.
Design: prospective cohort study.
Setting: academic medical center.
Patients or Participants: patients undergoing minor gynecologic and urogynecologic surgeries between September 2018 and May 2019. Patients were surveyed preoperatively (within 1 week prior to surgery), on postoperative day (POD) 1 or 2, and finally at POD 14. Survey instruments were completed via RedCap. The proportions of patients receiving, filling and using an opioid prescription were estimated using RedCap responses to surveys completed on postoperative day 1-2 and postoperative day 14. All data analyses were performed using SAS 9.4 (Cary, NC).
Interventions: None.
Measurements and Main Results: 151 patients underwent a minor gynecologic surgery. Among these 81 (54%) received an opioid prescription. Among the women who received an opioid prescription, 68 of these

patients reported filling the script (84%) and 55 of those who filled an opioid prescription reported using any opioid (81%). The median MME of cumulative opioid use by POD 14 was 35 (15-75) compared to median MME prescribed 75 (75-112.5). There were no differences in overall satisfaction scores (qualitative or quantitative) between participants by opioid prescription or fill status. There was no association between preoperative anxiety (BAI) and opioid prescription or use.
Conclusion: More than one half of all patients undergoing minor gynecologic and urogynecologic procedures were prescribed an opioid. Our results suggest that opioids are overprescribed, in that some women never filled their opioid prescription and many of those who did fill the prescription reported the quantity exceeded their needs. Opioid prescription was not associated with a difference in patient reported satisfaction with quality of surgical care.

Open Communications 12: Research
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The Effect of Preemptive Local Anesthesia on Postoperative PAIN Following Vaginal Hysterectomy: A Randomized Controlled Trial

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Study Objective: To study the effect of preemptive local anesthetic on postoperative pain following vaginal hysterectomy.
Design: A double-blinded randomized, controlled trial. We conformed to the CONSORT recommendations.
Setting: The urogynecologic unit in a tertiary medical center.
Patients or Participants: Women who undergone elective vaginal hysterectomy.
Interventions: Solutions of either Bupivacaine-Hydrochloride 0.5%, or Sodium-Chloride 0.9% as a placebo, were prepared prior to surgery, according to randomization. The chosen solution was injected before incision, in a circumferential manner, to the cervix. The amount of fluid administered was 10 ml. When colporrhaphy was also performed, an additional 5 ml of solution were injected in the midline of the vaginal wall prior to each incision line.
Measurements and Main Results: By utilizing the 10 cm Visual-analogue-scale (VAS) we assessed post-operative pain at rest at 3, 8, and 24 hours, and during ambulation at 8 and 24 hours.
A total of 30 women were included in each group. The level of postoperative pain, as assessed by VAS, was not significantly different between the groups, in all points of time. In addition, there was no difference between the groups in opioid based analgesics during recovery, nor in postoperative analgesic use.
Conclusion: Preemptive local anesthesia was not shown to be efficient in reducing postoperative pain after vaginal hysterectomy.

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Variation of Chargemaster Price Listings for Hysterectomy Procedures across Five States

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Study Objective: A 2018 Executive Order calling for price transparency required hospitals to provide their chargemaster (list of prices) on their public websites in order to drive competition and lower prices. Our goal was to compare chargemaster prices listed for hysterectomy procedures from hospitals in five states.
Design: Hospital chargemasters were obtained between February to April 2020, across 5 states chosen to represent a range of demographics and health systems. Current Procedural Terminology (CPT) codes for abdominal hysterectomy (58150, 58152, 58180), vaginal hysterectomy (58260, 58262, 58290, 58291, 58263, 58267, 58270, 58292, 58293, 58294), and laparoscopic hysterectomy (58541, 58542, 58543, 58544, 58550, 58552, 58553, 58554, 58570, 58571, 58572, 58573) as well as procedure names were searched and pricing extracted.
Setting: N/A.
Patients or Participants: N/A.
Interventions: N/A.
Measurements and Main Results: 837 hospitals in 5 states were included. 105 chargemasters (12.5%) listed prices for abdominal, 106 (12.7%) vaginal, and 114 (13.6%) laparoscopic hysterectomies. Mean prices listed were significantly different for all types of hysterectomy across states (Table 1). Each type of hysterectomy had a wide range of prices listed (laparoscopic $49.00-$43,491.00, abdominal $61.45-$34,849.20, vaginal $6.00-$22,651.00).
Conclusion: Overall, few hospitals made price listings available for abdominal, vaginal, or laparoscopic hysterectomies and price listings varied widely for these procedures across states. Despite previous literature reporting vaginal hysterectomy to have the lowest direct cost and abdominal hysterectomy the highest (Kaaki et al 2020), this is not what these public chargemasters reflect to patients. Currently, chargemasters do not seem to be a reliable option for patients to shop for healthcare. Further investigation of chargemaster prices with hospital characteristics and quality metrics is imperative.

Table 1: Median Mean Price Listing for Hysterectomy by State.

State	California	Massachusetts	Mississippi	New York	Ohio	P-value
Laparoscopic	$874.93	$180.56	$2,536.16	$1,830.50	$306.80	.005
Abdominal	$21,233.00	$2,534.34	$2,548.00	$2,003.50	$2,985.00	<.001
Vaginal	$16,579.86	$1,764.00	$1,764.33	$2,624.51	$567.50	<.001
Comparisons are Kruskal Wallis						

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Iub™ Sead™ - A Novel Intra Uterine Ball: Spherical Endometrial Ablation Device

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Study Objective: The aim of this study is to assess the safety and efficacy of the IUB SEAD™ (Intra Uterine Ball: Spherical Endometrial Ablation Device) introducing silver nitrate to the uterus in women suffering from abnormal uterine bleeding. We present results of 6 months follow up period post treatment.
Design: Open-label multicenter study to assess the safety and efficacy of the IUB SEAD™ device in premenopausal women with predictable menstrual cycles, who suffer from AUB.
Women with HMB were enrolled who had an average pictorial blood loss assessment chart (PBAC) score ≥ 150 over for 3 months.

Setting: The study was performed in the outpatient clinics of 2 Bulgarian medical centres between September 2019 and December 2020.
Patients or Participants: 16 women with HMB (PBAC>150) at least 3 months before inclusion were enrolled.
Interventions: Eligible subjects who met all the inclusion/exclusion criteria were treated during the first 7 days following the cessation of menses. The SEAD™ device was inserted into the uterine cavity via vaginal approach. The device was left in the uterus for 30 (±5) minutes and then removed.
Measurements and Main Results: A total of 16 participants aged 37-50 (mean = 43) were enrolled with a mean baseline PBAC score of 424; 14 of 16 completed follow up requirements and were evaluable at 6 months. All procedures were completed successfully without device/procedure-related adverse events. At 6 months post-treatment the mean PBAC score was 95 with 55% of the overall cohort ≤75 and 72% ≤ 100 and a mean percentage of 83% reduction. The mean procedure related pain score was ≤2 (mild).*
Conclusion: The IUB SEAD™ device is safe and effective in treating HMB in an outpatient environment. Future studies with larger number of patients are planned.
*Results may vary until presentation date.

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Assessment of Vaginal Preparation Solutions to Prevent Microbial Contamination at Key Surgical Sites in Laparoscopic Hysterectomy

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Study Objective: The goal of our study is to determine which solution is the best for maintaining a sterile vaginal field during surgery.
Design: The primary objective was to determine a difference in microbial growth from two sites after randomization to one of three vaginal preparation solutions (povidone-iodine, 2% chlorhexidine gluconate, or 4% chlorhexidine gluconate) by obtaining bacterial cultures of the vaginal fornix and uterine manipulator handle. The secondary objective was to determine any difference in patient reported vaginal itching or burning between the three vaginal preparation solutions.
Setting: Hospital operating room with patients in dorsal lithotomy position.
Patients or Participants: All patients undergoing laparoscopic hysterectomy by either of two participating surgeons and who met inclusion criteria were invited to participate in this study. A total of 50 participants were included.
Interventions: After preparation with the assigned solution and before beginning the surgery, a baseline vaginal culture was taken. Prior to completing the hysterectomy, a second vaginal culture and a culture from the uterine manipulator handle were taken. The swabs were processed as aerobic and anaerobic cultures.
Measurements and Main Results: There was no difference in microbial growth from the baseline vaginal culture across the three groups (p=1.00). There was a significant difference in the presence of microbial growth from the second vaginal culture, with the PI group exhibiting more positive cultures compared to the 2% CHG and 4% CHG groups (93.8% vs. 47.4% and 20.0% respectively, p=<0.001). The 2% CHG group had more positive cultures on the uterine manipulator handle compared to the PI and 4% CHG groups (21.1% vs. 6.3% and 6.7%, p=0.35).
Conclusion: Our study demonstrates decreased microbial growth at the vaginal field during laparoscopic hysterectomy when using 4% CHG for vaginal preparation compared to 2% CHG and PI.

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Reflection Versus Reality: Accuracy of Surgeon Self-Reflection on Hysterectomy Quality Metrics

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Study Objective: Describe gynaecologic surgeons' self-reflection accuracy for three hysterectomy quality metrics and determine whether accuracy is associated with specific surgeon or practice characteristics.
Design: Retrospective, cross-sectional analysis.
Setting: Six Ontario, Canada hospitals (3 academic, 3 community).
Patients or Participants: Sixty-nine gynecologic surgeons reviewing a first performance report card.
Interventions: Surgeons estimated their preceding six months of hysterectomy case volume, technicity (minimally-invasive rate), and complication rate prior to reviewing a personalized report card.
Measurements and Main Results: Agreement between estimated and actual performance was evaluated using Pearson correlation. Differences (Δ) between estimated and actual performance were used to proxy "accuracy". Means of these differences (Δ_{mean}) were compared to zero ("perfect accuracy") using Wilcoxon signed-rank or T-tests. Surgeons were categorized by tertiles of Δs into over-, accurate or under-estimators. Association between accuracy and surgeon gender, subspecialty training, practice duration and location were assessed using analysis-of-variance. Sixty-nine surgeons (42 generalists, 27 fellowship-trained) accessed report cards between 2016-2018. Correlation between estimated and actual performance was strong for case volume (r=0.73, p<0.001), moderate for technicity (r=0.57, p<0.001), and poor for complication rate (r=0.29, p=0.019). Surgeons systematically underestimated complication rate (Δ_{mean}: -4.7%, 95% CI -7.5% to -1.5%, p=0.005) but accurately estimated case volume (Δ_{mean}: +1.0%, 95% CI -0.5 to 2.5 cases, p=0.260) and technicity (Δ_{mean}: +0.6%, 95% CI -3.6% to 10.5%, p=0.935). Surgeons who overestimated complication rate had more years in practice (23 years) than those who accurately estimated (16 years, p=0.027) or underestimated (16 years, p=0.016) complications. Surgeons who underestimated technicity had more years in practice (22 years) than those who accurately estimated technicity (14 years, p=0.015). Accurate self-reflection was not associated with gender, fellowship training, or practice location.
Conclusion: Surgeons reliably reflect on case volume and technicity. However, there is a disconnect in surgeons' reflections on complication rate compared to actual performance, underscoring the need for regular feedback through initiatives such as performance report cards.

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Assessing the Impact of Obesity on Surgical Quality Outcomes Among Women Undergoing Hysterectomy for Benign, Non-Urgent Indications

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Study Objective: Evaluate impact of obese body mass index (BMI) on surgical quality metrics for patients undergoing hysterectomy for benign, non-urgent indications.
Design: Multicenter, retrospective review.
Setting: Seven hospitals in Ontario, Canada (4 academic, 3 community).
Patients or Participants: 2528 patients undergoing hysterectomy from July 2016 to December 2019.
Interventions: Hysterectomy for non-urgent, benign indication.
Measurements and Main Results: The primary outcome was a composite of any complication or readmission to hospital within 30 days of surgery. Secondary outcomes were ≥ Grade 2 complication, emergency department visit and/or hospital readmission within 30 days of hysterectomy, median operative time and estimated blood loss. Outcomes were evaluated using logistic regression and log-regression linear analysis grouping patients by BMI class (normal, overweight, obesity class 1, 2, and 3) and by hysterectomy route (abdominal, laparoscopic, vaginal). Complications were graded using the Clavien-Dindo Classification. Patient characteristics (age, ASA, pre-operative diagnoses, pre-operative anemia, previous surgeries), surgical factors (intraoperative endometriosis and adhesions, hysterectomy route, uterine weight, concomitant procedures) and surgeon characteristics (volume, training (fellowship-trained/generalist) and hospital (academic/community)) were recorded. Distribution of BMI was: 32.8% (828/2528) normal, 35.1% (889/2528) overweight, 19.8% (500/2528) obesity class 1, 8.1% (205/2528) class 2, and 4.2% (106/2528) class 3. Compared to patients with a normal BMI, obese patients had higher ASA class ($p<0.001$) and more prior surgeries ($p<0.001$). Patients with class 2 and 3 obesity were younger ($p<0.001$), had greater uterine weight ($p<0.001$) and more adhesions ($p<0.001$). After controlling for covariates, there was no difference in the odds of developing the primary outcome when all routes of hysterectomy were combined, and when evaluated by route. Regarding secondary outcomes, no differences were noted with the exception of patients with class 2 obesity who underwent vaginal hysterectomies who had 9.1% longer operative time (0.091, 95% CI 0.002-0.18, $p<0.05$).
Conclusion: BMI class was not independently associated with surgical quality outcomes in patients undergoing hysterectomy for benign, non-urgent indications.

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Combined Robotic Ventral Rectopexy and Sacrocolpopexy- a Single Institution Approach

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Study Objective: To describe the multidisciplinary workup of pelvic organ prolapse and rectal prolapse or intussusception and to describe our technique of robotic ventral rectopexy and sacrocolpopexy.
Design: N/A.
Setting: N/A.
Patients or Participants: This is a patient with multi-compartment pelvic organ prolapse and rectal intussusception.
Interventions: The surgery is begun with the sacral dissection. The peritoneum is then opened in continuation along the right side of the rectum. Once the peritoneal reflection has been opened, it is carried down and further dissected from the posterior vagina. The deep pelvic dissection is then performed in the rectovaginal septum to the levator ani muscles, about five to six centimeters deep. Once the levator muscles are exposed, a ruler is introduced into the pelvis and the rectal width is measured. The anterior bladder dissection is then performed. A single sheet of flat, large pore, polypropylene mesh is then introduced and first secured to the levators bilaterally. Next the mesh is secured to the anterior rectum, sewing distal to proximal. This single sheet of mesh is then also used for the entire sacrocolpopexy by next securing the mesh to the posterior vagina. The mesh is then folded over the vaginal apex to the anterior vagina and before it is secured, the sacral tail is created by using the midportion of the mesh pulled out over the apex. The remaining steps of the procedure are completed in the same fashion as a standard sacrocolpopexy.
Measurements and Main Results: The patient had excellent anterior, apical, and posterior support with the use of a single flat sheet of lightweight mesh. The surgery had no complications with a minimal EBL.
Conclusion: Multidisciplinary treatment of concomitant pelvic organ and rectal prolapse by urogynecology and colorectal surgery allows for a safe and effective treatment of both conditions concurrently via a robotic ventral rectopexy and sacrocolpopexy with a single lightweight flat mesh sheet.

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Creation of Neovagina Using Complete Laparoscopic Dissection

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Study Objective: Exclusive laparoscopic dissection for creation of neovagina in MRKH
Design: Video with step-by-step description of technique
Setting: Department of Gynaecology at BLK Max Superspeciality Hospital, a tertiary care teaching hospital in Delhi, India
Patients or Participants: 27-year-old patient with MRKH syndrome, married for 6 months came for creation of neo-vagina
Interventions: Neovagina was created using complete laparoscopic dissection.
Measurements and Main Results: The surgery required lesser time than combined laparoscopic-perineal approach. The operation duration was 25 minutes. Blood loss was 20 ml. The vaginal lumen accommodated the vaginal mould well and patient could very comfortably change the vaginal mould herself from 4th day onwards.
Conclusion: For creation of neovagina, MacIndoe's method had been gold standard for many years. Combined laparoscopic and perineal technique with peritoneal pull through has become popular due to minimal morbidity. In this video, we show the technique of complete laparoscopic dissection right up to skin at vaginal dimple. As this dissection is completely under vision, it minimises the risk of damage to the bladder and rectum, which is not uncommon with perineal dissection. In addition, few medial fibers of levator ani can be divided under vision with this technique which avoids cicatrisation of vagina in future.

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Hysteroscopic Resection of Cystic Adenomyosis

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Study Objective: Present the hysteroscopic technique for excision of cystic adenomyosis, increase the focus on presence of adenomyosis and challenge thinking about perspectives for research and treatment.
Design: surgical video.
Setting: Minimally Invasive Gynecologic Surgery practice - operative room hysteroscopy.
Patients or Participants: Patients with cystic adenomyosis presented for treatment.
Interventions: Operative hysteroscopy.

Measurements and Main Results: Presentation of surgical technique.
Conclusion: Upon completion of this video, you should be able to recognize cystic adenomyosis, as well as to understand the role of hysteroscopy in its resection.

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Impact of Morcellation Method and Site on Laparoscopic Hysterectomy Outcomes in Obese Patients

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Study Objective: To investigate the effect of morcellation method and site on perioperative outcomes in patients with class 3 obesity (body mass indices [BMIs] ≥40).
Design: Retrospective cohort study analyzing morcellation method (manual or electromechanical) and morcellation site (vaginal or abdominal). Primary outcome was 30-day perioperative complications.
Setting: Academic tertiary care center.
Patients or Participants: 159 patients with BMI ≥40.
Interventions: Laparoscopic hysterectomy requiring morcellation from 1/2006-10/2019.
Measurements and Main Results: Thirty-three (21%) patients underwent electromechanical morcellation; 126 (79%) underwent manual morcellation. Of manual morcellation cases, 46 (37%) underwent vaginal morcellation, while 80 (63%) underwent abdominal morcellation. There were no significant differences in age, BMI, parity, prior surgery, or medical comorbidities among the groups. Median specimen weight was larger for patients with abdominal versus vaginal morcellation (808g versus 455g; p<0.01), without a difference in operative time (274 versus 246 minutes; p=0.06). Urinary tract infection was more common in cases with vaginal compared to abdominal morcellation (8.7% versus 0%; p=0.02). However, collectively, vaginal versus abdominal site did not differ significantly in incidence of minor (32.6% versus 20.0%; p=0.11), major (4.4% versus 5.0%, p>0.99), or total perioperative (37.0% versus 28.8%; p=0.34) complications. When abdominal manual morcellation sites were stratified into umbilical, suprapubic, and lateral locations, no differences in minor, major, or total perioperative complications were detected. Electromechanical and manual methods of morcellation did not have significantly different rates of minor (24.6% versus 30.3%; p=0.51), major (4.8% versus 3.0%; p>0.99), or total perioperative (31.8% versus 36.4%; p=0.61) complications. After controlling for potential confounders, there was no difference in complications between electromechanical versus manual (aOR: 2.28; 95% CI: 0.76−6.84) and vaginal versus abdominal (aOR: 1.72; 95% CI: 0.724.13) morcellation.
Conclusion: In women with BMI ≥40, abdominal morcellation was associated with significantly larger specimen sizes, compared to vaginal morcellation, without an increase in perioperative complications or operative time. Manual and electromechanical morcellation had similar perioperative complication frequencies.

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Intention Matters: Success Rate of Bilateral Oophorectomy at the Time of Vaginal Hysterectomy for Pelvic Organ Prolapse

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Study Objective: To determine the incidence of successful bilateral salpingo-oophorectomy (BSO) at the time of vaginal hysterectomy (TVH) for pelvic organ prolapse (POP) and to evaluate associated factors.
Design: Retrospective review.
Setting: Tertiary center.
Patients or Participants: All women who underwent TVH for POP who were consented for BSO "if possible" and "including extraordinary measures" between January 2014 and December 2019.
Interventions: BSO at the time of TVH for POP.
Measurements and Main Results: A total of 454 patients underwent TVH for POP and were consented for BSO during the study period. Of these, 420 patients (92.5%) were consented for "BSO if possible" and 34 patients (7.5%) were consented for "BSO including extraordinary measures." "Success" was defined as ability to perform BSO vaginally. The success rate of BSO in all patients was 58.9% (n=267). Of the patients consented for extraordinary measures, the success rate was 91.2% (n=31). The 3 cases where BSO could not be performed vaginally were successfully completed laparoscopically. Patients who were in the "BSO if possible" group had a success rate of 55.5% (n=233). After controlling for confounders, concurrent posterior repair remained associated with successful BSO (adjOR 1.78 [95% CI=1.19-2.65]). Successful BSO was more common with a longer operative time compared to unsuccessful cases (151 min vs 134 min, p<.001). Compared to patients in the unsuccessful BSO group, the successful BSO group had a higher proportion of the following indications for BSO: a family history of ovarian cancer, personal breast cancer history or patient request for definitive removal.
Conclusion: When the pre-operative intention is to perform a BSO with extraordinary measures at the time of TVH for POP, the success rate is high, compared to when BSO is simply an opportunistic procedure. This suggests that the success is closely linked to the surgeon's determination to complete this procedure vaginally.

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Minimally Invasive Sacrocolpopexy Mesh Exposure Rates with and without Concomitant Total Hysterectomy

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Study Objective: Determine the risk difference of mesh exposure rates at 1-year following minimally invasive sacrocolpopexy (MISC) with and without concomitant total hysterectomy utilizing lightweight Y-mesh.
Design: Retrospective cohort, 2016-2019.
Setting: Single academic institution.
Patients or Participants: Women who underwent MISC and had 1-year in-office follow-up. Excluded if history of prior mesh augmented prolapse repair or supracervical hysterectomy.
Interventions: Women who underwent MISC with or without concomitant total hysterectomy were compared.
Measurements and Main Results: Cohort included 259 women, mean age was 63.6±9.2 years, BMI 27.1 kg/m2, 89% were post-menopausal, 46% sexually active, 18% had a history of prior FPMRS surgery. MISC + total hysterectomy (n=126) v. MISC alone (n=133). The overall rate of mesh exposure was 3/259 (1.2%, 95% CI, 0.2% - 3.4%). All mesh exposures were in the total hysterectomy group, two with absorbable suture, one with permanent suture for graft attachment. The risk difference of mesh exposure was 2.4% (95% CI, -0.5% - 6.9%) for those who underwent MISC + total hysterectomy v. MISC alone and was not significantly different from zero. The NSQIP 30-day complication rate was higher in the total hysterectomy group 14.3% v. 2.3% (p <0.01), however, this difference is attributed to the increased rate of urinary tract infections (total hysterectomy group n=14, post-hysterectomy group

n=0). There were no mortalities and 30-day readmission rates did not differ between groups 1.5% v. 1.6% (p = 1.0). Rate of recurrent prolapse, defined as ≥ Stage 2 on clinical examination, was not statistically different between groups, MISC+ total hysterectomy 12.7 % v. MISC alone 21.8 % (p=0.06). There was one reoperation for prolapse, which was in the MISC alone group (isolated posterior repair).
Conclusion: The rate of mesh exposure one year after MISC with lightweight Y-mesh is low at 1.2%, with no statistically significant difference between those who underwent MISC with or without concomitant total hysterectomy.

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Robotic Excision of Transobturator Midurethral Sling

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Study Objective: To identify indications for full transobturator (TOT) sling excision and to demonstrate techniques for full TOT sling excision in a patient with vaginal cutaneous fistula.
Design: Video demonstration of the procedure with narrated discussion.
Setting: Tertiary academic teaching hospital.
Patients or Participants: N/A.
Interventions: This video demonstrates techniques for performing safe and efficient TOT sling excision in a 65-year-old-female who developed persistent, chronic mesh-related infection with formation of a sinus tract and vaginal cutaneous fistula following TOT sling insertion 15 years prior.
Measurements and Main Results: N/A.
Conclusion: Full TOT sling excision may be required for persistent pain, mesh erosion, or mesh-related infections. Thorough understanding of pelvic anatomy, avascular spaces, and the TOT sling trajectory is required for safe and efficient sling removal. Approaching the sling excision through a minimally invasive abdominal route allows for excellent visualization and the ability to work in confined spaces.

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Robotic-Assisted Repair of Peritoneal-Perineal Hernia: A Case Report

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Study Objective: Peritoneal perineal hernia is a rare prolapse without an established gold standard treatment. In this video, we present a unique technique in repairing this condition.
Design: Case report.
Setting: Patient was positioned in low lithotomy. The DaVinci™ Xi robot was docked on the left side and set up for pelvic surgery.
Patients or Participants: The patient is a 68-year-old female with surgical history of total vaginal hysterectomy and laparoscopic sigmoidectomy who presented for evaluation of a vaginal bulge. MR Defecography demonstrated tissue distortion concerning for peritoneal perineal hernia with marked small bowel decent.
Interventions: Robotic assisted synthetic mesh placement to obliterate the space between the rectum and vagina to promote visceral adherence. The peritoneum overlying the vaginal apex was dissected off the vagina into the rectovaginal plane and taken down all the way to the perineal body. Synthetic mesh was attached posteriorly to the vaginal wall with delayed absorbable suture. The rectum was then sutured to the posterior vaginal mesh using absorbable suture. In this way, the mesh was "sandwiched" between the two viscera. Care was taken to avoid full-thickness suture placement long the rectal serosa. Excellent obliteration of the Pouch of Douglas was achieved. The mesh was then attached to the sacral promontory using permanent suture. Complete reperitonealization of the mesh was performed using absorbable suture.
Measurements and Main Results: At her postoperative visit, she reported resolution of her symptoms of pelvic pressure and vaginal bulge. Postoperative MR Defecography revealed the resolution of small bowel decent into the perineal space.
Conclusion: Our approach was unique in that we reduced the hernia and obliterated the posterior cul-de-sac by suturing the mesh to both posterior vagina and anterior colon. Robotic approach provided minimally invasive care, excellent intraoperative visualization over laparotomy, and better dexterity over laparoscopy.

Open Communications 13: Urogynecology
(11:00 AM — 12:30 PM)

11:58 AM

Simplified "in-Bag" Ovarian Dermoid Cystectomy through Single-Site Incision in a 16 Week Pregnant Patient

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Study Objective: To demonstrate a novel "in-bag" ovarian cystectomy technique for a large adnexal mass in pregnancy.
Design: Stepwise demonstration with narrated video.
Setting: An academic tertiary care hospital.
Patients or Participants: The patient is a 26-year-old G1P0 at 7 weeks and 3 days gestation who presented to the ED with persistent left pelvic pain and diagnosed with a 16 × 10 × 12 cm dermoid cyst. She re-presented at 16 weeks and 3 days gestation with worsening pelvic pain and decision was made to proceed with surgical intervention.
Interventions: Laparoscopic transumbilical single-site surgery for the surgical management of adnexal masses in pregnancy has been demonstrated to be feasible and safe. However, single-site laparoscopic ovarian cystectomy can be very challenging in pregnancy, especially when the need for suturing arises. Exteriorizing the ovary and cyst after intraperitoneal drainage may allow for extracorporeal suturing that is faster and easier; however, it will increase the probability of spillage of cystic contents if it is not performed in a bag, which can then cause peritonitis in cases of dermoid cysts. A combination of in-bag and extracorporeal ovarian cystectomy is a novel alternative minimally invasive approach that is more cosmetic, safer, and effective.
Measurements and Main Results: The procedure was successfully performed in approximately 110 minutes, and the fetal heart rate post-procedure was 128bpm via bedside transabdominal ultrasound. Estimated blood loss was 5 mL, and the patient was discharged the same day with an uneventful four-week post-op follow-up.
Conclusion: Laparoscopic single site "in-bag" ovarian dermoid cystectomy is feasible, effective, and safe in pregnant patients with a large adnexal mass. This technique results in better stabilization of the ovarian cyst and reduction of cystic content spillage.

Open Communications 13: Urogynecology
(11:00 AM — 12:30 PM)

12:04 PM

Single Port Robotic Assisted Sacrocolpopexy: Technique and Tips

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Study Objective: Sacrocolpopexy is the most durable surgical procedure for the treatment of symptomatic pelvic organ prolapse. The single port robotic platform has recently been approved in the US for use in Urologic surgery. Innovation in robotic surgery continues to evolve, minimizing abdominal wall trauma while improving on instrumentation and technical feasibility. Identifying the appropriate procedures to utilize novel technology is important to understand the role of new surgical tools. Sacrocolpopexy procedure, when performed with supracervical hysterectomy requires extension of an incision for specimen retrieval, making it ideal for single port surgery. The technique and adaptation to new instrumentation is demonstrated in this video.
Design: Intraoperative video of single port robotic sacrocolpopexy.
Setting: Mayo Clinic Arizona Department of Gynecologic Surgery.
Patients or Participants: Prior to surgery, this patient was consented for inclusion.
Interventions: Robotic sacrocolpopexy.
Measurements and Main Results: Surgical demonstration of single port robotic sacrocolpopexy.
Conclusion: Single port robotic sacrocolpopexy is safe, effective, and feasible.

Open Communications 13: Urogynecology
(11:00 AM — 12:30 PM)

12:10 PM

Vaginal Cuff Dehiscence Among Gender Diverse Persons

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Study Objective: To compare the risk of vaginal cuff dehiscence (VCD) following total hysterectomy among gender diverse (GD) persons and cisgender women (CW) and to identify factors associated with VCD.
Design: This is a retrospective cohort study among adults who underwent total hysterectomy for benign indications between 2014 and 2018 with at least 6-months of postoperative follow-up.
Setting: All surgeries were performed within an integrated closed healthcare delivery system.
Patients or Participants: Adult subjects who underwent non-emergent total hysterectomy for benign indications were included. Subjects who underwent subtotal hysterectomy, concomitant vaginectomy, and hysterectomy for obstetric or oncologic indications were excluded.
Interventions: N/A.
Measurements and Main Results: The 18,151 cohort was comprised of 282 (1.6%) GD and 17,869 (98.4%) CW. Compared to the CW group, the GD group was significantly younger (30.8 vs 48.2 years, $P<0.01$) and healthier (Charlson Comorbidity Index≥1 was 5.3% vs 10.4%, $P<0.01$). Hysterectomies among GD had lower blood loss (61.4 vs 128.8 mL, $P<0.01$) and lower rates of perioperative wound infection (0.4% vs 0.7%, $P<0.01$). The overall rate of VCD was 3.9% in the GD group and 2.5% in the CW group ($P=0.13$). In bivariate analysis, identifying as GD was not a significant risk factor for VCD (OR 1.60, 95%CI 0.87-2.95), whereas hypertension (OR 1.43, 95%CI 1.17-1.74) and laparotomy relative to laparoscopy (OR 1.78, 95%CI 1.22-2.58) were significantly associated with VCD.
Conclusion: VCD is a rare postsurgical complication, and a 1.6-fold increased, non-significant risk among a younger, healthier group with less intraoperative blood loss and fewer post-surgical infections suggests that our findings may represent a clinically significant difference. Hypertension and route of hysterectomy were found to be associated with VCD. We plan to analyze the data using multivariable analyses to control for confounders. We also plan to examine relationship between VCD and gender-affirming use of systemic testosterone by GD persons as a potential explanation for this clinical discrepancy in VCD.

Open Communications 14: Pelvic Pain
(2:00 PM — 3:00 PM)

2:04 PM

Cannabidiol Use, Substitution for Medications, and Perceptions of Effectiveness in Women with Chronic Pelvic Pain

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Study Objective: To describe the prevalence and patterns of cannabidiol (CBD) use in women with co-existing chronic pelvic pain (CPP) and fibromyalgia, and to evaluate characteristics associated with pain improvement.
Design: Cross-sectional, anonymous survey.
Setting: Web-based survey distributed by National Fibromyalgia Association in April-May 2020.
Patients or Participants: Female respondents with fibromyalgia who also self-reported diagnosis of CPP due to endometriosis, vulvodynia, interstitial cystitis or urinary chronic pelvic pain (IC/UCPP), and/or irritable bowel syndrome (IBS).
Interventions: Participants completed survey including self-reported CBD use patterns, substitution of CBD for medications, and self-reported improvement in pain due to CBD.
Measurements and Main Results: Our sample included 1382 women with ≥1 CPP diagnosis: 26.0% with endometriosis, 4.2% with vulvodynia, 14.0% with IC/UCPP, and 84.4% with IBS. Participants were classified by CBD use: current (n=477, 34.5%), past (n=404, 29.2%), or never (n=501, 36.3%). Of those who discontinued CBD, 61.6% did so because it did not improve symptoms.
Participants who used CBD most commonly did so for pain (96.4%), sleep (48.8%) and anxiety (46.1%), with 80.9% reporting that CBD improved their pain. Side effects were minimal, with patients reporting an average of 1.0±1.3 side effects. The majority of participants (75.9%) reported substituting CBD for pain medications, including NSAIDs (45.3%), opioids (39.8%), gabapentinoids (27.7%), and benzodiazepines (19.3%).
Compared to those who did not report pain improvement (n=91, 19.1%), those who reported improved pain had a higher proportion of substituting CBD for pain medications (p=0.003), reported greater improvements in other symptom domains (sleep, anxiety, depression, fatigue, and overall health, all p≤0.001).
Conclusion: Among women with FM and co-morbid CPP, over 60% reported past or current use of CBD. About half of participants who ever used CBD for pain reported improved pain, and many substitute CBD for pain medications including opioids and benzodiazepines.

Open Communications 14: Pelvic Pain
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Preoperative Clinical Features of Isolated Fallopian tube Torsion: Evidence from a Large Series

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Study Objective: To study isolated fallopian torsion (IFTT) in a large cohort of women and to evaluate different features of IFTT in comparison to a large cohort of women with non-IFTT adnexal torsion (NIAT).
Design: A retrospective cohort study.
Setting: A tertiary, university affiliated medical center.
Patients or Participants: We included women with surgically confirmed ovarian and/or fallopian tube torsion between March 2011 and June 2020. We compared women with IFTT to those with NIAT during the same period.
Interventions: Diagnostic and operative laparoscopy.
Measurements and Main Results: Fifty-four cases of IFTT were surgically confirmed during the study period and were compared to 422 surgically confirmed NIAT. The rate of controlled ovarian hyperstimulation treatments, current pregnancy, and vomiting was lower in the IFTT group compared with the NIAT group. Cervical tenderness and vaginal discharge were more common in the IFTT group. Edematous and enlarged ovaries were less common in the IFTT group.
In a multivariate regression analysis, the following factors were independently positively associated with IFTT; vaginal discharge [adjusted Odds Ratio (aOR) 95% CI 8.16, 1.98-33.55], and cervical motion tenderness (aOR 95% CI 2.71, 1.01-7.29). The following factors were independently negatively associated with IFTT; fertility treatments (aOR 95% CI 0.26, 0.70-0.77), previous abdominal surgery (aOR 95% CI 0.46, 0.22-0.96), vomiting (aOR 95% CI 0.38, 0.19-0.76) and enlarged ovary (aOR 95% CI 0.34, 0.18-0.65).
Conclusion: We have identified preoperative factors positively and negatively associated with IFTT in a large cohort of women with adnexal torsion.

Open Communications 14: Pelvic Pain
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Resection of a Longitudinal Vaginal Septum in an Obstructed Hemi-Vagina

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Study Objective: The objective of this video is to review the diagnosis and management of obstructed hemi-vagina and ipsilateral renal agenesis (OHVIRA) and demonstrate a technique for resection of the longitudinal vaginal septum in a patient with OHVIRA.
Design: Not applicable.
Setting: Patient was placed in lithotomy position.
Patients or Participants: This is the case of a 22-year-old gravida 0 who presented with pelvic pain and vaginal discharge. Her physical exam was notable for a 5 cm fluctuant mass along the right vaginal wall. A pelvic ultrasound and MRI were consistent with Obstructed hemi-vagina and ipsilateral renal agenesis (OHVIRA). OHVIRA is a rare congenital abnormality of the Müllerian ducts, characterized by didelphys uterus, unilateral blind hemi-vagina, and ipsilateral renal agenesis.
Interventions: This video demonstrates a technique for resection of the longitudinal vaginal septum in a patient with OHVIRA. Optimal visualization of the septum was performed using vaginoscopy. A suction bulb was used to prevent outflow from the vagina, which allowed extension of the cavity with normal saline. Additionally, a sidekick needle was inserted through the septum into the obstructed vagina. This step was performed under ultrasound guidance to confirm proper needle placement, allowing distention of the blind hemi-vagina. The vaginal septum was then incised using the bipolar resectoscope. The resection of the septum was completed vaginally using the handheld Ligasure with subsequent visualization of both cervices.
Measurements and Main Results: Not applicable.
Conclusion: Surgical management and drainage of an obstructed hemi-vagina in a patient with OHVIRA is essential for symptom control. Prevention of re-accumulation of the fluid is achieved by complete resection of the septum. This can be facilitated by injecting a distending medium into the obstructed vagina. Trans-abdominal ultrasound can be helpful in confirming proper needle placement during this step, thus preventing vaginal wall damage during resection.

Open Communications 14: Pelvic Pain
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Surgical Interventions for the Management of Chronic Pelvic Pain Syndrome in Women

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Study Objective: We aimed to review the effectiveness and safety of surgical interventions in the management of patients experiencing chronic pelvic pain syndrome (CPPS), which excluds those with pain known to be caused by i) endometriosis; ii) adenomyosis; iii) primary dysmenorrhoea; iv) active chronic pelvic inflammatory disease; v) irritable bowel syndrome; v) interstitial cystitis/bladder pain syndrome and vi) urethral syndrome.
Design: We performed a systematic review and meta-analysis for any randomized controlled trials (RCTs) for surgical interventions in patients with CPPS. Each study was independently evaluated by two reviewers for the inclusion and exclusion of trials and extracted data using the forms designed according to the Cochrane guidelines. For each included trial, information was collected regarding method of randomization, allocation concealment, blinding, data reporting and analyses.
Setting: N/A.
Patients or Participants: Female-born patients who had CPPS.
Interventions: RCTs of surgical interventions in CPPS.
Measurements and Main Results: Outcome measures were pain rating scales, quality of life (QoL) measures, and adverse events. 23 studies were identified that were retrieved in full text. A total of four studies met our inclusion criteria. For the primary outcome, the effectiveness of surgical intervention for CPPS as reported by change in pain using validated pain scales, no evidence of benefit was identified for adhesiolysis versus no surgery/diagnostic laparoscopy. Similarly, no evidence of benefit was identified for laparoscopic uterosacral ligament ablation (LUNA) versus diagnostic laparoscopy or vaginal uterosacral ligament resection. No studies were published on the psychological outcomes or requirements for analgesia. Adhesiolysis may improve health related QoL at six months after surgery when compared to diagnostic laparoscopy.
Conclusion: The currently available information suggests no evidence of benefit for use of adhesiolysis or LUNA in management of pain in those who suffer from CPPS. There may be a QoL benefit to adhesiolysis in improving both the emotional wellbeing and social support, as measured by the validated QoL tools.

Open Communications 14: Pelvic Pain
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Transobturator Tape and Chronic Pelvic Pain: A Big "Mesh"

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Study Objective: This video describes the presentation of a patient with chronic pelvic pain following placement of transobturator tape sling, illustrates the mesh removal surgery and techniques, and discusses the mechanisms by which insertion of mesh may cause acute and chronic pain.
Design: N/A.
Setting: Academic teaching hospital.
Patients or Participants: N/A.
Interventions: Mesh placement for incontinence or pelvic organ prolapse may cause debilitating pelvic pain. This video highlights how these patients may presents, surgical technique to remove mesh, and various processes by which mesh induces pain.
Measurements and Main Results: N/A.
Conclusion: Mesh placement may lead to significant chronic pelvic pain through a variety of mechanisms which work independently and jointly, often requiring a multifaceted approach to treatment.

Open Communications 14: Pelvic Pain
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Trigger Point Injections Followed by Immediate Myofascial Release in the Treatment of Pelvic Floor Tension Myalgia

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Study Objective: To determine whether adding pelvic floor physical therapy (PFPT) with myofascial release immediately following pelvic floor trigger point injection (PFTPI) provides better pain relief than pelvic floor trigger point injection alone.
Design: A retrospective chart review of patients with pelvic floor tension myalgia refractive to conservative treatment (physical therapy and muscle relaxants) who underwent PFTPI alone or PFTPI immediately followed by PFPT. Visual analogue scale (VAS) pain scores were recorded pre-treatment and 2 weeks post treatment.
Setting: Academic tertiary care center.
Patients or Participants: Female patients being treated for pelvic floor tension myalgia.
Interventions: Trigger point injections using 20 mL Ropivacaine 5 mg/mL (0.5 %) with or without addition of pelvic floor physical therapy with myofascial release for myofascial pelvic pain within 1-2 hours after injection.
Measurements and Main Results: Sixty-five patients with pelvic floor tension myalgia refractive to primary therapy and proceeding to PFTPI were included in the final study analysis. Twenty-two patients underwent trigger point injections alone and Forty-three patients underwent PFTPI immediately followed by PFPT. Demographic and clinical characteristics were comparable between groups. PFTPI improved VAS pain scores for both groups of patients. The median pre-treatment score was 8 for both groups of patients. The median post-treatment score was 6 for the PFTPI only group and 4 for the PFTPI followed by PFPT group, giving a median change in VAS score of 2 and 4 respectively (p=0.057). 74.5% of patients in the PFTPI followed by PFPT group had a change in VAS score greater than 2; whilst 45.4% of patients in the PFTPI only group had a change in VAS score greater than 2 (p=0.029).
Conclusion: Pelvic floor trigger point injection immediately followed by pelvic floor physical therapy with myofascial release seems to offer more improvement in pain for patients with pelvic floor tension myalgia. This may be due to tolerance of deeper physical therapy immediately following injections.

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Unexpected Adenomyosis Among Hysterectomy for Benign Indications: A Review of Preoperative Characteristics and Imaging

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Study Objective: The true incidence of adenomyosis is unknown, but the prevalence has been reported ranging from 5-70% in hysterectomy samples. We sought to explore the sensitivity of preoperative imaging by determining the rate of unexpected adenomyosis found on histopathologic review of hysterectomy specimens.
Design: Retrospective cohort analysis
Setting: Five hospital healthcare system
Patients or Participants: Women undergoing hysterectomy for benign indications from 2013-2019 (n=1628), with full pathology report available
Interventions: We obtained demographics, preoperative imaging, surgical indication, operative approach, and histopathology to determine rates of anticipated as well as unexpected adenomyosis at time of hysterectomy. Patients were retrospectively separated into two cohorts based on the diagnosis of adenomyosis on final pathology: 521 patients with adenomyosis and 1,107 without adenomyosis. Descriptive statistics and multivariate logistic regression were performed using Stata and statistical significance was set at $p < 0.05$.
Measurements and Main Results: Of 1628 patients who underwent hysterectomy for benign indications, 521 patients (32%) had adenomyosis diagnosed on pathology. Of these, 402 patients had preoperative ultrasound where 314 (78%) had no imaging characteristics suggestive of adenomyosis and 157 patients had preoperative MRI where 79 (50.3%) had no imaging characteristics suggestive of adenomyosis (unexpected). Pathology-confirmed adenomyosis was significantly less likely in larger uteri (13-18cm, p=0. 013; or >18cm, p=0.046) compared to those measuring 7-10cm. When stratified by surgical indication, unexpected adenomyosis was found on pathology in 93 of 146 patients with abnormal uterine bleeding (63.7%), 44 of 83 patients with endometriosis (53.0%), and 221 of 280 with fibroids (78.9%).
Conclusion: In our sample, the sensitivity of preoperative imaging for adenomyosis is 22% for ultrasound and 49.7% for MRI. Unexpected adenomyosis was most commonly identified in patients undergoing hysterectomy for fibroids whereas patients with endometriosis were more commonly suspected of having adenomyosis preoperatively.

Open Communications 15: Laparoscopy
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Assessing Activity and Recovery Following Benign Gynecologic Surgery Using an Activity Monitor and Validated Tool Sets: A Pilot Study

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Study Objective: Assessment of recovery after surgery in women following benign gynecologic surgery remains highly subjective and elusive, as the majority of patient recovery is taking place at home and outside of the hospital. However, advances in wearable technology present an opportunity for clinicians to have an objective assessment of postoperative recovery. The aims of this pilot study are to 1) feasibility of the use of an activity monitor in a gynecologic surgical patient population, 2) use activity monitor data to characterize the recovery trajectory of physical activity for laparoscopic and open surgeries.
Design: Pilot study.
Setting: Academic hospital.
Patients or Participants: Women aged 18-51 years undergoing elective inpatient(laparotomy) and outpatient(laparoscopic/robotic) surgeries, specifically myomectomy and hysterectomy.
Interventions: Physical activity was measured using an Actigraph GT3X wrist-worn activity monitor. Participants wore the activity monitor a week before the surgery to assess preoperative baseline activity and they were asked to wear them for a minimum 6 weeks postop. The total number of steps was measured for each patient per day, and the time to baseline recovery activity was measured.
Measurements and Main Results: Of the 15 patients enrolled, 13 patients completed the study procedures and were included in the analysis. 9 underwent laparoscopic/robotic surgery and 4 laparotomy. The mean number of days the monitor was worn was 45 days (SD27) for all procedures. For minimally invasive outpatient procedures, the total number of steps per day reached preoperative average levels on postoperative day (POD) 7.8 (SD7.5). For laparotomies that required inpatient stay, the total number of steps per day reached preoperative average levels on POD33.5(SD24.5).
Conclusion: This study demonstrates that objective monitoring of postoperative physical activity using activity monitors is feasible in the benign gynecologic surgical population. Recovery trajectories for inpatient laparotomies and outpatient minimally invasive procedures differ. Activity monitors present clinicians with a new potential tool for assessing and managing surgical recovery.

Open Communications 15: Laparoscopy
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Intraoperative Techniques for Evaluation of Minor Ureteral Injuries

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Study Objective: To demonstrate intraoperative surgical techniques used to evaluate ureteral integrity following gynecologic laparoscopy.
Design: N/A.
Setting: The patients underwent surgery at a tertiary care center. They were placed in dorsal lithotomy position in steep Trendelenburg to aid in performance of pelvic laparoscopy. Insufflation was carried out to 15mmHg. A primary 10mm umbilical trocar was used for the camera and three additional 5mm assist ports were placed.
Patients or Participants: The first patient is a 35-year-old G0 who underwent laparoscopic excision of severe bilateral deep infiltrating endometriosis. The second patient is a 51-year-old G3P2103 who underwent total laparoscopy hysterectomy for pain caused by post-ablation tubal sterilization syndrome.
Interventions: Indocyanine Green dye given intravenously followed by infrared imaging via laparoscopy. Retrograde instillation of methylene blue into the ureter under laparoscopic visualization.
Measurements and Main Results: The first patient had a small area of devascularization along the right ureter and the second patient had a small luminal defect in the distal left ureter. Both were treated with indwelling stents and recovered without complication.
Conclusion: The techniques outlined in this video can aid gynecologic surgeons in identifying minor ureteral injuries intraoperatively, allowing for prompt treatment and avoidance of severe morbidity and long-term sequelae.

Open Communications 15: Laparoscopy
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Management of a Rare Case of Chemical Peritonitis after Laparoscopic Dermoid Cystectomy.

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Study Objective: The objective of our narrated video is to demonstrate the endoscopic management of a large twenty-centimetre demoid cyst and subsequent intra-operative findings and techniques used in the surgical management of chemical peritonitis resulting from intra-operative dermoid spillage.
Design: Stepwise demonstration with narrated video footage (Canadian Task Force classification III).
Setting: Advanced Minimally Invasive Gynaecology Surgery Unit Campbelltown Hospital, Liverpool.
Patients or Participants: N/A.
Interventions: Laparoscopic dermoid cystectomy and relook laparoscopy with extensive adhesiolysis and drainage of underlying granulomatous material.
Measurements and Main Results: Clinical improvement after surgical and post-operative medical management of chemical peritonitis.
Conclusion: Clinically significant chemical peritonitis following dermoid cyst spillage during laparoscopic surgery is a rare complication. Prompt recognition and surgical management reduces the complications arising from the condition.

Open Communications 15: Laparoscopy
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Pre-Operative Magnetic Resonance Imaging (MRI) and Surgical Management of Endometriosis

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Study Objective: To demonstrate how interdisciplinary collaboration between Radiology and Minimally Invasive Gynecologic Surgery departments can address pre-operative challenges in patients undergoing surgical management of endometriosis.
Design: Radiology review of imaging pre-operatively and subsequent retrospective review of completed surgical cases by surgeons with intra-operative photography and video.
Setting: Bimonthly conferences with members of both departments present.
Patients or Participants: De-identified patients with complex endometriosis on MRI who were planned for surgical management
Interventions: Review of MRI using separation by compartments and detailed description and measurements of lesions prior to surgery to improve patient counseling and recruitment of appropriate surgical services.

Measurements and Main Results: Surgical videos demonstrate planned removal of lesions. Contribution of MRI conference to individual patient cases is discussed along with how this helps address specific pre-operative challenges in endometriosis patients. Development of standardized MRI templates is ongoing.
Conclusion: Interdisciplinary collaboration is an important aspect of patient care when managing complex endometriosis with excisional fertility-sparing surgery. Patient counseling on planned surgery and risks can be improved with precise detection and standardized reporting using pre-operative imaging such as MRI. Scheduled pre-operative review of MRI provides the ability to address these clinical concerns. By correlating imaging, clinical, and intra-operative findings, we hope to improve patient outcomes.

Open Communications 15: Laparoscopy
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Scary Disseminated Peritoneal Parasite Tumors: A Rare Complication after Previous Laparoscopic Myomectomy

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Study Objective: To demonstrate a rare case with complications originated from previous uncontained power morcellation for laparoscopic myomectomy specimen.
Design: Video demonstration of a rare case.
Setting: A local MIS (minimally invasive surgery) center.
Patients or Participants: Single patient.
Interventions: Laparoscopic surgery.
Measurements and Main Results: This virgin patient, receiving laparoscopic myomectomy 9 years ago at other hospital, received 2nd laparoscopic surgery for recurrent symptomatic uterine myomas 5 years ago, when she was 40-year-old of age. Numerous intraperitoneal parasite tumors were noted. Part of the tumor was sent for frozen section, and the result was "spindle cell tumor". These tumors were debulked as possible. Anterior and posterior uterine mass were also removed after careful adhesiolysis. At this time, all the specimens were removed in the retrieval bag. The pathology of the "parasite tumor" was not leiomyoma but turned out to be adenomyosis and adenomatoid tumor. Adjuvant hormone suppression was prescribed, but later was stopped by patient herself due to the untolerable side effect. Recurrent intraperitoneal adenomyomatosis was noted soon after, gradually enlarged, and at last caused serious compression symptoms. She received 3rd laparoscopic surgery last year (44-year-old of age). Severe intraperitoneal adhesion, with multiple peritoneal tumor seeding (including Morrison pouch, paracolic gutter, mesentery, pararectal area, and previous laparoscopic trocar site), were noted. TLH + BSO, as well as parasite tumor resection/debulking was performed as the final definite surgical treatment. The patient recovered soon after the surgery and lived well now. In this short video, we will only demonstrate the terrible condition of intraperitoneal adenomyomatosis during 2nd debulking surgery.
Conclusion: Intraperitoneal leiomyomatosis or adenomyomatosis is a rare but serious complication following laparoscopic myomectomy procedure. Castration (BSO) may be the final solution to prevent recurrent parasite tumor seeding and growing. From this patient's history, we again learned the importance of contained morcellation during specimen retrieval in laparoscopic myomectomy.

Open Communications 15: Laparoscopy
(2:00 PM — 3:00 PM)

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Surgical Approach to Laparoscopic Hysterectomy for a Large Cervical Fibroid

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Study Objective: To demonstrate surgical techniques aimed at successfully navigating the anatomic distortion caused by cervical fibroids during hysterectomy.
Design: N/A.
Setting: The patient was placed in dorsal lithotomy position in steep Trendelenburg to aid in performance of pelvic laparoscopy. Insufflation was carried out to 15mmHg. A primary 10mm umbilical trocar was used for the camera and three additional assist ports were placed.
Patients or Participants: The patient is a 37-year-old G1P1001 who presented with heavy bleeding and cramping. Work-up revealed a 6cm cervical fibroid. The patient did not desire future fertility and elected to undergo laparoscopic hysterectomy. The patient was given three months of a GnRH agonist to control bleeding and improve pre-operative hemoglobin.
Interventions: Total laparoscopic hysterectomy with bilateral ligation of the uterine artery at its origin from the hypogastric artery, bilateral salpingectomy, bilateral ureterolysis, cystoscopy with placement of ureteral stents.
Measurements and Main Results: Uncomplicated surgery with same-day discharge followed by uneventful post-operative recovery.
Conclusion: Large cervical fibroids present many surgical challenges, but laparoscopic hysterectomy can be safely and efficiently performed using the reproducible techniques outlined in this video.

Open Communications 15: Laparoscopy
(2:00 PM — 3:00 PM)

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Surgical Principles for Management of Major Vessel Injury during Laparoscopic Gynecologic Surgery

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Study Objective: Vascular injury of the major pelvic vessels is one of the most dreaded complications in gynecologic laparoscopy. Risk factors include distorted anatomy, fibrosis secondary to pathology or previous surgery, and procedures involving retroperitoneal dissection. We aim to outline fundamental principles for management of major vessel injury during gynecologic laparoscopy.
Design: Case report.
Setting: Tertiary academic medical center.
Patients or Participants: We present the case of 32-year-old patient who sustained an injury to the left external iliac artery during surgical excision of deeply infiltrating endometriosis.
Interventions: Critical steps demonstrated in this video include rapid identification, application of direct pressure, and communication with the operating room team regarding the need for additional resources. Once bleeding has slowed, mobilization of surrounding structures including the ureter and bowel can be performed to improve visualization and minimize risk of secondary injury. Atraumatic self-retaining vascular clamps such as laparoscopic Satinsky clamps can be used to occlude without traumatizing vessel walls. If bleeding is unable to be controlled with laparoscopic pressure or additional visualization is required for primary repair, laparotomy must be performed expeditiously.
Measurements and Main Results: This patient received definitive primary repair of a 5mm external iliac artery defect with Vascular Surgery and was discharged home in stable condition on postoperative day two.
Conclusion: This case demonstrates fundamental principles for initial management of acute major vessel injury during gynecologic laparoscopy, including application of direct pressure, communication, identification and mobilization of surrounding anatomy, and application of vascular clamps to temporize bleeding when definitive repair is not possible through a minimally invasive approach.

Open Communications 16: Reproductive Medicine
(3:15 PM — 4:15 PM)

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Clinical Outcomes of Drug-Free in Vitro Activation (IVA) with Modified Surgical Technique in Patients with Diminished Ovarian Reserve

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Study Objective: Patients with critically diminished ovarian reserve have few remaining follicles and using donated eggs becomes the only chance of getting pregnant. Kawamura et al. have invented a method for the activation of dormant follicles using PI3K stimulator and PTEN inhibitors, but later showed that ovarian tissue fragmentation alone with returning to the contralateral ovary could also lead to follicular growth. Our purpose was to optimize infertility treatment in patients with diminished ovarian reserve using a new modified surgical technique with ipsilateral ovarian tissue reimplantation.
Design: Prospective study, Level II.
Setting: National Medical Research Center.
Patients or Participants: 70 patients with diminished ovarian reserve and no successful results from previous treatment, including ART methods.
Interventions: Bilateral ovarian cortex biopsy via laparoscopy, ovarian tissue fragmentation in aliquots of 1 mm^2, and hysteroscopy with endometrial biopsy were performed in all patients, followed by histological examination. Collected tissue fragments were grafted into a formed space between the ovarian cortex and medulla ipsilaterally. To date 40 patients underwent ovarian stimulation after at least a one-month postoperative period.
Measurements and Main Results: Our study demonstrated at least a triple increase in estradiol level in 5 days after surgery, progressive decrease in gonadotropins levels, increase in the number of growing follicles in all patients after our modified surgical approach. 31 out of 40 patients have responded to ovarian stimulation. Moreover, in 25 out of 31 patients we revealed an increase in the number of oocytes, fertilization rates, and high-quality embryo rates. 10 patients became pregnant after the surgery (3 spontaneous pregnancies, 7 - after ovarian stimulation).
Conclusion: Our data shows that drug-free IVA with our modified surgical technique is associated with favorable clinical outcomes for infertility treatment in patients with diminished ovarian reserve.

Open Communications 16: Reproductive Medicine
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Expanding Horizons: Laparoscopic Management of Unruptured Cornual Heterotopic Pregnancy Safeguarding Intrauterine Pregnancy

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Study Objective: Feasibility of Minimally invasive surgery to handle extremely rare conditions of heterotopic cornual ectopic pregnancy.
Design: Compilation of videos consisting of four surgical procedures over six years performed on a patient with specific focus on heterotopic cornual ectopic pregnancy managed laparoscopically.
Setting: Operative laparoscopy for cornual ectopic pregnancy was performed under general anaesthesia in semi lithotomy position. Optical 11 mm trocar was introduced from umbilicus and other three ancillary 6 mm ports were used. C section of same patient at full term was carried out under regional anaesthesia with Pfannenstiel incision.
Patients or Participants: The patient had undergone laparoscopic bilateral neosalpingostomy as a part of fertility restoration surgery which was followed by bilateral salpingectomy for recurrent hydrosalpinx and tubal ectopic pregnancy. Following which patient underwent Assisted reproductive technique but unfortunately developed rare form of multiple gestation (heterotopic pregnancy with one left cornual ectopic component and second healthy intrauterine pregnancy). It was diagnosed in time and treated with operative laparoscopy. The intrauterine pregnancy continued till term and a healthy singleton child was delivered by C section at 37th week.
Interventions: I was prudent to avoid prolonged use of general anaesthesia and to reduce use of electrocautery on gravid uterus. For achieving effective hemostasis four stay sutures with delayed absorbable suture material was taken on both sides and base of ectopic gestation which was very vascular lesion due to gravid uterus.
Measurements and Main Results: With minimal use of electrocautery and without using vasoconstrictors or uterine artery ligation, extremely vascular cornual ectopic pregnancy was safely removed by operative laparoscopy. Myometrial defect was properly reconstructed with delayed absorbable sutures, without causing any short term or long-term harm to ongoing precious intrauterine pregnancy.
Conclusion: Extremely rare and complex situation of heterotopic cornual ectopic pregnancy can be very safely managed with proper application of principles of minimal invasive surgery safeguarding the intrauterine pregnancy.

Open Communications 16: Reproductive Medicine
(3:15 PM — 4:15 PM)

3:30 PM

Preventing Isthmocele after Cesarean Section (PICS): A Pilot Randomized Controlled Trial

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Study Objective: An isthmocele is a cesarean scar site defect with a depth of >2mm and can lead to both obstetric and gynecologic complications. The primary objective was to evaluate the feasibility of a study protocol comparing different cesarean section closure techniques amongst our own patients/physicians, with the ultimate goal of a larger scale randomized controlled trial (RCT). Secondary objectives included isthmocele incidence, measurements on postoperative ultrasound, and adverse surgical outcomes related to suture technique.
Design: A single-center parallel-group pilot RCT comparing locked vs. unlocked first-layer uterine closure. Outpatient transvaginal ultrasound to evaluate isthmocele formation was performed at least six months postoperatively.
Setting: Operating room and outpatient ultrasound clinic.
Patients or Participants: All term pregnant patients >18 years old undergoing a primary caesarean section were eligible. Exclusion criteria included previous uterine hysterotomy, known uterine anomalies, active labour, and maternal bleeding and/or connective tissue disorders.
Interventions: Locked or unlocked closure of the first uterine layer.
Measurements and Main Results: Forty-one subjects were randomized, and 23 completed the follow-up ultrasound, with 12 in the locked group and 11 in the unlocked group. Barriers to feasibility included hesitance to participate in research during pregnancy, difficulty attending follow-up ultrasound with a newborn, and mainly Covid-19 pandemic related delays in study activities and fear of potential exposures. Isthmocele was present

in 10/12 patients receiving locked closure, and in 11/11 of the unlocked group. Mean sagittal depth was 0.36 cm and 0.40 cm in the locked vs. unlocked groups, respectively. Sagittal adjacent myometrial thickness was 1.03 cm in the locked group, and 1.12 cm in the unlocked group. No adverse outcomes were noted with either surgical technique.
Conclusion: The study design is feasible outside of the pandemic setting. A larger trial is needed to determine differences regarding isthmocele rates and measurements between groups.

Open Communications 16: Reproductive Medicine
(3:15 PM — 4:15 PM)

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Recurrent Ovarian Torsion and Fixation − Risk Factors and Predictors for Treatment Outcome

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Study Objective: Identifying risk factors for recurrent ovarian torsion and evaluation of the efficacy of ovarian fixation techniques.
Design: Retrospective cohort study.
Setting: Tertiary-care medical center.
Patients or Participants: Seventy-nine women with recurrent ovarian torsion (study group) were matched with 158 women with a single episode of ovarian torsion (control) during the same year of their first episode.
Interventions: Demographic data, clinical and surgical characteristics were retrieved between the years 2001-2020. In order to identify risk factors for recurrent ovarian torsion, the first episode of ovarian torsion in the study group was compared to the only episode of the control group. A second analysis was performed between women with ovarian fixation (success and failure).
Measurements and Main Results: Women with recurrent torsion were significantly younger and the percentage of premenarchal women was significantly higher (25.6±8.6 vs. 30.6±7.1, P<0.001, and 10% vs. 0.6%, P<0.001, respectively). Fertility treatment and pregnancy were significantly more common in the control group (37.7% vs. 23.6%, P=0.03, and 36.4% vs. 20.7%, P=0.01, respectively).
Ovarian pathology was significantly more common in the control group (89.0% vs. 38.1%, P<0.001), whereas the number of ovarian twists was significantly higher in the recurrent torsion group (2.6±0.01 vs. 2.0±0.1, P=0.04). Ovarian fixation was performed in 63 women (79.7%) of the study group with an overall success rate of 71%. Long duration of pain before admission was associated with ovarian fixation failure (37.5± 6.3 hours vs. 11.7±6.0, P=0.003). Ovarian fixation during pregnancy was shown to be safe with low failure rate (6% vs. 36%, P=0.03). None of the fixation procedures was shown to be superior to the others in terms of success.
Conclusion: Recurrent ovarian torsion is more common in young premenarchal women. Ovarian fixation is a safe procedure with a 70% success rate. We found no advantage in one fixation techniques over the others.

Open Communications 16: Reproductive Medicine
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Resection of a Cornual Heterotopic Pregnancy Using Single-Site Laparoscopic Techniques

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Study Objective: To describe techniques for resection of a cornual heterotopic pregnancy.
Design: Demonstration of surgical technique with narrative video footage using two case examples.
Setting: Academic medical center.
Patients or Participants: A case of an 8-week cornual heterotopic pregnancy with successful delivery of the intrauterine pregnancy and a case of a cornual ectopic at 10 weeks.
Interventions: We demonstrate the use of a "purse string" technique using robotic assisted single incision laparoscopy to resect a cornual heterotopic with minimal blood loss using a 2-0 V-lock suture. Additionally, we review this similar technique with traditional single-site laparoscopic surgery.
Measurements and Main Results: Resection of a cornual heterotopic pregnancy can be successful done using a "purse string" technique. This technique allows for minimal blood loss as well as minimal entry into the myometrium, which allows for minimal manipulation of the concurrent intrauterine pregnancy.
Conclusion: Resection of cornual heterotopic pregnancy can be done using a "purse-string" surgical technique. This technique allows for minimal blood loss in cases where additional techniques for hemostasis cannot be used, such as injection of vasopressin and uterine artery ligation. We also demonstrate that this technique can be successful completed using either traditional or robotic assisted single incision laparoscopic surgery.

Open Communications 16: Reproductive Medicine
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Robotic Assisted Laparoscopic Tubal Anastomosis

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Study Objective: To demonstrate a technique for tubal anastomosis.
Design: A video description of steps of a technique for minimally invasive tubal anastomosis.
Setting: video description of surgical technique using robotic assistance.
Patients or Participants: A 33-years old female with past history of sterilization with partial salpingectomy and no other infertility factors who decided to regain her fertility potential, underwent a laparoscopic tubal anastomosis.
Interventions: Laparoscopic tubal anastomosis with robotic assistance.
Measurements and Main Results: Description of surgical technique using surgical video.
Conclusion: tubal anastomosis using robotic assistance is a reproducible minimally invasive approach.

Open Communications 16: Reproductive Medicine
(3:15 PM — 4:15 PM)

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Ruptured Ectopic Pregnancies Following Methotrexate Treatment: Clinical Course and Predictors for Improving Patient Counseling

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Study Objective: To determine the predictors for tubal rupture among women treated with methotrexate (MTX) for ectopic pregnancy.
Design: Retrospective cohort analysis.
Setting: Tertiary university-affiliated medical center.
Patients or Participants: Four-hundred one women who were diagnosed with ectopic pregnancy and were treated with MTX. Forty-one women with ruptured ectopic pregnancy (study group) and 300 women with non-ruptured ectopic pregnancy (control group).
Interventions: Descriptive data and predictive variables for rupture ectopic pregnancy following MTX treatment.
Measurements and Main Results: Out of 122 women who failed MTX treatment, forty-one women had tubal rupture (33.6%). The median time interval from MTX treatment to tubal rupture was 6 days (1-25). β-hCG percentage change in the 48 hours preceding MTX treatment and β-hCG level at day 0 were independent predictors for tubal rupture (odds ratio [OR] = 1.08, 95% confidence interval [CI] = 1.04 −1.12, $p < 0.001$ for every percent change in β-hCG; OR = 1.001, 95% CI = 1.0003−1.002 for every unit change in β-hCG, respectively). In a decision tree analysis model, in women with β-hCG percentage increment >69% in the 48 hours preceding methotrexate the probability for tubal rupture was 85%.
Conclusion: Risk assessment for tubal rupture should be made before methotrexate treatment according to β-hCG dynamics and level. The absolute risk for tubal rupture in women with β-hCG increment<20% is low.

Open Communications 17: Laparoscopy-Variety (3:15 PM — 4:15 PM)

3:19 PM

Benefit of Routine Cystoscopy at Time Uncomplicated Total Laparoscopic Hysterectomy

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Study Objective: To demonstrate the value of routine cystoscopy for evaluation of bladder injury at time of laparoscopic hysterectomy.
Design: Video abstract.
Setting: Minimally invasive gynecologic surgery department at an academic community hospital.
Patients or Participants: Patients who underwent an uncomplicated total laparoscopic hysterectomy with bilateral salpingectomy for abnormal uterine bleeding and fibroids.
Interventions: Routine cystoscopy following a seemingly uncomplicated total laparoscopic hysterectomy with primary repair of bladder after unanticipated thermal bladder injury noted.
Measurements and Main Results: Following total laparoscopic hysterectomy, visual inspection of the pelvis did not reveal any injuries to the bladder or ureters. At time of routine cystoscopy, a <1cm thermal injury was noted at the dome of the bladder, which was treated with primary repair. We also present a companion case with finding of 1.5cm thermal bladder dome injury following laparoscopic hysterectomy, bilateral salpingectomy and laparoscopic Burch procedure. Again, no evidence of injury was noted at completion of laparoscopy by visual inspection. The injured bladder mucosa was excised and the iatrogenic cystotomy repaired in two layers.
Conclusion: Recommendation for routine cystoscopy following laparoscopic hysterectomies to adequately assess for possible thermal bladder injury that otherwise would be undetected with visual inspection.

Open Communications 17: Laparoscopy-Variety (3:15 PM — 4:15 PM)

3:25 PM

Laparoscopic Appendectomy: Surgical Techniques for the Benign Gynecologist

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Study Objective: To demonstrate two methods of performing a laparoscopic appendectomy in the setting of endometriosis.
Design: Stepwise demonstration of advanced laparoscopic techniques with narrated video footage.
Setting: Laparoscopic appendectomies may be performed incidentally at the time of a gynecologic procedure or for treatment purposes. In our practice, we typically perform appendectomies in the setting of endometriosis, where appendiceal endometriosis rates may range from 10-40%, especially in the presence of deep infiltrating endometriosis or ovarian endometriomas. In these cases, an appendectomy may be warranted to perform a complete resection of endometriosis and may be diagnostic or therapeutic in patients with chronic pelvic pain.
Patients or Participants: Patients undergoing laparoscopic excision of endometriosis requiring a concurrent appendectomy.
Interventions: Although uncommonly performed by gynecologists, appendectomies may be performed for complete disease management of endometriosis or prevention of future appendicitis. Sound surgical technique and knowledge of the anatomy will allow most laparoscopists to safely perform this procedure. Several key strategies include:
1. Identification of the appendix and its surrounding landmarks.
2. Division of the mesoappendix in order to ligate the appendiceal artery and to skeletonize the appendix.
3. Transection of the appendix with either Endoloops or the endoscopic gastrointestinal stapler.
4. Containment of the appendix within a specimen retrieval bag to avoid contamination.
Measurements and Main Results: This video provides a narrated stepwise demonstration displaying two methods of how to perform a laparoscopic appendectomy featuring the Endoloop and the endoscopic gastrointestinal stapler.
Conclusion: Laparoscopic appendectomies can be performed successfully by benign gynecologists and are particularly useful in the complete management of endometriosis. Here we demonstrate two common methods for performing a laparoscopic appendectomy, highlight relevant surgical anatomy, and provide key surgical strategies for the safe completion of this procedure.

Open Communications 17: Laparoscopy-Variety (3:15 PM — 4:15 PM)

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Laparoscopic High Anterior Resection for Management of Primary Peritoneal Carcinoma Recurrence: A Case Report

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Study Objective: For platinum-sensitive recurrent epithelial ovarian, primary peritoneal and fallopian-tube cancer, only complete resection of disease may confers a survival benefit of secondary debulking surgery (SDS). We will report a case who underwent laparoscopic high anterior resection

(HAR) for management of localized recurrent primary peritoneal carcinoma (PPC).
Design: N/A.
Setting: Urban general hospital in Japan.
Patients or Participants: N/A.
Interventions: A 70-year-old women with a history of FIGO stage IIIC PPC presented with an intra-pelvic 3cm mass involving the rectosigmoid colon and vaginal stump by MRI 3 years after the completion of treatment. PET/CT revealed a single site recurrence and the patient desired laparoscopic resection of the recurrent lesion instead of chemotherapy alone. With the patient in the Lloyd-Davies position, 4 port trocars were placed for a modified diamond configuration. The tumor was located between the vaginal stump and the rectosigmoid colon. The right ureter was identified running just to the right of the mass. By right parametrial dissection, the right ureter was mobilized laterally, and the tumor was dissected from the vaginal stump by colpotomy. Posterolateral recto-sigmoid dissection was extended following the mesorectal plane and the rectosigmoid colon was divided by a flexible linear stapler distal to the tumor. By extending the left lower quadrant 5mm port to 4cm, the rectosigmoid colon was delivered. The tumor-free upper rectum was divided, and an anvil was inserted into the end of the bowel extracorporeally. Laparoscopic end-to-end anastomosis was made by a circular stapler inserted into the anus. Postoperative course was uneventful, and histopathology confirmed the recurrence of PPC with involvement in the rectosigmoid submucosa.
Measurements and Main Results: N/A
Conclusion: We demonstrated the feasibility of minimal invasive SDS for localized recurrence of PPC with colorectal invasion. Minimally invasive debulking should be considered appropriate for patients when managing locoregional recurrence of PPC.

Open Communications 17: Laparoscopy-Variety (3:15 PM — 4:15 PM)

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Sonographic Characteristics of Isolated Fallopian tube Torsion Compered to Ovarian and Adnexal Torsion. a Retrospective Trial

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Study Objective: To characterize the sonograms of women diagnosed with either ovarian, fallopian tube or adnexal torsion and validate them with the actual laparoscopic surgery findings.
Design: A retrospective cohort study.
Setting: A single tertiary university affiliated gynecological ultrasound unit.
Patients or Participants: 204 women diagnosed at our gynecological ultrasound unit with either ovarian, fallopian tube or adnexal torsion during the years 2001-2019.
Interventions: Ultrasound reports of patients diagnosed with fallopian tube torsion were reviewed and compared to ovarian and adnexal torsion.
Measurements and Main Results: Ovarian volume was significantly higher in ovarian torsion (median 111cc,) compared to IFTT (median 29.2cc, p= 0.037). Ovarian texture was significantly more edematous in ovarian torsion compared to IFTT (p= 0.001). Whirlpool sign and its location was seen in all forms of torsion evenly. The ovarian blood flow was more compromised when the entire adnexa was involved rather than when only the ovary was (p=0.04). A trend showing less ovarian blood flow compromise was noted in IFTT (p=0.06). IFTT was associated with paraovarian cyst in significantly higher rate than other torsion forms (p=0.00). The odds for ovarian, adnexal, or fallopian tube torsion to occur without any pelvic mass and the mass size was not statistically different.
Conclusion: Sonographic findings can imply the presence of IFTT. In order to gain more sensitive and specific diagnosis, the physician should be familiar with the sonographic characteristics which are more prevalent in the different types of adnexal torsion as well as the characteristics which not differ between them.

Open Communications 17: Laparoscopy-Variety (3:15 PM — 4:15 PM)

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Surgical Approach to a Non-Communicating Uterine Horn

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Study Objective: The objective of this video is to discuss and demonstrate a surgical approach to management of a deeply involved non-communicating left uterine horn.
Design: Case Study.
Setting: The patient was taken to the operating room for a planned procedure. Adequate general anesthesia was obtained. She was placed in the dorsal lithotomy position and prepped and draped in usual sterile fashion.
Patients or Participants: 21 y/o G0 presenting with 7 months of worsening dysmenorrhea.
Interventions: Patient underwent a Laparoscopic left uterine horn excision, left salpingectomy, chromotubation, treatment of endometriosis (excision and ablation).
Measurements and Main Results: A saline infusion sonogram was performed for further evaluation of dysmenorrhea which noted a possible uterine horn with endometrial lining. A subsequent MRI was ordered to further delineate anatomy and surgical planning. A non-communicating left uterine horn contiguous with the right unicornuate uterus was seen. The right unicornuate uterus was seen along the entire length communicating with the cervix.
Pre-operative renal imaging was performed to assess for simultaneous renal abnormalities which was negative. In patients with mullerian anomalies, a thorough evaluation of the renal collecting system is essential. As high as 40% of patients with a unicornuate uterus are noted to have simultaneous renal anomalies. Pre-operative imaging with an ultrasound or an MRI is warranted to evaluate the kidneys, ureters and bladder.
Obstruction is often associated with retrograde menses and hence endometriosis. Superficial scattered endometriosis lesions were noted in the pelvis of this patient. Surgical excision of the non-communications horn can provide symptomatic relief and eliminate reflux.
Conclusion: There are multiple types of mullerian anomalies. Ultrasound imaging is generally the first step in evaluation. if an ultrasound is unclear, an MRI can be ordered to further assess the complex anomaly. Evaluation of the renal collecting system is essential in these patients as the rate of renal anomalies can be high.

Open Communications 17: Laparoscopy-Variety (3:15 PM — 4:15 PM)

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The Art of Manipulation: Preparing the Learner for Uterine Manipulation in Laparoscopic Hysterectomy

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Study Objective: To determine whether kinesthetic learning using a simulated pelvic model while learning the uterine manipulation maneuvers of a laparoscopic hysterectomy improves learning compared to an interactive video module alone.
Design: Randomized controlled study.
Setting: Academic medical center.
Patients or Participants: Forty, first-year and second-year medical students who had never performed uterine manipulation
Interventions: A low-cost simulated pelvic model for kinesthetic learning during an interactive video module.
Measurements and Main Results: Forty, first-year and second-year medical students participated in the study, which included an interactive video module with formative assessment, summative assessment, cadaveric assessment, and qualitative post-participation survey. Participants were randomized to the intervention group (n=21) who used a simulated pelvic model for kinesthetic learning during the video module or the control group (n=19) who only had the video module to learn the uterine manipulation maneuvers of a laparoscopic hysterectomy. There was no difference between the control and intervention groups on final score, number of attempts, or time to completion of the summative assessment. On the cadaveric assessment, participants in the intervention group had fewer unnecessary movements with demonstration of both right pelvic sidewall (control 78.9%, intervention 42.9%, $p<0.027$) and left pelvic sidewall (control 94.7%, intervention 66.7%, $p<0.046$). This difference was increased in more novice first-year medical student participants ($p<0.009$). There was no difference between the control and intervention groups in the amount of force used, need for either verbal or physical cues, or time required to achieve each maneuver. Lastly, the participants in the intervention group reported higher perceived preparedness (100% versus 71.4% in control group, $p<0.037$).
Conclusion: Kinesthetic practice may not be required for learning the uterine manipulation maneuvers of a laparoscopic hysterectomy, but it may be beneficial for more novice learners and to increase learners' perceived preparedness. Our interactive video module alone may be sufficient to prepare learners to perform uterine manipulation maneuvers prior to the operating room.

Open Communications 17: Laparoscopy-Variety
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A Novel Access to the Sacrospinous Ligament and the Coccygeal Muscle

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Study Objective: This study aimed to describe a novel access route to the sacrospinous ligament and the coccygeal muscle. The overarching goal was to show our team's standard systematization to this technique and state it's safety in low parametric injuries.
Design: Video description of the novel technique with clear illustrations of each step.
Setting: N/A.
Patients or Participants: The surgery was performed in a 27-year-old woman who suffered from deep endometriosis in the pelvic floor. Her diagnosis was performed through physical examination, with innervation compression symptoms, ultrasound and MRI imaging techniques.
Interventions: After the identification and release of the central structures, we proceed to the lateral approach with the isolation of the internal iliac artery, which should be medially tractioned, enabling the identification of the bifurcation of the common iliac vein into the internal and external iliac vein. We then start the systematization of the approach with the dissection of the avascular space between the "V" shape formed by the umbilical artery and uterine artery, subsequently heading towards the sacrum. Next, we identify the rectovaginal fascia, being the first structure to be identified, extending from the rectovaginal space to the tendon arch. Behind this structure, we can find the coccygeal muscle and the sacrospinous ligament extending from the sciatic spine towards the sacrococcyx.
Measurements and Main Results: We conclude the systematization of the pelvic floor approach being able to safely perform the resection of the endometriotic nodules with intact innervation, tension-free muscles and greater damage control.
Conclusion: In summary this novel approach to the pelvic floor is thought to be a simpler and less risky alternative to treat low parametric injuries afflicting the sacrospinous ligament and the coccygeal muscle.

Open Communications 17: Laparoscopy-Variety
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4:01 PM

COVID19 Pandemic Impact on Same-Day Discharge Rates after Minimally Invasive Surgery for Endometrial Cancer

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Study Objective: To determine if the COVID19 pandemic increased the rate of same-day discharge (SDD) after minimally invasive surgery (MIS) for endometrial cancer.
Design: Retrospective cohort study of patients undergoing MIS hysterectomy for endometrial cancer for the six months before and after the COVID19 restrictions went into place on March 17, 2020.
Setting: Robotic or laparoscopic procedure in the low dorsal lithotomy position. Arms were tucked and padded at their sides.
Patients or Participants: 166 patients underwent a MIS procedure for the indication of endometrial cancer at a large, academic institution from September 1, 2019, through October 1, 2020. 80 patients prior to the implementation of the COVID19 restrictions and 86 patients after.
Interventions: COVID19 pandemic with visitor restrictions and hospital policy changes placed on March 17, 2020.
Measurements and Main Results: SDD rate was increased following the start of the COVID19 pandemic (40% vs 58%, p=0.02). There were no differences between the two groups in regard to operative time (p=0.07), estimated blood loss (EBL) (p=0.21), uterine weight (p= 0.12), age (p=0.06), BMI (p=0.42), or surgery start time (p=0.15). In a multivariable logistic regression model, subjects in the post COVID19 group had a 3.08 (95% CI: 1.40, 6.74, p=0.01) higher odds of SDD than those in the pre COVID19 group. There was no difference in 30-day readmission rates (7.5% vs 5.8%, p=0.66).
Conclusion: With no additional interventions from a surgical standpoint, the start of the COVID19 pandemic improved SDD rates. The reason for this is speculative but may be related to patient and physician desire to keep patients out of the hospital and may provide further evidence that subjective reasons lead to an increase in hospital length of stay.

Open Communications 18: Laparoscopy-Variety
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Determents for Pelvic Organ Prolapse Recurrence in Women Undergoing Laparoscopic Sacrocolpopexy and Sacrohysteropexy

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Study Objective: To study risk factors for recurrence of POP after laparoscopic sacrocolpopexy/ sacrohysteropexy.
Design: This was a prospective study.
Setting: A pelvic reconstructive surgery unit.
Patients or Participants: All the patients who underwent laparoscopic sacrocolpopexy/ sacrohysteropexy at our institute, between July 2005 and December 2019.
Interventions: Laparoscopic sacrocolpopexy/ sacrohysteropexy.
Measurements and Main Results: The study population was divided into two groups according the presence of recurrence. We compared patients' characteristics, perioperative outcomes and immediate and long-term results, between the groups. Immediate outcomes included intra or postoperative complications, level of postoperative pain, and length of hospitalization. Long- term outcomes included late complications (more than one month after surgery), and urogynecological evaluation. We also performed logistic regression analysis in order to find independent risk factors for POP recurrence.
A total of 346 patients were included, of them, 19 women had POP recurrence ("Recurrence" group, mean age 62.9±11.5) and 327 women had no recurrence ("No recurrence" group, mean age 62.1±12.1), with a mean follow-up of 31.1±7.5 months and 30.8±0.8, respectively. There was no significant difference between the groups regarding patients' body mass index, parity, and comorbidities. The rates of perioperative complications, as well as long term complications were similar between the groups. On multivariant analysis. We failed to identify independent risk factors for POP recurrence.
Conclusion: Laparoscopic sacrocolpopexy and/ or sacrohysteropexy is associated with low rates of perioperative and long- term complications. No deterministic risk factors or operative outcomes is found to be independently associated with recurrence.

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Is Same Day Discharge (SDD) after Minimally Invasive Sacrocolpopexy (MISC) Safe? a 9 Year Database Analysis

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Study Objective: To analyze preoperative characteristics and peri-operative outcomes in patients undergoing SDD after MISC versus those discharged on post-operative day (POD) one.
Design: Retrospective cohort study of a national database. Patients were followed for complications for 30 days after MISC.
Setting: The American College of Surgeons National Surgical Quality Improvement Program (ASC NSQIP) database is a nationally validated, outcomes-based program containing peri-operative data up to 30 days after surgery.
Patients or Participants: Patients ≥18 years undergoing MISC from 2010-2018 were extracted using Current Procedural Terminology (CPT) codes. Patient with length of stay >1 day were excluded.
Interventions: Minimally invasive sacrocolpopexy.
Measurements and Main Results: Chi-square analysis and Student's t-test were used to analyze categorical and continuous variables respectively. Wilcoxon test was used for non-parametric data. Multivariate regression model adjusting for age, race, ethnicity, BMI, ASA class, concomitant procedures, specialty of surgeon, and baseline comorbidities including diabetes, hypertension, chronic steroid use, tobacco use, and bleeding disorders was performed.
4,180 patients were included in the analysis with 13% (n=556) and 87% (n=3,624) discharged on POD0 and POD1 respectively. No differences noted in race, ethnicity, BMI, ASA class, and concomitant sling procedures among both groups. Patients in the SDD group were younger (60.1 vs 61.9 years, p<0.01), had shorter operative time (158 vs 183 min, p<0.005), were more likely to have a gynecologist surgeon (84.0 vs 79.2%, p=0.001), were less likely to have hypertension (35.8 vs 42.1%, p=0.005) and concomitant hysterectomy (3 vs 23%, p<0.005). No differences in composite or individual complication rates were noted between SDD versus discharge on POD1. Rates of common complications were - UTI (2%), readmission (2%), reoperation (1%), superficial surgical site infection (SSI) (0.5%), organ space SSI (0.2%), and deep incisional SSI (0.04%) with no differences between the groups.
Conclusion: SDD is safe after MISC and is not associated with increased risk of peri-operative complications including readmissions and reoperations.

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It's in the Bag! a Review of Laparoscopic Specimen Retrieval.

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Study Objective: The objective of this video is to review considerations in choosing a laparoscopic specimen bag and techniques to troubleshoot common intraoperative bag issues.
Design: This video uses still images, video footage and narration.
Setting: All video footage was recording in the operating room during laparoscopic surgery. Some still images were taken in a lab setting.
Patients or Participants: All patients were undergoing laparoscopic gynecologic surgery for a pelvic mass, ovarian cysts or fibroids.
Interventions: The size, characteristics, advantages and disadvantages of different laparoscopic specimen retrieval bags are reviewed. Considerations in choosing a bag for different pathology and procedures are discussed and an approach to laparoscopic specimen retrieval is presented. Video footage is used to present different techniques which can be used to avoid common problems and frustrations faced when using a laparoscopic bag.
Measurements and Main Results: When planning a laparoscopic procedure involving specimen removal consider the type of scope used, port placement and the planned extraction site, the size and consistency of specimens and whether morcellation will be involved. These factors inform the size and type of laparoscopic specimen bag that will best fit the case. Bags can range in price from twenty to over two-hundred dollars, making knowledge of the prices important in a cost-conscious healthcare system.
Conclusion: There is a large variety of laparoscopic specimen bags available, each with specific advantages and disadvantages. Specimen size and pathology are the biggest factors when choosing an appropriate bag.

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Laparoscopic Hysteroperineopexy for Pelvic Dysfunction after Proctocolectomy

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Study Objective: To present a case of complex pelvic pain in a patient with a longstanding history of surgical ulcerative colitis and demonstrate an approach to laparoscopic hysteroperineopexy after proctocolectomy.
Design: Case review, followed by demonstration of laparoscopic surgery.
Setting: The patient was placed in a dorsal lithotomy position for laparoscopy in a tertiary care centre.
Patients or Participants: The patient included in this video was encountered in our clinical practice. This 30-year-old G2P2 woman presented with persistent pelvic pressure, pain, and pooling of blood and discharge in the posterior vagina. Her medical and surgical history is complex, including a proctocolectomy for ulcerative colitis.
Interventions: Laparoscopic adhesiolysis, coagulation of pelvic varicocities, and hysteroperineopexy for pelvic dysfunction.
Measurements and Main Results: Based on her pre-operative assessment, this patient's symptoms of pelvic pressure, pain, and pooling of secretions were respectively felt to be caused by adhesions of the small bowel within the empty posterior cul-de-sac, pelvic varicosities, and tethering of the posterior vagina towards the sacrum.
In this video, we demonstrate an individualized surgical approach to pelvic dysfunction following proctocolectomy. In step one, her anatomy is restored through adhesiolysis and development of the rectovaginal space. In step two, the varicocities are addressed by opening of the presacral space and ligation of tributaries to the mid-sacral vein. In step three, a hysteroperineopexy is performed for pelvic organ suspension.
Post-operatively, this patient's symptoms of pressure and pooling of secretions remain resolved. However, her pain returned three months later. Ligation of varicosities at time of surgery was incomplete due to bleeding, and given her maintained structural restoration, we hypothesize that they may have recurred. Further management through embolization is pending.
Conclusion: Pelvic distortion can be a cause of chronic discomfort, and each patient requires an individualized approach. Hysteroperineopexy, as demonstrated here, may offer significant clinical benefit for some patients.

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Laparoscopic Trocar Dimensions: Marketed Versus True Dimensions − a Descriptive Study

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Study Objective: To establish true dimensions of single-use laparoscopic trocars as compared to marketed dimensions, calculate the corresponding incision sizes, and outline accessibility of information regarding true dimensions.
Design: Descriptive study
Setting: Laparoscopic disposable trocars available in North America are marketed in several distinct size categories. In practice, trocars in the same size category exhibit different functionality (ability to introduce instruments/needles and retrieve specimens) and warrant different incision sizes.
Patients or Participants: N/A.
Interventions: N/A.
Measurements and Main Results: True dimensions for 74 different trocars (bladeless, optical, and balloon) were obtained from 8 vendors covering 8 marketed size categories (3, 3.5, 5, 8, 10, 11, 12 and 15mm trocars). Mean difference across all trocars between marketed size and true inner diameter was 0.95 mm (standard deviation [SD] 0.47 mm, range 0-2.4 mm), with the widest range in the 5 mm category. For 5 mm ports, mean true inner diameter was 6.2 mm (SD 0.56, range 5.5 − 7.4) and true outer diameter 8.5 mm (SD 0.73, range 7.7-10.7). For 12 mm ports, mean true inner diameter was 13.0 mm (SD 0.27, range 12-13.3) and outer diameter 15.2 mm (SD 0.54, range 14.4-16.8). Corresponding incision sizes were calculated as half the circumference (π*outer diameter/2). Five mm ports necessitate a mean incision size of 13.3 mm (SD 1.15, range 12.1-16.8) and 12 mm ports a mean incision of 23.9 mm (SD 0.85, range 22.6-26.4). One out of 8 vendors stated actual inner diameters on their company website and/or catalogue, no vendors stated actual outer diameters.
Conclusion: Trocars in the same size category give a false sense of standardization with considerable differences in both inner and outer diameters, corresponding to differences in functionality and incision sizes. Accessibility to information on true dimensions is limited. Future directions include assessment of the incisional site hernia literature for consideration of true trocar dimensions and surgeons' perceptions of trocar dimensions.

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Management of Post Uterine Transplant Hysterectomy a Big Dilemma

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Study Objective: Management of post uterine transplant hysterectomy complications a dilemma.
Design: Laparoscopic, laparotomy, MR -angio.
Setting: Galaxy Care Multi Speciality Hospital, Pune, India.
Patients or Participants: One.
Interventions: Uterine transplant, laparoscopic assisted total hysterectomy of transplanted uterus, left external iliac AV malformation pseudo aneurysm angiography followed by femoral stunt placement into pseudo aneurysm.
Measurements and Main Results: AV malformation and pseudoaneurysm formation is rare complication which can be managed conservatively in post uterine transplant hysterectomy patients.
Conclusion: The uterine transplant patients may present with variable pot operative complication after normal uneventful transplant surgery.

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Rate of Unexpected Malignancy at the Time of Hysterectomy Being Performed for a Benign Indication

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Study Objective: Determine the proportion of patients undergoing hysterectomy for benign indications who have unexpected malignancy (UM) on postoperative pathology and characterize the nature of and factors associated with UMs.
Design: Retrospective review.
Setting: 7 Ontario, Canada hospitals (4 academic, 3 community).
Patients or Participants: Patients undergoing hysterectomy for a benign indication from July 2016-December 2019. Hysterectomies for invasive placentation, malignant, and premalignant indications were excluded.
Interventions: Primary outcome was rate of unexpected malignancy as defined by the number of patients with malignancy on final pathology divided by the number of hysterectomy cases in our cohort.
Measurements and Main Results: Data was extracted from health records and electronic medical records. Associations between UM status and perioperative variables were assessed using bivariate logistic regression. During the study period, 2779 hysterectomies were performed for benign indications. Rate of UM was 1.8% (51/2779), with one patient having two malignancies (total UMs = 52). The most common UM location was uterine (endometrial (27/52, 51.9%), sarcoma (13/52, 25%), gestational trophoblastic neoplasia (1/52, 1.9%)) followed by ovarian (6/52, 11.5%), fallopian tube (4/52, 7.6%) and appendiceal (1/52, 1.9%). Patients with UM were older (57.2 ± 11.4 years vs 52.8 ± 12.5 years, p = .015) and had more previous laparotomies (2 (1.25, 2.0) vs 1 (1.0, 1.0), p < .001). They also had a higher BMI (29.7 ± 7.2 kg/m^2 vs. 28.0 ± 5.9 kg/m^2, p =.049) and ASA class (p < .028). Regarding surgical factors, patients with UM had more adhesions (p= .001), transfusions (p= .020) and blood loss (p= .006) compared to those with benign pathology.
Conclusion: The rate of UM among women undergoing hysterectomy for benign indications was 1.8%. The most common types of malignancy were endometrial cancer and sarcoma. Several perioperative variables were associated with an increased chance of UM at the time of hysterectomy.

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Virtual Posters

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#Twitterimpact: The Impact of Oral Praesentation Tweets at Gynecologic Society Scientific Meetings on Journal Publication

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Study Objective: This study aims to examine the use of Twitter at leading gynecologic surgery society meetings and the impact of Twitter activity on ultimate journal acceptance.
Design: We examined oral presentations at the national conferences of the American Urogynecologic Society (AUGS), the Society of Gynecologic Surgeons (SGS), and the American Association of Gynecologic Laparoscopists (AAGL) from 2017-2019. We accessed the final program on each society's webpage to determine the oral presentations. We excluded video presentations. We then queried PubMed, Google, and GoogleScholar for the same oral presentation title and author names to determine whether the paper had been published. If the paper was published, the name of the journal and Altmetric scores were collected. Twitter profiles were determined based on a Google Search of the presenter or authors' names and the word "Twitter." We then queried Twitter using the collected profiles and hashtags pertaining to each conference (e.g., #SGS2019, #AUGSIUGA2019) to find related tweets. Presentation characteristics were analyzed using descriptive statistics. Comparisons were made using Kruskal-Wallis, Chi-square and Spearman Correlation tests.
Setting: N/A.
Patients or Participants: N/A.
Interventions: N/A.
Measurements and Main Results: Final review included 1,020 oral presentations (361 at AUGS, 131 at SGS, 528 at AAGL). Publication rate was compared between tweeted vs. non-tweeted oral presentations (Table 1). 144 articles with tweets had a statistically significant acceptance rate of 56.2% compared to 42.4% in 876 non-tweeted articles (p= 0.003). The Altmetric score showed a small but significant spearman correlation coefficient of 0.17 with number of tweets (p= <0.001). Tweeted presentations had an average Altmetric score of 6.3 (SD=17.3) compared to 3.7 (SD=17.8) in non-tweeted presentations (p value <0.001).
Conclusion: Tweeted oral presentations when compared to non-tweeted oral presentations at national gynecologic meetings are associated with higher rates of journal publication and Altmetric scores.

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15 Years of Uterine Sarcomas in a Third-Level Private University Hospital in Mexico City

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Study Objective: To determine the 15-year incidence of uterine sarcomas in patients from a third-level private university hospital in Mexico City.
Design: Retrospective, observational, descriptive study carried out from 2005 to 2020.
Setting: Review of clinical records and bibliography.
Patients or Participants: A total of 4650 records of patient cases of uterine tumors were found in the review of records in search of pathology samples from patients who underwent surgery to remove uterine tumors.
Interventions: Observational, retrospective, and descriptive study.
Measurements and Main Results: A total of 4650 patient records with uterine tumors who underwent gynecological surgery were collected in the period between 2005 and 2020. From the total number of patients undergoing gynecological surgery for removal of any origin (malignant or benign) uterine tumors, a total of 11 uterine sarcomas' cases were found in the review of the last 15 years of this hospital, which represents an incidence of 0.23% of sarcomas of all uterine tumor cases. The age range was from 39 to 87 years with an average age of 59 years and a mean age above 50 years in 90% of the cases (n = 10). Abnormal uterine bleeding was the main symptom and cause for surgery in all cases.
Conclusion: The prevalence in our hospital is comparable with the data published in world-wide literature. Even though the incidence of uterine sarcomas is low, this diagnosis should be considered, especially in patients with postmenopausal bleeding and aged over 50 years who undergo surgical procedures for uterine tumors.

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3D Ultrasound Preoperative Planning for a Laparoscopic Cornual Wedge Resection

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Study Objective: The objective of this study was to investigate the role of three-dimensional (3D) ultrasound in preoperative diagnosis and planning for a laparoscopic cornual wedge resection for an interstitial ectopic pregnancy.
Design: Video case report.
Setting: Operating room, patient positioned in dorsal lithotomy with Allen stirrups. The case was completed laparoscopically after direct entry in the left upper quadrant, due to the presence of umbilical mesh.
Patients or Participants: One patient who presented with an interstitial ectopic pregnancy.
Interventions: 3D ultrasound and a laparoscopic cornual wedge resection.
Measurements and Main Results: 3D ultrasound was able to quickly diagnose an interstitial ectopic pregnancy. 3D ultrasound was also useful in preoperative planning for a laparoscopic cornual wedge resection.
Conclusion: Interstitial ectopic pregnancies are difficult to diagnose, frequently requiring MRI for preoperative planning. 3D ultrasound is a promising modality for expedited and accurate diagnosis of interstitial ectopic pregnancies, especially when urgent surgery is indicated. We present a case of an interstitial ectopic pregnancy diagnosed with 3D ultrasound, that was ultimately successfully treated with a laparoscopic cornual wedge resection without complication.

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7 Golden Steps of Surgery for Endometriosis – a Simplified Approach to Difficult Cases of Endometriosis

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Study Objective: to assess the feasibility, benefits, ease of doing and repetitiveness of all 7 steps designed.
Design: this study was a prospective study.
Setting: patient laid in dorsal lithotomy position with reverse Trendelenburg position.
Patients or Participants: we had selected 10 patients diagnosed with endometriosis. TVS is chosen as a preferred diagnostic tool.
Interventions: fixed 7 steps followed in all cases.
1. **Mobilisation of sigmoid colon**- adhesions of sigmoid colon with lateral pelvic wall were released.
2. **identifying the left ureter**- open the retroperitoneum near to the ureter, identify & follow it till it enters into the tunnel.
3. **Dissection into the left pararectal space**- dissect into the left pararectal space till the base of uterosacral ligament [USL]. Identify the hypogastric nerve here.
4. **identifying the right ureter** – same as step 2.
5. **Dissection into the right pararectal space** – same as step 3.
6. **Dissection of rectum into POD** – pull the rectum cranially and dissect between the two layers of Denonvilliers fascia into the POD.
7. **Excision of endometriotic nodules or cyst-** take out any nodules present with involved peritoneum.
Measurements and Main Results: in this study, all patients operated with success without any injury to any vital structure, taking out all endometriotic tissue with increasing ease of doing consequently. average operating time was 130.6minutes and average blood was 100.5ml. patient allowed orally after 6 to 12 hours of surgery, average stay in post-operative period was 36 hours.
Conclusion: if we follow these 7 steps properly during surgery, we can definitely avoid unintended injury to ureter and rectum, fellow colleagues can learn the technique easily and reproducible nature of these steps make it more operator friendly. Further studies needed to be followed by masses.

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A Case of Laparoscopic Excision of a Large Ovarian Cyst with Controlled Drainage

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Study Objective: Video presentation showing laparoscopic excision of a large ovarian cyst with controlled drainage.
Design: Case presentation.
Setting: This case was performed in an academic tertiary medical center. The patient was in dorsal lithotomy position with arms tucked. We used 4 total ports; the umbilical port for the camera, a supra-pubic port and right and left lateral lower abdominal port. A balloon trocar was used for controlled cyst content drainage. Potassium Titanium Phosphate laser was used for fine dissection.
Patients or Participants: 21-year-old Gravida 0 presented with pelvic pressure and palpable mass for months. Ultrasound showed an 11 cm simple ovarian cyst and 5cm adjacent complex cyst with peripheral echogenic foci without internal vascularity consistent with dermoid cyst. She had mildly elevated alpha fetoprotein and otherwise negative tumor markers.
Interventions: Laparoscopic excision of right ovarian cyst.
Measurements and Main Results: The case was completed uncomplicated. The patient showed significant improvement in her symptoms on follow-up with resolution of pelvic pressure.
Conclusion: Maintaining clear planes between the cyst wall and the ovarian cortex as well as excellent hemostasis is key in ovarian cystectomies. Care must be taken to preserve as much ovarian cortex as possible for future fertility.

6394

A Comparative Analysis of Diagnosis and Measurement of Uterine 'Niche' Performed By Non-Specialist and Specialist Sonographers

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Study Objective: To compare the diagnosis and evaluation of a niche done by ultrasonographic non-specialist vs. specialist in women after cesarean delivery using two dimensional (2D) transvaginal ultrasound.
Design: A cohort study.
Setting: Single tertiary care center.
Patients or Participants: Women after cesarean delivery that were operated during January 2011 to December 2018.
Interventions: All women completed a 2D transvaginal sonographic evaluation of the uterine scar and a questionnaire regarding symptoms associated to niche presence. Examinations were performed by one of two non-specialist ultra-sonographers, who completed a short training aimed specifically for the evaluation of uterine scar integrity and characteristics. Pictures and video of the examinations were saved and evaluated by an ultrasonographic specialist using ImageJ processing program with endometrium width as reference for measurements. The last was blinded to the non-specialist examination results. Data are presented as median and interquartile range.
Measurements and Main Results: Fifty-three women were included in the study. Median age was 34(IQR 31-39) years. Mean cesarean delivery rate was 1(1-3) with a mean time from surgery of 11(10-11) months. While comparing non-specialist to specialist measurements of the niche area, length [6.5(5.60-8.12) vs. 9.13(6.92-10.10) mm, p=0.003] and adjacent myometrial thickness (AMT) [10.85(8.62-12.90) vs.12.48(9.95-16.08) mm, p=0.01] were both found statistically higher in the specialist measurements. Nevertheless, no differences were found in the residual myometrial thickness (RMT) [5.05(3.92-6.57) vs. 4(2.63-7.81) mm, p=0.29] nor in the depth [3.5(2.6-5.9) vs. 3.58(2.34-4.93) mm, p=0.48] measurements. Symptoms were not found to be associated with any of the niche measurements for both measurers. Estimation of significant niche, defined by low RMT or impression of profound uterine defect requiring additional evaluation, was also comparable between measurers [34%(n=18) vs. 19%(n=10), p=0.07].
Conclusion: Evaluation of a niche measurements in women after caesarean delivery using two dimensional (2D) transvaginal ultrasound performed by ultrasonographic non-specialist is comparable to specialist.

6253

A Comparative Study of Efficacy of CO2 Laser Treatment Alone and in Combination with Platelet-Rich Plasma for Vulvovaginal Atrophy

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Study Objective: Compare clinical efficacy of fractional CO2 laser monotherapy and CO2 laser combined with platelet-rich plasma (PRP) for vulvovaginal atrophy treatment.
Design: A prospective cohort study(2019-2020).
Setting: All women median age 54.5 years with symptoms of vulvovaginal atrophy (VVA). Menopause (duration 2-5 years) without somatic pathology, without prior hormonal therapy, both local and systemic. The follow-up period was 12 months (before the first session and 1,3,6 and 12 after laser).
Patients or Participants: Group 1(24 patients) received CO2 laser monotherapy (controls); Group 2(24) underwent CO2 laser treatment combined with PRP.

Interventions: Group 1 - CO2 laser monotherapy (controls); Group 2 -CO2 laser treatment (3 sessions of fractional CO2 laser each 4 week) combined with PRP (14 days after each CO2 laser).
Measurements and Main Results: We were used a questionnaire (Visual Analogue Scale), the Vaginal Health Index (VHI), the Vulval Health Index (VuHI), the Female Sexual Function Index (FSFI), the Quality of Life Inventory (QOLI), and the Satisfaction with Life Scale (SWLS).
Both groups showed reduction of VVA symptoms, improvement in vaginal elasticity, volume, moisture, and pH after the first session. After 3 sessions and within 12 months, the improvement was more pronounced and persistent in the combined treatment group.
The intensity of dyspareunia and vaginal dryness decreased from 9 (5-10) and 8 (0-10) at the baseline to 0 (0-6) and 0 (0-8) ($p<0.001$). FSFI, QOLI, and SWLS scores increased from 10.4 (2-26.5) and 1 (0-8) at baseline to 27 (15.0-34.8) and 4 (2-8), respectively. The positive effect of combined treatment remained unchanged for 12 months in contrast to laser monotherapy.
Conclusion: The combined treatment significantly increased its efficacy and helped achieve significantly better results in VVA treatment, had a synergistic effect and contributed to a longer therapeutic effect. It is advisable to include this combination into VVA treatment algorithm and use it as an effective and safe method.

5921

A Cut Above the Rest: A Complete Peritonectomy

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Study Objective: Demonstrate surgical techniques for a complete peritonectomy in patients with pelvic pain and suspected endometriosis.
Design: Surgical technique video showcasing the steps necessary for a complete peritonectomy in the setting of pelvic pain
Setting: Tertiary care academic center.
Patients or Participants: Patient with pelvic pain and suspected endometriosis.
Interventions: Robotically assisted laparoscopic complete peritonectomy performed by minimally invasive gynecologic surgeon for the diagnosis and treatment of pelvic pain.
Measurements and Main Results: pathology revealed endometriosis.
Conclusion: A complete peritonectomy is an effective diagnostic and treatment modality for patients with pelvic pain and suspected endometriosis.

6420

A Descriptive Analysis of Occult Gynecologic Malignancy in a Large Series of Supracervical Hysterectomy with Sacrocolpopexy

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Study Objective: The incidence of occult malignancy in patients with pelvic organ prolapse (POP) undergoing a supracervical hysterectomy (SCH) at the time of robotic-assisted laparoscopic sacrocolpopexy (RA-SCP) is not well documented in the medical literature. This has clinical implications as discovery would entail further operative management to perform staging, remove oncologic burden, and possibly revise the approach to pelvic reconstructive surgery. This study aims to detect the prevalence of oncologic pathology and ability of diagnostic preoperative work-up to detect such disease.
Design: Retrospective descriptive analysis.
Setting: University-affiliated community hospital.
Patients or Participants: All women undergoing a RA-SCP with SCH by one surgeon between March 2017 and March 2020 without symptoms of abnormal or postmenopausal bleeding.
Interventions: N/A.
Measurements and Main Results: A total of 425 women were included in this study. Of these, 19 (4.2%) patients were found to have uterine pathology of either pre-malignancy (n=14, 3.5%) or malignancy (n=5, 1.2%). Transvaginal ultrasonography (TVUS) had lower cases of missing pathology compared to EMB in the case of endometrial cancer (EC) (0% vs. 1.2%), endometrial hyperplasia +/- atypia (EH) (2.4% vs. 3%), or in combination EC and EH (2.4% vs 4.2%). EC and EH collectively were undiagnosed by either TVUS or EMB until final pathology in 4.2% of cases.
Conclusion: A small subset of asymptomatic postmenopausal women who undergo a SCH at the time of RA-SCP for POP will have underlying gynecologic malignancy or premalignant conditions. EMB or TVUS in these patients have inadequate sensitivity to rule out endometrial pathology and patients should be counseled appropriately regarding the small but possible necessity to remove the cervix in its entirety. Patients may be offered an intraoperative pathology assessment of the SCH prior to attachment of SCP mesh material to the cervix when appropriate.

5819

A Large Parasitic Fibroid on the Mesentery

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Study Objective: The objective of this video is to demonstrate a rare operative finding of a parasitic fibroid attached to the mesentery and illustrate a technique for dissection.
Design: Case report.
Setting: Robot-assisted laparoscopic removal of a parasitic fibroid on the mesentery.
Patients or Participants: In this video, we present a 38-year-old G1P1001 with a history of a robot-assisted myomectomy with power morcellation who presented with recurrent bulk symptoms and was found to have a large parasitic fibroid to the mesentery.
Interventions: Parasitic fibroids are a rare clinical phenomenon in which fibroids receive their vascular supply from somewhere other than the uterus. Though they can develop de novo, the majority are thought to be iatrogenic as a result of previous uterine surgery (Kho 2009). The FDA issued a black box warning in 2014 that discouraged use of the power morcellator due to increased risk of disseminating fibroid tissue throughout the abdomen in the setting of uncontained morcellation (US FDA 2014, Seidman 2012). Though initially abandoned due to risk of increased mortality in the setting of disseminated uterine leiomyosarcoma, the most commonly reported complication of tissue dissemination is the formation of parasitic myoma (Tulandi 2016, Seidman 2012). Incidence is described between 0.12% and 1.1% after laparoscopic uterine surgery (Lete 2016). Morcellated fragments of fibroid may be left behind in the abdominal cavity and neovascularize to surrounding structures/abdominal wall. They are often multiple and can occur in a variety of locations.
Measurements and Main Results: Key surgical steps for the dissection of this mass are also reviewed which include:

1. Careful abdominopelvic survey
2. Identification of feeding vessels and their origin
3. Instillation of dilute vasopressin
4. Enucleation of the fibroids

5. Assure hemostasis
6. Removal with endoscopic bag
7. Contained hand morcellation

Conclusion: Development of parasitic fibroids after uterine surgery is a potential source of morbidity following initial treatment.

5773

A New Insight of the Fascia in Gynecologic Surgery, "the Dissectable Layer"

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Study Objective: With recent development of the surgical visual system, laparoscopic surgeons have become more conscious of the fascial structures. It has been found that the three-dimensional fascial structure is heterogenous and variable, composed of extracellular matrix such as collagen fibers. A Japanese surgeon Prof. Shinohara advocated surgical meaning of these fascia and named it "the dissectable layer". The object of the video is to clarify this layer and apply the concept to gynecologic oncology or nerve sparing surgery.
Design: Video demonstration with narrated video.
Setting: A Japanese tertiary care hospital.
Patients or Participants: Patients who undertaken gynecologic surgery in our institution with informed consent were included in the study.
Interventions: We verified the detailed fascial structure in hysterectomy and pelvic/para-aortic lymphadenectomy by using 4K video system or robotic scope.
Measurements and Main Results: According to the fascial concept, the target organs were isolated without bleeding by consciously dissecting loose connective tissue, the dissectable layer, between the organs. Certainly, we can create the layer around any blood vessels or muscles or organs by pulling surrounding structure also in gynecologic surgery. Especially, en-bloc lymphadenectomy and nerve sparing radical hysterectomy were possible accurately by following the concept.
Conclusion: By being of aware of the "dissectable layers," bleeding may be minimized, and surgical accuracy may be improved. For malignancy, en-bloc removal is possible, and the margin can be adjusted as per tumor progression. For nerve sparing radical hysterectomy, autonomic nerves can be preserved by gathered thin nerve fibers with attached facia. The use of this concept may have the potential to improve oncologic outcomes.

6598

A Novel Camera Rotation Approach for a Robot-Assisted Total Laparoscopic Hysterectomy for Large Fibroid Uterus

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Study Objective: This video details a novel approach to camera rotation to better visualize adnexal structures with large intrapelvic mass during robotic-assisted total laparoscopic hysterectomy.
Design: No study design was formulated for this video.
Setting: This was performed in an inpatient facility.
Patients or Participants: One 48-year-old female.
Interventions: Robotic-assisted total laparoscopic hysterectomy with novel camera rotation approach.
Measurements and Main Results: The main result of this procedure was for patient to tolerate the procedure well while achieving the end goal of hysterectomy.
Conclusion: This is a feasible and highly reproducible process that may be adopted by other surgeons.

6714

A Novel Introduction to Treatment of Chronic Pelvic Pain with Extracorporeal Shock Wave Therapy (ESWT)

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Study Objective: To examine the effects of Extracorporeal shock wave therapy (ESWT) on women experiencing chronic pelvic pain.
Design: This is a case series study. Patients receive four treatments over the course of two weeks. Each patient will receive a follow-up survey after each treatment and within three months from their first treatment.
Setting: An Obstetrics and Gynecology private practice.
Patients or Participants: The study included 15 women with chronic pelvic pain for at least 6 months.
Interventions: In this clinical study, ESWT (Extracorporeal shock wave therapy) is a nonsurgical/noninvasive technique widely used to treat musculoskeletal diseases. This technology was applied directly to the perineum and site of pelvic pain over a course of four treatments.
Measurements and Main Results:
This data is preliminary.
Conclusion: Patients will be evaluated within three months to determine if this treatment has an impact on pain perception in our group of treated patients.

Pre-Treatment					
Location of pain	Labia	Vagina	Urethra	Perineum	Lower Abdomen
No. of patients responded	(1)	(1)	(0)	(1)	(1)
Pain level (1=lowest, 10=highest)	1-2	3-4	5-6	7-8	9-10
No. of patients responded	(0)	(0)	(1)	(2)	(1)
Pain effect on daily activities	None	Mildly	Moderately	Severely	
No. of patients responded	(2)	(1)	(1)	(0)	
Pain effect on sexual activity	Never	Rarely	Occasionally	All the time	No attempt
No. of patients responded	(0)	(1)	(1)	(1)	(1)
Post 1st Treatment					
Discomfort during treatment (1=lowest, 10=highest)	1-2	3-4	5-6	7-8	9-10
No. of patients responded	(0)	(2)	(1)	(1)	(0)
Pain level after treatment (1=lowest, 10=highest)	1-2	3-4	5-6	7-8	9-10
No. of patients responded	(1)	(3)	(0)	(0)	(0)
Pain effect on daily activities after treatment	None	Mildly	Moderately	Severely	
No. of patients responded	(3)	(1)	(0)	(0)	
Pain effect on sexual activity after treatment	Never	Rarely	Occasionally	All the time	No attempt
No. of patients responded	(0)	(2)	(0)	(0)	(2)

6404

A Novel Technique Using Ultrasonic Shears Versus Traditional Methods in Labiaplasty: A Retrospective Case-Control Study

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Study Objective: To compare the clinical outcomes of bilateral labia minora hypertrophy reduction using ultrasonic shears versus traditional methods.
Design: In this retrospective study, we evaluate the surgical outcomes of 11 women who underwent bilateral labia minora hypertrophy reduction using ultrasonic shears to 14 women who underwent the same procedure using various traditional methods between January 1, 2015, and February 29, 2020, in a single center.
Setting: Outpatient surgery at a single center.

Patients or Participants: Out of 25 patients, 11 underwent labiaplasty procedures using ultrasonic shears and 14 women who underwent the same procedure using various traditional methods.
Interventions: N/A.
Measurements and Main Results: The primary outcomes evaluated are total operative time, estimated blood loss (EBL), and post-operative pain. Secondary outcomes include post-operative complications and total admission time. The statistical analyses used were exact Wilconxon Rank and Fisher's exact test. The mean reduction operative time for the ultrasonic shears technique when compared with traditional methods was 43.25 minutes (22.82 minutes versus 66.07 minutes, p=.0002). A statistically significant but non-clinically significant difference in EBL was noted. No statistically significant differences existed with post-operative pain score, total admission time, or post-operative complications.
Conclusion: Ultrasonic shears significantly reduce the time needed for reduction of bilateral labia minora hypertrophy and therefore should be considered by surgeons as a useful tool in increasing the efficiency of this procedure.

6151
A Pilot Study of Guided Conservative Hysteroscopic Evacuation of Early Miscarriage

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Study Objective: To evaluate initial feasibility and experience with guided hysteroscopic morcellation of uterine evacuation of early miscarriage.
Design: Prospective pilot study in a tertiary University hospital in Israel from May to October 2020.
Setting: Procedures were done under general anesthesia in the operating room.
Patients or Participants: Ten women with confirmed early miscarriage at gestational age of under 10 weeks from the last menstrual period.
Interventions: Hysteroscopic TRUCLEAR® tissue removal system was used for evacuation of early miscarriage.
Procedures were done under ultrasound guidance.
The procedures were recorded. (video).
Data including the length of the procedure, visibility, complete evacuation, bleeding, complications, and follow-up ultrasound were documented.
Patient consent to present and publish has been obtained.
Measurements and Main Results: Complete evacuation was recorded in all cases. No adverse events were recorded in any of the ten procedures. Mean time of the procedure was 24 minutes. In four cases (40%) an additional suction curettage was performed after the hysteroscopic procedure due to obscured visibility or abnormal ultrasound scan at the end of the procedure. However, RPOC were found in only one case (10%) in the suction specimen. Normal uterine cavity without evidence of retained products of conception (RPOC) was documented in follow-up evaluation by ultrasound in all cases, four patients underwent a diagnostic office hysteroscopy that demon strated a normal cavity without evidence of adhesions.
Conclusion: Under vision Hysteroscopic morcellation seems to be a safe and feasible technique for management early miscarriage. This method may have a potential as an innovative treatment of miscarriage in selected cases. Further studies are needed to refine the indications and the surgical technique.

6221
A Resident's Guide to Laparoscopic Hysterectomy of Large Fibroid Uterus

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Study Objective: The objective is to demonstrate laparoscopic technique for hysterectomy of large, multifibroid uterus.
Design: N/A.
Setting: Patient is a 49-year-old para 2 with history of 2 prior cesarean sections and hysteroscopic myomectomy undergoing total laparoscopic hysterectomy and bilateral salpingectomy for massively enlarged fibroid uterus with heavy menses despite Mirena IUD in place and associated bulk symptoms manifested by pelvic pain, pressure, and urinary frequency. Pelvic MRI demonstrated a massively enlarged fibroid uterus measuring 204 × 87 × 141 mm in size with the largest fibroid located in the posterior lower uterine segment measuring 90 × 80 × 93 mm.
Patients or Participants: N/A.
Interventions: Preoperative medication with 3 cycles of leuprolide followed by laparoscopic hysterectomy and bilateral salpingectomy with removal of 20-week uterus via cold knife morcellation and mini-laparotomy.
Measurements and Main Results: At her postoperative appointment, the patient reported feeling well without vaginal bleeding and improvement in her bulk symptoms.
Conclusion: Hysterectomy offers definitive treatment for symptomatic fibroids in women who do not desire future fertility. Although technically challenging, large fibroid uteruses are amenable to laparoscopic resection and preoperative treatment with GnRH agonists such as leuprolide may aid in surgical optimization.

6540
A Retrospective Cohort Study on the Effects of Postoperative Phone Calls after Benign Gynecologic Surgery

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Study Objective: To assess whether a postoperative phone call (PPC) from the surgical team reduces patient-initiated contacts, emergency room (ER) visits and readmissions up to 30 days after hysterectomy or myomectomy for benign indications.
Design: This is a retrospective analysis with propensity matched patient groups. Descriptive statistics were analyzed with Wilcoxon rank sum test and Pearson test were applicable for categorical variables. Univariate logistic regression model was used to assess odds ratio of patient outcomes.
Setting: Tertiary care academic medical center.
Patients or Participants: Patients aged 18 years and older who underwent hysterectomy and myomectomy for benign indications from January 2013 to December 2019.
Interventions: Postoperative phone call within a week after surgery.
Measurements and Main Results: To date, 90 matched patients (PPC=46, No PPC=44) were selected for preliminary analysis. Of these patients, 16 (34.8%) with PPC and 10 (22.7%) without PPC contacted the office after surgery (p=0.141). The most common reason for contact was vaginal bleeding (34.6%). For ER visits, there were 6 (13.0%) from the PPC group and 9 (20.5%) from the no PCC group (p=0.346), and the most common chief complaint was pain (46.7%). Univariate logistic regression did not find PPC as a significant factor for patient-initiated contacts (1.99 OR, CI 0.80-5.16) nor ER visits (0.58 OR, CI 0.18-1.78). Six patients required readmission all were in the no PPC group (p=0.01). Fever was the most common indication (50.0%). Using a conservative prior, PCC was associated with a lower risk of inpatient admission (0.17 OR, CI 0.01-1.08).
Conclusion: Patient education regarding vaginal bleeding and pain management after major gynecologic surgery may decrease patient-initiated contacts and ER visits, respectively. Implementation of PCC after major gynecologic surgery may decrease inpatient readmission.

5617

A Survey of Grit, Mindset, and Happiness Among Participants Completing a Fellowship in Minimally Invasive Gynecology Surgery Program

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Study Objective: To determine the mindset amongst AAGL FMIGS participants.
Design: Cross-sectional survey. Comparisons were performed with Wilcoxon rank sum tests and Spearman's Test of Correlation. Statistical analysis was performed using R Statistical Software (Vienna, Austria).
Setting: An anonymous electronic survey involving four validated questionnaires (Duckworth Grit Scale, Implicit Theories of Interest, Implicit Theories of Intelligence, and Subjective Happiness Scale) was distributed in fall 2019.
Patients or Participants: Current participants in an FMIGS program.
Interventions: N/A.
Measurements and Main Results: A total of 43 of 76 (56.6%) FMIGS participants in AAGL-accredited programs completed a survey regarding grit, mindset, and subjective happiness. There were 18 first-year fellows (41.9%) and 25 second-year fellows (58.1%). Most fellows were working either 40-60 hours per week (76.7%) or 60-80 hours per week (18.6%). The majority would apply for a fellowship again if given the opportunity (72.1%) and were satisfied with their program (76.7%). Median age was 32 years (range 28 – 38 years).
Associations of fellow characteristics of interest with the four mindset questionnaires were assessed. Generally, fellows demonstrated grit (3.8, scale 1-5), growth mindset tendencies (3.9 and 3.6, scale 1-5), and happiness (73.4, scale 1-100). There was a significant association between increased number of PubMed publications and a higher Subjective Happiness Score (P=0.032), and between increased number consultations of education videos on the SurgeryU website and a lower Intelligence Score (P=0.004). No other significant associations with responses of the questionnaires were identified (all P≥0.070).
Conclusion: FMIGS is gaining popularity as a post-graduate career choice. Previous research has indicated that participants seek out this fellowship for personal fulfillment. Our results indicate that FMIGS participants tend towards grittiness, growth mindset, and are overall happy, and certain inherent educational characteristics play a factor in mindset. Additional research comparing FMIGS participants to other subspecialty programs is warranted to further understand personal motivators for seeking additional training.

5771

A Twist of Fate: Laparoscopic Management of Recurrent Ovarian Torsion

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Study Objective: To describe and demonstrate laparoscopic oophoropexy techniques in a patient with recurrent ovarian torsion
Design: Surgical video presentation.
Setting: Academic tertiary care center.
Patients or Participants: This is a 22-yo nulliparous patient who had 3 episodes of recurrent ovarian torsion. Pelvic ultrasound between each ovarian torsion presentation showed normal doppler flow, however the ovary remained enlarged.
Interventions: For her first episode of ovarian torsion, the patient underwent a diagnostic laparoscopy with detorsion of the right adnexa and a right oophorpexy, where the utero-ovarian ligament was attached to the ovarian parenchyma using a single mattress suture. 10 months later she presented with another episode of ovarian torsion and was consented for laparoscopic right ovarian detorsion and oophoropexy. Due to the patient's now second episode of right ovarian torsion, her oophorpexy was performed using permanent suture and attaching the utero-ovarian ligament to the round ligament and ovarian stroma. 4 months after her second oophoropexy the patient presented with another episode of right ovarian torsion. She declined a third oophoropexy and opted for a right oophorectomy.
Measurements and Main Results: The patient recovered well after each surgical intervention for her ovarian torsion and was discharged on the same day of her operations. Pathology report from the right ovary showed a benign ovary with vascular congestion and marked edema, consistent with the clinical history of ovarian torsion.
Conclusion: This case of recurrent ovarian torsion is unusual in that there were two failed oophoropexy attempts and no ovarian cyst present. Even though our patient opted for an oophorectomy after her third ovarian torsion; laparoscopic detorsion and oophoropexy remains the best management option for recurrent ovarian torsion.

6663

Abdominal Wall Injections for Chronic Pelvic Pain: An Introduction and How-to Guide

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Study Objective: To provide a stepwise description of the anatomy, evidence, and technique for performing transversus abdominis plane (TAP) blocks and ilioinguinal nerve blocks for the treatment of chronic abdominopelvic pain and ilioinguinal neuropathy.
Design: Video demonstration with narrated description.
Setting: Academic tertiary care site.
Patients or Participants: Patients with chronic myofascial or somatosensory abdominal wall pain or patients with ilioinguinal neuropathy.
Interventions: Ultrasound-guided transversus abdominis plane block and ilioinguinal nerve block via landmark technique.
Measurements and Main Results: TAP blocks have a diagnostic and therapeutic role for patients with chronic myofascial or somatosensory abdominal wall pain and have been shown to provide relief in over 80% of such patients. Ilioinguinal nerve blocks may specifically be used for patients with ilioinguinal neuropathy, which can present as sharp, burning pain that radiates towards the groin and inguinal region or impaired sensation along the cutaneous distribution of the nerve. A review of the relevant clinical anatomy, benefits and risks of the procedures, type and toxicity of injectate medications, procedural set up, procedural techniques, and post-procedural follow up care is presented for both TAP blocks and ilioinguinal nerve blocks.
Conclusion: Myofascial and somatosensory abdominal wall pain and ilioinguinal neuropathy are common conditions among patients with chronic pelvic pain. When performed through a safe and standardized approach, transversus abdominis plane blocks and ilioinguinal nerve blocks are beneficial therapeutic tools for clinicians caring for patients with chronic pelvic pain.

6017

Achievement of Self-Reported Goals from a Randomized Trial of Laparoscopic Versus Abdominal Hysterectomy for Benign Indications

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Study Objective: To assess differences in patient-reported goal achievement in participants undergoing laparoscopic and abdominal hysterectomy for benign indications.
Design: A prospective randomized controlled trial.
Setting: Enrollment was performed at a single, tertiary care academic institution.
Patients or Participants: Participants over 18 years old undergoing hysterectomy for benign indications were eligible for enrollment.
Interventions: Laparoscopic hysterectomy versus abdominal hysterectomy.
Measurements and Main Results: 88 participants were enrolled and included in the final analysis. Each participant listed three self-generated goals hoped to be achieved by undergoing surgery, and rated goal achievement from 1-10, with 1 (goal not achieved) and >8 (goal achieved). Goal achievement at 6 weeks, 6 and 12 months postoperatively was assessed. The length of time to goal achievement (in days) was recorded in both groups. The most commonly stated goals for undergoing hysterectomy were resolution of bleeding, improvement in pain and improved quality of life. There were no significant differences in goal achievement scores at any time point following surgery between groups for any of the three goals. There were no differences in the length of time in goal achievement between laparoscopic or abdominal hysterectomy in any of the three goals. Regardless of route, over 70% of subjects in both groups achieved the top 3 goals at 12 months, and most achieved goals by 6 weeks postoperatively.
Conclusion: No differences were noted in goal achievement, nor time to goal achievement in the two groups. Overall, patients experience symptom relief and very high rates of surgical goal achievement following hysterectomy regardless of the route of surgery. Further studies are needed to investigate the impact of surgical route on patient-centered goals.

6268

Adnexal Torsion: Narcotic Administration and Gynecologists' Diagnostic Accuracy

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Study Objective: To determine Gynecologists' accuracy in diagnosing adnexal torsion (AT) and determine differences in in the amount of narcotics administered in morphine milligram equivalent (MME) in patients who received gynecology consultation for AT.
Design: A retrospective cohort study between 2017-2020.
Setting: A tertiary, academic medical center.
Patients or Participants: 138 women received a gynecologic consultation in the emergency room to rule out AT.
Interventions: Surgical intervention.
Measurements and Main Results: 138 women met inclusion criteria. 32 of them (23%) underwent diagnostic laparoscopy for suspected AT, and 18 (56%) were confirmed to have AT.
The MME median in patients undergoing surgery was 6.25 mg, which was significantly higher than 2.5 mg in patients who did not undergo surgery ($p = 0.0011$). MME medians for women who had surgically confirmed AT and those who underwent surgery but did not have AT were 7.25 mg and 4 mg respectively, which was not significantly different ($p = 0.2221$).
Age, race (white vs non-white), payer status (insured vs uninsured), history of sexually transmitted disease or ovarian cyst, and pain severity did not differ between the group of women that underwent surgery and the group of women that did not. However, there was a significant difference in the presence of vomiting ($p = <0.001$), leukocytosis ($p = 0.0073$), and overall larger ovarian mass ($p = <0.0001$) in women who had surgery. On multivariate regression analysis controlling for leukocytosis and ovarian mass, MME was independently associated with the decision to proceed with surgery ($p = 0.0119$).
Conclusion: While this study highlights no statistically significant difference in MME administration and accuracy of AT diagnosis due to small sample size, there was a difference in MME administration between women undergoing surgery and those who did not. Determining which predictors and to what extent they may impact the diagnosis and decision to proceed with surgery remain an area that warrants further investigation.

6567

An Incidental Finding of Isolated Fallopian tube Torsion in Adolescent: A Case Report and Review of Literature

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Study Objective: An Incidental finding of Isolated Fallopian Tube Torsion (IFTT) in adolescent with unique Ultrasound Findings: A Case Report and Review of Literature.
Design: case report and review of literature.
Setting: case report and review of literature.
Patients or Participants: A 17-years-old single girl presented to the emergency department with a sudden moderate to severe right iliac fossa pain that had lasted for more than one day.
Pain is associated with nausea and multiple episodes of non-projectile vomiting consisting of food content. No history of fever, diarrhea and loss of appetite.
Transabdominal ultrasound showed both ovaries are polycystic in appearance measures Right ovary:34 × 18 × 38 mm, left ovary: 34 × 31 × 34 mm and both ovaries were seen with normal color doppler flow.
There was a simple cystic structure seen anterior to the uterus measures: 65 × 49 mm with normal color doppler seen.
Interventions: Diagnostic laparoscopy, detorsion and partial salpingectomy.
Measurements and Main Results: Post laparoscopy.
Conclusion: We present one rare case of IFTT. Ultrasound is a helpful tool for the recognition of this gynecological emergency. IFTT presentation with non-specific pictures should be considered in the differential diagnosis of all females regardless of the age in which they represent lower abdominal pain with a pathological adnexal structure and normal ovaries. Urgent Laparoscopic intervention is the gold standard diagnostic and treatment method.

5945

Anatomical Distribution of Deep Endometriosis on Transvaginal Ultrasound and Clinical Features: Implications on Non-Invasive Diagnosis

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Study Objective: There is a significant evidence gap in correlating clinical features and symptoms of endometriosis to disease patterns, driving the initiative of using more detailed and standardised clinical data to guide research into possible clinical-anatomical associations. The study aims to determine the anatomic distribution of DE, provide an epidemiological overview based on advanced transvaginal ultrasound (aTVS), and describe the possible relationship with clinical features obtained with the World Endometriosis Foundation (WERF) Questionnaire.
Design: Retrospective cross-sectional study.
Setting: Analysis of ultrasound records and clinical questionnaire.
Patients or Participants: 316
Interventions: N/A

Measurements and Main Results: Preliminary data showed that from 316 (n=316) aTVS scans, the most frequent DE lesions were found in at least one of these locations (at least one lesion, not excluding multiple nodules in the same patient): **uterosacral ligaments**, 20% (right n=59, 20% and left n=58 (19.7%); **bowel** 19% (predominantly upper rectum, n=36, 12.2%); and **ovaries** 13.6% (right n=40, 13.6% and left n=37, 12.6%). The most frequent dynamic abnormalities were found in the Pouch of Douglas (POD), with a **negative "sliding sign"**: n=85, 28.9% (complete obliteration n=45, 15.3%; and partial obliteration n=40, 13.6%). Also common, soft markers such as reduced ovarian mobility (of at least one of the ovaries): 20.7% (left ovary n=61, 20.7%; right ovary n= 52, 17.7%).
Conclusion: The identification of pelvic abnormalities through aTVS in this specific population is notably high. Previous knowledge of the typical anatomical distribution of DE has the potential to provide an orientation to guide a more targeted diagnosis, likely reducing the number of false negatives of diagnostic tests and increasing the chances of a more satisfactory outcome in surgical procedures. Furthermore, with the highly detailed WERF questionnaire associated with the thorough aTVS findings, we aim to provide evidence to fill a long-term knowledge gap between clinical features and symptoms to specific pelvic endometriosis distribution characteristics.

6721

Approach to Dissection: Captive Uterus Syndrome

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Study Objective: Dissection techniques for captive uterus syndrome.
Design: NA.
Setting: Lithotomy position, Trendelenburg, using the Da Vinci Robot.
Patients or Participants: Patients with prior cesarean deliveries.
Interventions: Approach to adhesiolysis.
Measurements and Main Results: NA.
Conclusion: A safe and effective technique to prevent bladder injury when dealing with captive uterus syndrome.

6453

Approach to Ovarian Dermoid Cysts in Context of Anti-NMDA Receptor Encephalitis: A Case Series

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Study Objective: Anti-*N*-methyl D-aspartate receptor (NMDA-R) encephalitis is a rare paraneoplastic syndrome associated with ovarian teratomas that carries significant morbidity and mortality. Treatment is via a multidisciplinary approach that must include ovarian cyst excision.
Design: Case series.
Setting: Hospital.
Patients or Participants: 1: A nulliparous 22-year-old woman, who was undergoing treatment for NMDA encephalitis, was referred to the gynaecology department with new diagnosis of right 7 cm ovarian dermoid cyst discovered with ultrasound screening. She had a BMI of 77 and type II respiratory failure with normal tumor markers. She underwent laparoscopic right oophorectomy and currently has ongoing surveillance of her left ovary. She remains independent in the community.
2: A 25-year-old nulliparous woman was admitted for anti-NMDA-R encephalitis. A CT abdo-pelvis demonstrated bilateral bulky ovaries and a 5 cm right ovarian dermoid cyst. A laparoscopic right salpingo-oophorectomy was performed. Intra-operatively, the left ovary was bulky but nil overt macroscopic lesions identified. Unfortunately, her neurological condition worsened. A pelvic MRI demonstrated normal left ovarian tissue, and a PET scan and tumour markers were unremarkable. Due to concerns of a microscopic ovarian teratoma contributing to her neurological deterioration, a laparoscopic left salpingo-oophorectomy was performed 14 months later. She gradually improved thereafter but requires ongoing care for neuropsychiatric deficits.
Interventions: Surgery.
Measurements and Main Results: Anti-NMDAR encephalitis syndrome develops when teratoma neural tissue stimulates the production of anti-NMDA-R antibodies [1]. These antibodies cause limbic neurone dysfunction and loss by altering cell-surface NMDA receptors, resulting in neuropsychiatric and autonomic symptoms [1]. Early immunotherapy and tumour resection improve the prognosis [1].
When deciding between cystectomy and oophorectomy, the gynaecologist must consider the ipsilateral recurrence rate after ovarian cystectomy (approximately 3-4 percent), the risk of incomplete removal of neural tissue, and intra-operative spillage [2].
Conclusion: Ovarian teratoma associated with Anti-NMDA-R encephalitis requires urgent surgical intervention leading to favourable outcomes in this otherwise potentially devastating condition.

5593

Approach to a Total Laparoscopic Hysterectomy with Anterior Abdominal Wall Adhesions

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Study Objective: The objective of this video presentation is to describe a laparoscopic approach to a hysterectomy where there are anterior abdominal wall adhesions present.
Design: A total laparoscopic hysterectomy where anterior abdominal wall adhesions were noted was recorded in the OR for review.
Setting: This video took place in the OR with the patient in dorsal lithotomy position in Trendelenburg. An umbilical port, suprapubic port, and 2 lateral ports were used for this procedure. A uterine manipulator with a colpotomy cup was in place.
Patients or Participants: This case was selected due to the presence of anterior abdominal wall adhesions found upon entry to the abdomen.
Interventions: A TLH was completed while reviewing multiple approaches in the setting of anterior abdominal wall adhesions Different techniques to complete the hysterectomy depending on the extensiveness of adhesive disease were reviewed including taking down adhesions before placing all ports, potentially taking the uterine artery at its origin, backfilling the bladder, and tunneling through the adhesions.
Measurements and Main Results: The main result of this video presentation was that a review of multiple methods of approaching anterior abdominal wall adhesions while performing a total laparoscopic hysterectomy was done while addressing ways to overcome obstacles that could be encountered.
Conclusion: When approaching a laparoscopic hysterectomy where there are anterior abdominal wall adhesions, there are several different obstacles that can be encountered, and this video presents different approaches to these challenges. One should consider alternate modes of uterine manipulation should a routine manipulator be unsafe to place. Suprapubic ports can be safely placed once adhesions that prevent placement are taken down, but also consider alternative port placement such as a LUQ or subxiphoid port depending on the location of the adhesions. Be prepared for ligation of the uterine artery at its origin. Ensure that there is no bladder involvement by backfilling the bladder to delineate planes.

5752

Appropriate Preoperative Planning Leads to Successful Removal of the Small Volume Ovarian Remnant

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Study Objective: To review the ovarian remnant syndrome characteristics and risk factors. To describe the correct surgical technique to prevent this condition. To demonstrate the appropriate preoperative evaluation and surgical resolution of the small volume ovarian remnant.
Design: Educational video.
Setting: Robotic assisted laparoscopic procedure. Patient in dorsal lithotomy position. Bilateral double ended tiger tail prophylactic ureteral stents used.
Patients or Participants: We describe a case of a 40-year-old patient who presented with a pelvic cystic mass and pelvic pain. She had a history of multiple laparotomies including an abdominal hysterectomy and bilateral salpingo-oophorectomy. She had a known BRCA 1 mutation and a strong family history of ovarian cancer. Her estradiol and follicle-stimulating hormone (FSH) levels were in the premenopausal range. Ovarian remnant syndrome was suspected.
Interventions: Robotic assisted removal of bilateral small volume ovarian remnants.
Measurements and Main Results: An overview of the preoperative evaluation and management of small volume ovarian remnant syndrome is described. The surgical technique to prevent ovarian remnant syndrome is discussed. The preoperative evaluation including hormone levels, ovarian stimulation, and imaging studies are discussed. Surgical planning including discussion with radiology and pathology are reviewed. Relying on anatomical landmarks, ureterolysis, proximal ligation of the infundibulopelvic ligament, and other surgical tips for the successful removal of the small volume ovarian remnant are presented.
Conclusion: Appropriate surgical technique prevents ovarian remnant syndrome. Serial MRIs may help identify cyclic changes of the ovarian remnant. Ovarian stimulation and hormone levels may assist with diagnosis and treatment planning. Preoperative discussion with Radiology to look for anatomical landmarks is important to successfully excise small volume lesions.

6532

Are Foley Catheters Needed during Hysterectomies? an Appraisal of 426 MIGS Hysterectomies without Bladder Catheterization or Cystoscopy

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Study Objective: The standard technique for hysterectomies has long included the insertion of a Foley catheter to theoretically reduce operative complications of urinary injury. Urinary Tract Infections (UTIs) following Gynecologic procedures have been cited in the literature from 5-28%. One study suggested that 69% of CAUTI (catheter-associated UTI) can be avoided, and for each day of catheterization, infection risk increases significantly. Additionally, avoiding bladder catheterization, thus allowing bladder distention, may assist in correctly identifying the bladder during dissection, reducing intraoperative injury.
Design: This is a retrospective case series of 426 MIGS hysterectomies performed without initial bladder catheterization from 12/2015 - 2/2021 by a single surgeon.
Setting: MIGS hysterectomies including Total Laparoscopic Hysterectomies and Robot Assisted Laparoscopic Hysterectomies.
Patients or Participants: Inclusion criteria included MIGS hysterectomy without concurrent cystoscopy, prolapse, or urinary incontinence procedures.
Interventions: 20% of participants underwent perioperative catheterization.
Measurements and Main Results: Of the 426 MIGS hysterectomies, 80% were completed without bladder catheterization or cystoscopy and 20% (84) underwent perioperative catheterization. Intraoperatively 18.5% (79) underwent straight catheterizations secondary to bladder overdistention, and 1 underwent indwelling catheterization for hemodynamic monitoring. Postoperatively, 1.8% (8) developed postoperative urinary retention with 6 requiring straight catheterization and 2 indwelling catheterization. At postoperative follow up, 15% complained of bladder discomfort, of which 1.6 % (5) were treated for clinical UTI with 3 undergoing a negative culture. A total of 29 patients had a urine culture performed, with only 2 (0.5%) positive. In spite of a mean of uterine size of 274g, 6.3% endometriosis and 26.9% cancer diagnoses, no bladder or ureteral injuries were encountered.
Conclusion: This study reveals that MIGS hysterectomies without routine bladder catheterization or cystoscopy are feasible and can be safely performed without bladder or ureteral injury with a subsequent decrease in the incidence of UTIs. Further prospective research is warranted to evaluate the benefits of hysterectomy without routine foley placement.

5969

Asherman's Care in a Covid-19 Pandemic

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Study Objective: We aimed to evaluate patient's satisfaction with Asherman's care in women who were referred to our center for a second opinion for Asherman's Syndrome (AS) in the Covid-19 pandemic.
Design: Observational cohort study.
Setting: University affiliated teaching hospital and tertiary referral center for Asherman's syndrome in The Netherlands from March 2020 to March 2021.
Patients or Participants: Women with AS, eligible for treatment were included.
Interventions: The first consult and pre-operative screening took place with a phone interview. The diagnosis, treatment and follow-up protocol were explained. Women were triaged on basis of their symptoms and infection exposure status and whether or not a face-to-face visit with the anesthesiologist was required. If eligible for treatment, they were given the opportunity to schedule a see and treat procedure with propofol sedation. All women who decide to proceed with surgery were treated with the standard AS protocol with special Covid-19 precaution measurements. At the recovery unit, women were asked to fill in a questionnaire.
Measurements and Main Results: 137 women were operated in 32 sessions between March 2020 and March 2021. Patients were matched with a cohort prior to the Covid-19 pandemic. Baseline characteristics were reported. Patients rated their satisfaction with hearing the explanation about the disease and upcoming treatment by the practitioner over the phone, the assisting on-site nurse's capability, quality of care of the treatment, convenience, and overall understanding and explanation by the practitioner post operatively. Women with AS who were treated in our center during the Covid-pandemic were equally satisfied with the information at first visit, explanation, treatment and follow-up as women in their matched cohort prior to the pandemic.
Conclusion: Patients with AS who were referred to our center, were offered COVID-19 adjusted protocol to inform, diagnose, treat and follow-up on their condition. Women were equally satisfied with the care provided.

5906

Asherman's Syndrome (AS) after Long Term Use of a Levenorgestrel Containing IUD, Cause or Coincidence?

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Study Objective: Identifying risk factors for developing Asherman's Syndrome after a first trimester procedure. Could the influence of long-term use of a levenorgestrel IUD (LNG-IUD) be a risk factor?
Design: Cohort study 2017-2020.
Setting: University affiliated teaching hospital and secondary referral center for Asherman's Syndrome in The Netherlands.
Patients or Participants: A cohort of 55 women with a first trimester curettage preceding Asherman's Syndrome who became pregnant after long term use of a LNG-IUD.
Interventions: Adhesiolysis was performed with an Olympus 5.5 mm rigid hysteroscope with conventional instruments using fluoroscopy as a guidance method. After successful adhesiolysis an IUD without Cu or hormones was placed inside the uterine cavity to prevent recurrence of adhesions. Women were treated with two consecutive cycles of hormones (estrogen and progesterone). A second look hysteroscopy was performed 8-10 weeks post-surgery.
Measurements and Main Results: 364 cases of women with AS who underwent hysteroscopic adhesiolysis. We identified 55 women using a LNG-IUD for a longer period of time (more than 3 years). All of them had hypomenorrhoe or had a amenorrhea during the LNG-IUD use. They almost all conceived within 3 months after removal of the IUD. All of them had a miscarriage for which eventually a curettage was performed. The grade of Intrauterine adhesions varied from grade 2-4 ESGE classification. Adhesiolysis was performed and the uterine cavity was restored in all cases.
Conclusion: The exact predisposing factors for women to develop AS are unknown. One of the reasons might be a vulnerable endometrium due to a hypo estrogenic uterine environment which might women more prone to developing AS. If so, long term use of a LNG-IUD could be an independent factor for the commencement of AS.

6407

Assessing the Effectiveness of a Hysterectomy Patient Education Video Narrated in Spanish: A Feasibility Study

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Study Objective: Hysterectomy is the most common gynecological surgical procedure, and yet, studies show women have a poor understanding of the procedure. The objective of this study was to assess the feasibility of testing the effectiveness of a video we developed in Spanish, about hysterectomy, in improving knowledge among Spanish speaking women.
Design: Pre-test, post-test study design using a web-based learning management system (LMS) to fully digitize the study. The knowledge instrument used was previously validated.
Setting: A women's health clinic at a large teaching hospital in Texas.
Patients or Participants: Patients were female patients who spoke Spanish and who were being evaluated for conditions for which hysterectomy is a potential treatment.
Interventions: An empirically developed, focus group tested patient education video on the hysterectomy procedure narrated in Spanish.
Measurements and Main Results: We had 6 Spanish speaking women participate in this feasibility study. Our study consisted of a demographic survey followed by a pre-test followed by our hysterectomy education video followed by a post-test. All these components were combined in electronic form, using a web-based LMS, as if the study were an online course. Mean time taken to complete the pre-test was 393 seconds (range from 303 to 603 seconds). Mean score on the pre-test was 51.2% with a range from 25.9 to 66.7%. Mean time taken to complete the post-test was 365 seconds (range from 297 to 526 seconds). Mean score on the post-test was 60.5% with a range from 37 to 81.5%.
Conclusion: This small study demonstrated the feasibility of doing a health literacy study among Spanish speaking women focused on the hysterectomy procedure by using an online learning management system typically used for online courses. Using a learning management system allowed us to fully digitize this study that consisted of both questions to be answered as well as a video to be watched.

6531

Assessment of Obstetric and Gynecology Residents: An Assessment of Attitudes before and after Initiation of a Robotic Training Curriculum

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Study Objective: Surgical training in gynecology is constantly evolving with new techniques and practices developing. Surgical training modules are of particular importance in academic training centers. Robotic surgical training poses a challenge to both leaders and learners to provide comprehensive and consistent education for the development of appropriate surgical skills. The purpose of this study was to evaluate for improvement in resident comfort level after initiation of a formal robotics training curriculum.
Design: This was an IRB exempt survey of residents within an Obstetrics and Gynecology (OBGYN) training program. Two voluntary, anonymous questionnaires were distributed to residents to evaluate their comfort level both before and after initiation of a formal robotic curriculum. A comparative assessment was performed to assess for improved resident comfort levels training on the robotic console.
Setting: N/A.
Patients or Participants: Participants in this study included post-graduate years (PGY) 1-4 residents enrolled in the 2019-2020 academic year completed at the University of Florida (UF) Health-Jacksonville Obstetrics and Gynecology (OBGYN) residency program.
Interventions: A formal robotic surgical training curriculum was introduced which consisted of online modules, documented training on the SimNow robotic simulator and in-person in-service of the DaVinci platform in a non-operative setting.
Measurements and Main Results: After analyzing results of the surveys, consistent improvement in resident comfort level with regards to robotic surgery was noted in all eight of the subjective questions included on the survey. Participants' comfort level and understanding statistically improved in response to questions 1-5 and 7 with p value < 0.05.
Conclusion: Given these findings, we recommend routine implementation of a formal robotic training program for surgical trainees in an academic setting. Implementation of a standardized robotic surgery-training curriculum can accelerate trainee's readiness and their comfort level in performing robotic surgery during residency, therefore optimizing their surgical training prior to graduation.

6606

Asymptomatic Postmenopausal Endometrial Thickening: A Comparison between Transvaginal Ultrasound and Hysteroscopy

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Study Objective: Compare the ultrasonography and the hysteroscopy findings in asymptomatic postmenopausal patients showing endometrial thickening.
Design: Observational study (Canadian Task Force Classification II-2).
Setting: San Salvatore Hospital of L'Aquila, Department of Obstetrics and Gynecology.
Patients or Participants: 315 asymptomatic postmenopausal women with endometrial thickening >4 mm.

Interventions: Diagnostic hysteroscopy, endometrial biopsy.
Measurements and Main Results: That patients had normal endometrium (8.6%), atrophic endometrium (26.7%), single benign polyp (47.6%), multiple polyps (8.6%), myoma (1.9%), focal hyperplasia (3.8%), diffuse hyperplasia (0.9%) and endometrial carcinoma (1.9%). In 30 women under therapy for breast cancer (thickening >5 mm) the hysteroscopic exam showed normal endometrium (50%), multiple polyps (20%), focal hyperplasia (20%) and diffuse hyperplasia (10%). For this subcategory of patients, the histopathological analysis confirmed the hysteroscopic diagnosis in 100% of case. It is not statistically valid to give to the homogeneity data of the endometrial thickening a direct association with the suspicion of polyp, as well as the ascription of a direct association with all the other suspicions except polyp to a non-homogeneous thickening cannot be considered statistically valid. The ROC analysis shows that the best cut-off for suspected polyp in ultrasonography is ≤6 mm (sensibility of just 66.0%, specificity of just 58.18%). By the ROC analysis, an 8 mm cut-off of ultrasound thickness was identified, above which the suspicion of endometrial carcinoma is strongly solid (specificity of 84.47% and a sensibility of 100%).
Conclusion: Hysteroscopy has a positive predictive value (PPV) of 100% and a negative predictive value (NPV) of 97.952% in detecting a risk of malignancy, with a specificity of 100% and a sensibility of 77.78%, demonstrating that hysteroscopy is the gold standard for the diagnosis of malignant endometrial pathology or an endometrial condition at severe risk of malignancy. A direct endoscopic exam is the only valid exam in the diagnosis of the intracavitary pathologies, especially in asymptomatic postmenopausal patients.

6284

Benchmarks for 3-D Systems (Simbionix) Bladder Flap Module for the Xi Robot: Differentiating Novice from Experienced and Expert Surgeons

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Study Objective: To develop competency benchmarks for the 3-D Systems (Simbionix) Bladder Flap Module for the Xi Robotic System.
Design: Prospective cohort.
Setting: Multi-center, academic medical institutions.
Patients or Participants: Residents, fellows, and faculty in OBGYN were invited to participate at 3 institutions. Participants were categorized by hysterectomy experience level: <10 (novice), 10-49 (experienced), and 50 + (expert). Ten novice and 22 experienced/expert surgeons were included.
Interventions: The 3-D Systems Hysterectomy Modules for the DaVinci Xi, released in 2017, include ureter dissection, bladder flap development, colpotomy, and full hysterectomy. In a prior study, recordings of participant simulator performance were graded in duplicate using the Modified Global Evaluative Assessment of Robotic Skills (GEARS) tool. The bladder flap module demonstrated correlation with experience. Competency benchmarks were developed for this module using contrasting group methods. Results were analyzed by comparing the novice participants to a combined experienced/expert group. Distributions of scores from both groups were plotted for domains of assessment where correlation had previously been demonstrated, and a cutoff score and its associated false positive (FP) and false negative (FN) rates were calculated.
Measurements and Main Results: Cutoff scores were developed for Depth Perception (cutoff=3.3), Bimanual Dexterity (cutoff 2.8), Efficiency (cutoff=3.25), Force Sensitivity (cutoff=3.15), and Overall Score (cutoff=1.9). Overall Score is scored from 1-3, while the other domains are on a 5-point Likert scale. Using the established cutoffs, the observed FP and FN rates for each domain were as follows: Depth Perception 0% (0/10) and 22.7% (5/22), Bimanual Dexterity 20% (2/10) and 27.3% (6/22), Efficiency 20% (2/10) and 40.9% (9/22), and Overall Score 30% (3/10) and 27.3% (6/22).
Conclusion: The development of target competency benchmarks is helpful to guide trainees and educators in the application of simulation tools. Using the robotic 3-D systems (Simbionix) simulator module with the strongest evidence of validity, we established benchmarks to aid in interpreting and anchoring resident simulator performance to experienced surgeons.

5699

CD16 and CD56 mRNA Expression in Decidua of Patients with Missed and Spontaneous Abortions

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Study Objective: to estimate relative mRNA expression of receptors CD16 and CD56 in decidual tissue of the patients with missed and spontaneous abortions.
Design: Prospective cohort study.
Setting: Academic affiliated tertiary care center.
Patients or Participants: Patients with spontaneous abortions (n=22), missed abortions (n=22) and women with normal pregnancy, admitted for artificial abortions (control group, n=57) were examined at 6-10 weeks of gestation. Patients with severe extragenital diseases, antiphospholipid syndrome, endocrine disorders, uterine malformations, and fetal chromosomal abnormalities were excluded from the research.
Interventions: Uterine abrasion.
Measurements and Main Results: Decidual tissue was obtained by uterine abrasion. Relative mRNA expression of CD16 and CD56 was defined by reverse transcription-quantitative polymerase chain reaction (RT-PCR). Peptidylprolyl isomerase *A* and beta-actin were used as housekeeping genes. Expression of mRNA was counted in relative units by ΔΔCq method. Data were performed as the median and interquartile range and compared using Kruskal-Wallis and Mann-Whitney tests (GraphPad Prism 9.0.2).
Relative mRNA expression of CD56 (a marker of natural killer (NK) cells) in decidual tissue of the patients with spontaneous and missed abortions didn't have significant differences with the control group, which confirms the data of meta-analysis (Seshadri S., Sunkara S.K., 2013).
Relative mRNA expression of CD16 in decidua of patients with missed abortions (837,53 (313,00; 1082,39)) was lower compared to women with spontaneous abortions (1077 (510,23; 1541,37)) and the control group (1692,57 (1243,34; 2759,13)) ($p<0,0001$ and $p<0,00001$, respectively). Expression of CD16 in decidua of the patients with spontaneous abortions was lower, than in the control group ($p<0,001$).
CD16 (FcγRIII) is involved in antibody-dependent cellular cytotoxicity. Uterine NK cells have CD56 + CD16- phenotype (Tang A.W., 2011). The

main cells in the decidua expressing CD16 are monocytes, macrophages (Ning F. et al., 2016), and neutrophils (Presicce P. et al., 2018).
Conclusion: CD16 can play an important role in the pathogenesis of early miscarriages.

6637
COVID-19 Delays in Gynecologic Surgery and Their Association with Race, Ethnicity and Insurance Status
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Study Objective: To characterize how surgical delays and cancellations experienced by patients needing gynecologic surgery differed during the coronavirus pandemic compared to pre-pandemic and determine if the delay and cancellation rates varied based on the patient's race, ethnicity or insurance type.
Design: Retrospective cohort study.
Setting: Urban, academic, tertiary care medical center.
Patients or Participants: Women aged >18 years who underwent surgery for benign or malignant gynecologic conditions.
Interventions: None.
Measurements and Main Results: Pre-COVID included surgeries performed between 3/2019-2/2020 and COVID included surgeries between 3/2020-2/2021. In the pre-COVID group, 1107 cases had no surgical delay (75.3%), 364 cases had surgical delay or cancellation (24.7%). In the COVD group, 1042 cases had no surgical delay (75.5%), 339 cases had surgical delay or cancellation (24.5%). Of delayed surgeries, there was a significant difference in the median number of days to surgery in the COVID-19 group of 31.2 days (13.9-56.0) as compared to the pre-COVID group 14.0 days (7.0-34.8) ($p<0.01$). Among cases scheduled during the COVID-19 pandemic, after controlling for the urgency of the case, there was no significant association between insurance type, race or ethnicity and the likelihood of having surgery delayed or canceled (OR 0.82,CI 0.64-1.05,p=0.12; OR 0.97,CI 0.73-1.29,p=0.34; OR 1.08,CI 0.58-2.20, p=0.81). Regardless of insurance, race or ethnicity, elective cases during COVID-19 were more likely to be delayed or canceled compared to urgent or emergent cases (OR 1.68, CI 1.07-2.63, p=0.03; OR 1.66, CI 1.06-2.60, p=0.03, OR 1.71, CI 1.08-2.70, p=0.02).
Conclusion: At a single academic center, while COVID was associated with increased length of surgical delays, case urgency seemed to play a more important role than insurance status, race, and ethnicity in predicting which patients would have their case delayed. The surgical field has documented disparities for decades and it is incredibly important to continue to challenge our role in patient's access to care, especially during the COVID-19 pandemic.

6615
CS Scar Pregnancy, the Challenge, the Triumph
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Study Objective: Review of CS scar pregnancies.
Design: Video outlining clinical evaluation, diagnostic tools and surgical management of CS scar pregnancies.
Setting: Case review, McMaster University.
Patients or Participants: Case discussion and review.
Interventions: U/S diagnosis and laparoscopic intervention.
Measurements and Main Results: Ultrasound evaluation and surgical management of CS scar pregnancy.
Conclusion: Cesarean scar pregnancies can present a challenge to treating physician. Through careful evaluation by minimal tools such as ultrasound, proper diagnosis and appropriate surgical planning can be performed. Ultimately, this will positively impact patient's future fertility and or pregnancy desires.

6292
Case Report: Complication after Laparoscopic Hysterectomy and Sacral Colpopexy
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Study Objective: Illustrate the rare complication after sacral colpopexy surgery to improve knowledge.
Design: Step-by-step description of the surgical procedure using an educational video.
Setting: Sacral colpopexy is a classic procedure used for the surgical treatment of pelvic organ prolapse. Nowadays this procedure is better to performed with laparoscopy[1]. Although the procedure boasts excellent success rates, there are risks of complications and reoperation may be required.[2] Probably elderly women have a higher rate of major complication.[3]
Patients or Participants: One patient.
Interventions: Female patient, 63 years old, had uterine prolapse, *stage III (POP-Q system) in the physical exam.*
Firstly, the hysterectomy was executed and secondly, the colpopexy surgery. The polypropylene net was fixed in the promontory of the sacrum, in the cervix of uterus and vagina. Later, the peritoneum was closed.
In the post-operative first day, the patient presented with symptons of intestinal obstruction, confirmed by tomography. The emergency laparoscopy was recommended.
In the laparoscopy, it was observed that part of the intestine was incarcerated in the small peritoneum space and formed an hernia. The peritoneum was opened and the intestine was released, after that the peritoneum was closed one more time.
The patient evolved well in the post-operative period.
Measurements and Main Results: N/A.
Conclusion: It is important to be careful with possible post-surgical complications.
Keywords: uterine prolapse, sacral colpopexy, laparoscopic surgery complications.

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5697
Case Report: Young Nulligravid with Chronic Non-Puerperal Uterine Inversion Secondary to a Prolapsed Myoma with Malignant Histopathology
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Study Objective: To present an interesting case report of a 23-year-old nulligravid with a 5-month history of heavy and prolonged vaginal bleeding with intermittent hypogastric pain. Examination showed a necrotic mass measuring 7 × 8 × 5 cm occupying the vaginal vault with no palpable cervix and uterus. Ultrasound confirmed a prolapsed submucous myoma with uterine inversion. Admitting diagnosis was chronic and complete non-puerperal uterine inversion secondary to prolapsed infected submucous myoma with secondary anemia. The patient was anemic with leukocytosis and she was given intravenous antibiotic and transfused with packed RBC, properly typed and crossmatched. Biopsy of the prolapsed mass revealed an infarcted polyp. Surgical plan was to preserve fertility and perform a hysteroscopic- and laparoscopic- guided vaginal myomectomy followed by uterine repositioning. On diagnostic hysteroscopy, there was no identifiable cervix, the prolapsed mass was too large and surgical landmarks were not identified. Concurrent laparoscopy revealed the uterus was inverted into a constricted "flower-pot" cervical ring towards the vaginal canal at the level of the round ligaments and bilateral ovaries and fallopian tubes were grossly normal. Proceeded with amputation of the prolapsed mass in a piecemeal fashion followed by attempts at uterine repositioning by Huntington's and Hultain's maneuvers but were not successful. The remaining vaginal mass was too large to pass through the cervix hence decision was to proceed with laparoscopic total hysterectomy with bilateral salpingectomy. Histopathology revealed Malignant Spindle Cell Neoplasm.
Design: N/A.
Setting: N/A.
Patients or Participants: N/A.
Interventions: N/A.
Measurements and Main Results: N/A.
Conclusion: Uterine inversion is rare in the non-puerperal period and is often difficult to diagnose and manage. There should be high index of suspicion in the setting of a mass protruding from the vagina, non-palpable uterus, and pelvic organs not visualized on ultrasound. When inversion is chronic, reverting maneuvers may prove difficult rendering fertility-sparing techniques implausible. In the setting of fertility preservation, malignancy must be ruled out.

6471

Cesarean Scar Pregnancy Resection with Isthmocele Repair Utilizing Temporary Vascular Clips to Minimize Blood Loss

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Study Objective: To demonstrate an innovative technique utilizing temporary vascular clips during cesarean scar pregnancy resection.
Design: Case Report.
Setting: Operating room, dorsal lithotomy.
Patients or Participants: Patient presented with cesarean scar pregnancy on ultrasound.
Interventions: Laparoscopic resection of cesarean scar pregnancy with isthmocele repair. Temporary application of vascular clips.
Measurements and Main Results: Estimated blood loss 150. Successful removal of cesarean scar pregnancy, isthmocele repair.
Conclusion: Temporary vascular clips can be used to successfully minimize blood loss during cesarean scar pregnancy excision.

6621

Cinelaparoscopy - the Remarkable Early Progress in Video-Documentation of Laparoscopic Surgery.

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Study Objective: Historical presentation of Cinelaparoscopy to document surgery and educate physicians and patients in minimally invasive gynecologic surgery (MIGS).
Design: Presentation of an award-winning paper on the utilization of the technique in MIGS.
Setting: Armed Forces Hospital.
Patients or Participants: Case reports of gynecologic patients opting for minimally invasive gynecologic surgery.
Interventions: Developing and utilizing the equipment, including 8mm cameras, to document laparoscopic gynecologic surgery.
Measurements and Main Results: An 8mm movie camera was attached to a laparoscope to document gynecologic procedures including ovarian biopsy, retrieval of an intrauterine device (IUD) that had perforated the uterus, monopolar Fallopian tube coagulation for sterilization and survey of the pelvis, appendix, intestines, liver and gall bladder. After the film was developed, it was edited and spliced for presentation at a national meeting of obstetricians and gynecologists. One can imagine the excitement that the pioneers in MIGS experienced when seeing these films. Metaphorically, the world of MIGS experienced "Moore's Law" in the 1970′s with the rapid development of safer techniques, better instrumentation, bipolar coagulation devices, improved optics, and innovative performances of standard gynecologic procedures, e.g., Laparoscopic Hysterectomy.
Conclusion: This award-winning presentation was instrumental in the planning, the documentation, and the distribution of the 1976 and 1977 Hawai'i AAGL endoscopic teaching videos. Those videos increased the awareness of MIGS, spurred the development of MIGS procedures, and encouraged the promulgation of MIGS as the preferred route of most gynecologic surgery.

6687

Clarifying Values of Surgical Providers to Improve Care for Transgender Patients Undergoing Gender-Affirming Surgery

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Study Objective: Minimal literature exists addressing surgical providers' own personal views in the context of caring for transgender patients. We created a pilot Values Clarification survey administered to operating room personnel with the objective of engaging participants in a process of self-examination to better elucidate their values, unconscious biases, and concerns that ultimately impact care for this patient population.
Design: An anonymized survey created consists of 23 questions with a series of 5-point Likert Scale statements pertaining to participants' understanding, biases, comfort and attitudes towards transgender individuals and gender affirming surgery.
Setting: Questionnaires were developed through Qualtrics online program and distributed to participants through a secure institutional email platform.
Patients or Participants: Pilot survey was sent to operating room staff including nursing, scrub technicians, and administrative staff at one academic hospital. Inclusion criteria comprised of personnel that would have peri-operative clinical interactions with patients undergoing gender-affirming surgery.
Interventions: N/A.
Measurements and Main Results: There were 18 respondents to the survey. There were ambivalent beliefs surrounding gender-affirming surgeries with 27%(N=5) who "neither agree nor disagree" to surgery being medical necessary. 39% (N=7) of participants were neutral and 16% (N=3) "disagreed" that patients under the age of 25 are certain of their own gender identity. 50% (N=9) "neither agreed nor disagreed" and 11% (N=2) "agreed" there is an increased risk of regret after undergoing gender-affirming surgery under the age of 25. 77% of participants reported overall comfort with directly participating in gender affirming surgery cases.
Conclusion: Preliminary data suggests the need to improve the knowledge of transgender issues, explore provider values towards individuals

undergoing gender affirming surgery and whether age is a component for concerns, and promote increased comfort in caring for this patient population. Our goal is to utilize this data to finalize our Values Clarification Curriculum in which we can later educate surgical providers to expand awareness and improve care for transgender individuals.

5816
Clinical Implications of Anatomic Variations of the Presacral Space

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Study Objective: To describe the presacral space and the spatial relationship between key anatomic landmarks, demonstrate anatomic variations in the presacral space, and discuss the clinical implications as they relate to minimally invasive surgery.
Design: Video description of key landmarks found in the presacral space, the fundamental steps of a presacral neurectomy, cases with anatomic variations of the presacral space, and clinical implications. Patients provided consent for the video and publication. This video with no identifying patient data was exempt from Institutional Review Boards Approval.
Setting: Video laparoscopy was performed.
Patients or Participants: We present patients with anatomic variations of the presacral space as well as cases demonstrating the clinical implications.
Interventions: Once the presacral space is entered, there are key landmarks to note. In a presacral neurectomy, the peritoneum overlying the sacral promontory is elevated and a small opening is made. The peritoneum is incised horizontally and vertically, and the opening is extended cephalad to the aortic bifurcation. Retroperitoneal lymphatic tissue including the nerve fibers of the hypogastric plexus are skeletonized, desiccated, and excised. All of the nerve fibers within the boundaries of the Triangle of Cotte are removed, including those entering the area from under the common iliac arteries and over the left common iliac vein.
Measurements and Main Results: The procedures that warrant dissection in this area include presacral neurectomy, sacropexy, lymphadenectomy, and certain cases of bowel mobilization. The clinical implications of anatomic variations are important to consider prior to abdominal entry and dissection of the presacral space to decrease the risk of surgical complications.
Conclusion: The anatomic pattern of the presacral space is variable, major vessels may deviate significantly from their expected positions, and prior to entering the space, surgeons should be careful to have full exposure.

6320
Combined Hysteroscopic and Laparoscopic Approach to a Complicated Case of Asherman's Syndrome

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Study Objective: We aim to present a combined hysteroscopic and laparoscopic approach to the resection of a post-cesarean section scar causing complete obstruction of the endometrial cavity.
Design: Video presentation.
Setting: Ambulatory surgery center, academic hospital.
Patients or Participants: 31-year-old multiparous patient with history of c-section who presented with secondary amenorrhea and infertility due to Asherman's Syndrome. She underwent laparoscopic guided hysteroscopic adhesiolysis followed by postoperative hormone therapy and close follow up.
Interventions: The patient's workup included saline infusion sonohysterogram, 2D ultrasound, and 3D ultrasound. She underwent a combined hysteroscopic and laparoscopic procedure in which hysteroscopic scissors were used to remove the adhesion under laparoscopic guidance. An intrauterine balloon catheter was placed postoperatively. She took postoperative antibiotics while the balloon remained in situ as well as postoperative hormone therapy to promote growth of healthy endometrium and prevent new adhesion formation.
Measurements and Main Results: The use of a combined hysteroscopic and laparoscopic approach resulted in a safe and successful removal of post-cesarean uterine scar tissue and treatment of Asherman's Syndrome with subsequent resumption of menses.
Conclusion: Asherman's Syndrome should remain on the differential for women who present with secondary amenorrhea. The addition of 3D ultrasound to saline infusion sonohysterogram is useful for surgical planning. A combined hysteroscopic and laparoscopic approach to the resection of uterine adhesions should be considered when managing severe cases of Asherman's Syndrome and dense adhesions, especially when the location of adhesions is not clear from imaging.

5834
Comparison of Surgical Outcomes from Laparoscopic Vs Laparotomy Approach for Uterine Myomectomies Based on Fibroid Burden

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Study Objective: Assess postoperative outcomes based on surgical approach for myomectomies with increasing fibroid burden.
Design: Retrospective analysis of benign myomectomy procedures, categorized into "smaller" and "larger" procedures based on fibroid burden identified using Current Procedural Terminology (CPT) codes. Smaller myomectomies included fibroids weighing <250mg or with 1-4 fibroids (CPT codes 58545 & 58140), and larger myomectomy procedures were classified as fibroids weighing >250mg or with >5 fibroids (CPT codes 58546 & 58146). Postoperative outcomes were then compared using the Clavien-Dindo classification system based on surgical approach, laparoscopic versus laparotomy.
Setting: Analysis of the American College of Surgeons National Surgical Quality Improvement Program (NSQIP®) database.
Patients or Participants: Myomectomy procedures from 2014-2019 using the NSQIP® database, excluding malignancy and cases with concurrent procedures.
Interventions: Myomectomy via laparoscopy and laparotomy.
Measurements and Main Results: 8,363 total myomectomy procedures were identified. 4,667 (55.8%) were smaller myomectomy procedures; 2080 (44.6%) completed via laparoscopy and 2,587 (55.4%) via laparotomy. 3,696 (44.2%) were larger myomectomy procedures; 1,037 (28.1%) completed via laparoscopy and 2,659 (71.9%) via laparotomy. Regardless of myomectomy size, laparoscopy required less perioperative blood transfusions ($p<0.01$). Myomectomy via laparotomy demonstrated increased cumulative minor complications, adjusted OR 2.80 (95%CI 2.18-3.58) for smaller fibroid burden and adjusted OR 3.41 (95% CI 2.62-4.44) for larger fibroid burden. Laparotomy demonstrated increased cumulative major complications, adjusted OR 2.40 (95% CI 1.32-4.36) for larger fibroid burden.
Conclusion: Smaller and larger myomectomies had fewer cumulative minor complications when conducted via laparoscopy. Laparotomy for larger myomectomies significantly increased cumulative major complications including rates of small bowel obstruction and deep organ space surgical site infections. Providers should strongly consider the laparoscopic myomectomy over laparotomy, regardless of fibroid burden.

6562

Contained Tissue Extraction of a Presumed Benign Large Ovarian Tumor within an Inflated Containment System

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Study Objective: Demonstrate contained tissue extraction technique of a large presumed benign ovarian mass.
Design: Surgical video.
Setting: Outpatient laparoscopic single site surgery.
Patients or Participants: Single surgical case of a 41-year-old with a large dermoid tumor of the right ovary.
Interventions: Total laparoscopic hysterectomy and salpingoophorectomy. Video obtained of the salpingoophorectomy with containment and extraction technique.
Measurements and Main Results: Containment and extraction of a large dermoid tumor.
Conclusion: Contained tissue extraction within an inflated bag is useful for large presumed benign ovarian masses.

5983

Contained Transvaginal Specimen Removal: A Simple Technique Using Materials Readily Available in the MIGS Operating Room

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Study Objective: This video demonstrates a simple technique for contained transvaginal removal of cystic ovarian specimens in laparoscopic surgical procedures. This obviates the need for enlargement of one of the abdominal trocar incisions.
Design: Videos from two laparoscopic adnexectomy surgeries, as well as instructive illustrations, are presented.
Setting: MIGS Operating Room.
Patients or Participants: two patients undergoing laparoscopic surgery for removal of cystic ovaries.
Interventions: Laparoscopic removal of cystic adnexal masses.
Measurements and Main Results: Demonstration of successful contained transvaginal specimen removal.
Conclusion: Transvaginal contained specimen removal is a simple and viable technique for removal of cystic adnexal specimens in laparoscopic surgical procedures, which does not require enlargement of one of the abdominal trocar incisions.

5787

Conversion of Appointments to Televisits in a Minimally Invasive Practice during the COVID-19 Pandemic

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Study Objective: To determine rate of conversion of in-person visits, scheduled before COVID-19 pandemic, to televisits in a minimally invasive gynecology surgery (MIGS) practice and identify factors that predict successful conversion.
Design: Retrospective review of appointments scheduled over a 11-week period between March 17th and May 29th, 2020, in the MIGS division of an academic obstetrics and gynecology department. During this period, the office was closed except for emergency visits due to the restrictions secondary to COVID-19. Successful conversion from in-person to televisits was defined as appointments rescheduled within 2 months of the initial in-person visit.
Setting: N/A.
Patients or Participants: All patients scheduled for in-person visits during this time were included. Patients were excluded from the analysis if they were seen emergently in person or newly scheduled as a televisit.
Interventions: N/A.
Measurements and Main Results: Data extracted included age, race/ethnicity, primary language, insurance type, appointment type, reason for visit, and time to rescheduled visit. 132 patients were originally scheduled during 11 weeks. 32 (24.2%) appointments were newly scheduled televisits and 20 (15.2%) were emergent in-person visits, leaving 87 visits. 21 (24%) appointments were rescheduled as televisits; 14 (66.7%) via telephone and 7 (33.3)% of these as video. There were no significant differences between age, race, primary language. insurance type, appointment type and the reason seen between the converted and non-converted groups. Median time to rescheduled appointments was sooner in successful conversions (16 days (-7 to 73) versus 96 days (8-234), p<.001).
Conclusion: Conversion to televisits was reasonable for a telemedicine naïve practice, despite having an overall low conversion rate to televisits. Utilizing telemedicine allowed patients to receive care sooner when compared to the non-converted group. The lack of difference in demographic/clinical factors between the two groups provides hope that technology can be utilized by diverse groups of MIGS patients.

5692

Core Features That Contribute to Complexity at Laparoscopic Hysterectomy: An International Consensus Development Study

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Study Objective: No objective, standardized language exists to characterize the complexity of a laparoscopic hysterectomy. This leads to challenges when trying to understand the relationship between patient and surgical features and post-operative outcomes. Predicting surgical complexity pre-operatively will also remain challenging if standardized complexity nomenclature does not exist. We aimed to develop a set of core features that contribute to the intra-operative surgical complexity of a laparoscopic hysterectomy.
Design: A consensus development study was completed via an electronic three-stage modified Delphi process.
Setting: International.
Patients or Participants: Eligible experts were identified based on specific criteria (publication record, leadership in laparoscopic surgery according to peers, active involvement in the training of advanced laparoscopic surgery, involvement with national or international organizations).
Interventions: N/A.
Measurements and Main Results: Round one was completed by 61 experts, representing North America, South America, Europe, Africa, Asia, and Oceania. The majority had fellowship training in minimally invasive gynecologic surgery. Round two was completed by 48/61 (78.7%) experts and round three, which yielded the final consensus list of features, was completed by 46/48 experts (95.8%). Forty-two potential

features were entered into round one. Ultimately, experts reached a consensus on 18 features that contribute to complexity in a laparoscopic hysterectomy that can be grouped under the following headings: 1) co-morbidities, 2) uterine size, 3) uterine fibroids; and 4) non-uterine pathology. Co-morbidities include obesity and other non-obesity co-morbidities that alter or limit the ability of a surgeon to perform the basic/routine steps in a laparoscopic hysterectomy. Non-uterine pathology includes endometriosis, ovarian cysts, and adhesions (bladder-to-uterus, rectouterine pouch, and other adhesions).
Conclusion: Using robust consensus science methods, an international consortium of experts have developed a set of core features that contribute to the complexity of a laparoscopic hysterectomy. This core set could be implemented in future studies that aim to assess the relationship between patient features and surgical outcomes.

6285

Cost Effective Simulation Model for Laparoscopic Uretero-Ureterostomy

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Study Objective: The objectives of this video are to review the techniques of uretero-ureterostomy, to develop a low-cost simulation model, and to provide instruction to gynecologists on how to perform this procedure in the absence of a urologist.
Design: A simulation model for ureteral re-anastomosis was created using rubber tubing and a pipe cleaner. The model was placed in a laparoscopic simulation box trainer, and the steps of the procedure are reviewed in sequence.
Setting: Simulation center at an academic tertiary care center.
Patients or Participants: N/A.
Interventions: The simulation model was developed and explained during the course of the video.
Measurements and Main Results: A piece of rubber tubing is placed in a laparoscopic box simulator, and both ends are secured. A cut is made in the mid-portion of the tube to mimic a ureteral injury. Spatulation is performed to both the proximal and distant parts of the ureter. A pipe cleaner is introduced into both ends of the tube in order to simulate a ureteral stent. Once the stent is secure, we check if the spatulated ends are in position. Interrupted sutures are placed to secure the ureteral ends in the correct anatomical position. Intra-corporeal knot tying is performed to secure the sutures.
Conclusion: Our simulated uretero-ureterostomy model can easily be reproduced to teach residents, fellows, and early career physicians how to repair a ureter laparoscopically. We feel that simulation is essential to teach surgical skills, and ureteral re-anastomosis is a highly technical skill that is very useful for gynecologists who may not always have access to Urology consultation. Using a low-cost model like ours is helpful to practice the steps of the procedure and build confidence for surgeons who may find themselves in an emergent situation where ureteral repair is required.

6647

Cost Value Analysis of Single Incision Midurethral Sling Insertion in the In Office Vs. Hospital Setting

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Study Objective: Patient outcomes between Mid-urethral slings in office setting vs hospital setting based on average total patient encounter time, total procedure time, total patient cost.
The secondary outcomes were adverse events, unexpected outcomes, and urgent evaluation.
Design: Retrospective, double-arm study, 1 physician implanted a mid-urethral single-incision sling with the clinical diagnosis for urethral hypermobility or stress urinary incontinence.
Setting: Office setting and hospital-based setting.
Patients or Participants: 78 women underwent sling placement in an office setting and 47 patients underwent sling placement in a hospital-based setting.
Interventions: Patients were evaluated at 2 and 6 weeks after surgery. A validated Surgical Satisfaction Questionnaire (SSQ-8) was collected at the 6-week post-operative visit. Patients that did not complete the SSQ-8 were contacted by phone. All women with the diagnosis of urethral hypermobility or stress urinary incontinence.
Measurements and Main Results: Between January 2016 until August 2020 a total of 125 women underwent a single incision mid urethral sling procedure.
Hospital-based setting: The average SSQ-8 score totaled 39.17 out of 40. The average total patient encounter time was 344.702 minutes. The average total time in the OR was 50.06 minutes. 5 total patients reported one adverse event, 13 patients reported 6 unexpected outcomes. No patients were seen for emergent evaluation.
Office-based setting: The average SSQ-8 score totaled 39.48 out of 40. The average total patient encounter time was 53.76 minutes. The average total time in the OR was 22.05 minutes. 5 total patients reported one adverse event, 25 patients reported 27 unexpected outcomes. 1 patient was seen for emergent evaluation.
No statistically significant differences in patient satisfaction.
Conclusion: The findings have shown considerable favor office-based setting in comparison to the hospital setting. There is a significant difference in the financial cost and the total patient encounter time. The office-based setting would be the more advantageous option for patients. The office-based setting is cost-effective, less time-consuming, and is safe.

6709

Counseling a Patient on Laparoscopic Abdominal Cerclage Placement

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Study Objective: We examine a case in which a patient requests an abdominal cerclage and subsequently review cervical insufficiency and indications for transvaginal and transabdominal cerclage placement. We also share a video of laparoscopic abdominal cerclage placement in a gravid uterus.
Design: N/A.
Setting: N/A.
Patients or Participants: N/A.
Interventions: N/A.

Measurements and Main Results: Transvaginal cerclage placement is the standard treatment for cervical insufficiency. It can be exam-indicated, history-indicated, or ultrasound-indicated. In the setting of one prior second trimester loss or preterm birth prior to 34 weeks, cervical length screening with cerclage placement if the cervix shortens below 25mm avoids unnecessary history-indicated cerclages in over 50% of patients while maintaining similar perinatal outcomes. For women who fail an early transvaginal cerclage, abdominal cerclage decreases the rate of preterm delivery and preterm premature rupture of membranes (PPROM) compared to a second transvaginal cerclage. However, risks include those of general anesthesia, PPROM, bleeding with the possible need for blood transfusion, bladder or small bowel injury, conversion to laparotomy (which is associated with a constellation of additional risk), pain, infection, preterm labor, suture migration/erosion, rectovaginal fistula, fetal growth restriction, and fetal death. If a patient has a late second trimester or third trimester intrauterine fetal demise (IUFD), laparoscopic removal of the cerclage is needed prior to dilation and evaluation or induction of labor. Patients with an abdominal cerclage must be delivered by cesarean section, however the stitch may remain in situ for future pregnancies.
Conclusion: We must remain up-to-date on guidelines for management of cervical insufficiency. Abdominal cerclages have high success rates but are associated with increased risk, the need for cesarean section, and greater complexity in managing IUFDs. Despite our comfort with laparoscopic abdominal cerclage placement, we should continue to recommend transvaginal cerclage placement where appropriate. More data is needed before abdominal cerclage can be offered as a first line approach.

5832

Credentialing and Patient Safety in Robotic Gynecologic Surgery: Changes over the Last Nine Years

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Study Objective: To assess how credentialing standards and perceptions of safe use of robotic surgery in gynecology have changed over time.
Design: Two anonymous online surveys conducted in 2012 and 2021.
Setting: ACGME approved residency programs.
Patients or Participants: Trainees (residents and fellows) and attending physicians.
Interventions: Survey.
Measurements and Main Results: A total of 367 physicians responded to the survey; 265 in 2012 and 102 in 2021. Distributions of responses were compared using the Fisher exact test and percentage-based statistics.
89% of 2021 respondents compared to 30% of 2012 respondents reported having the robot at their institution for >5 years. The average number of robotic cases performed increased over time, with only 19% performing >5 cases monthly in 2012 compared to 35% in 2021.
100% of attending respondents in 2021 reported having formalized credentialing processes for robotic surgery compared to 70% in 2012. The percentage of attendings performing bedside assisting prior to console work increased from 46% to 79%. Attendings report of institutional minimum case number requirements to maintain robotic credentials increased from 27% to 90%, with the majority (76%) reporting 10-20 cases needed annually.
When asked about beliefs about the number of cases needed for surgical independence, trainees and attendings reported higher numbers in 2021; the percentage reporting >20 cases were required for independence increased from 58% to 93% and 29% to 70%, respectively.
Trainees and attendings increased their rate of reporting that attendings are always fully independent and competent (52% to 69% and 51% to 68%, respectively) and decreased their rate of reporting that those doing robotic cases lacked the skills to do so safely (54% to 6% and 30% to 21%, respectively). Notably, nearly a quarter of attending surgeons still reported they had colleagues who lacked skills to consistently perform safe robotic surgery in 2021.
Conclusion: Expansion of credentialing processes over time correlated with improved confidence in surgeon skills.

6726

Decidualized Juvenile Cystic Adenomyoma Mimicking a Cornual Heterotopic Pregnancy

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Study Objective: To describe a rare case of a juvenile cystic adenomyoma presenting as a heterotopic pregnancy.
Design: Case report.
Setting: Private teaching hospital.
Patients or Participants: A 26-yo G3P1 at 7wga presented to the emergency department with complaint of vaginal spotting and mild cramping. Ultrasound identified a heterotopic pregnancy. An intrauterine pregnancy was noted with a 1.9cm gestational sac, a 1.1cm CRL, and FHR 161bpm. A second gestational sac was noted in the posterior left uterus measuring 1.58cm with CRL 0.94cm and <5mm of myometrium surrounding the sac. No cardiac activity detected.
Interventions: The patient was counseled regarding options for management including abortive vs non-abortive, medical vs surgical. She ultimately decided to undergo surgical treatment with preservation of the intrauterine pregnancy. Intraoperative laparoscopic ultrasound was performed with similar findings. Robotic assisted cornual wedge resection and removal of the ectopic mass was performed with preservation of the ipsilateral fallopian tube and intrauterine pregnancy.
Measurements and Main Results: Final pathology failed to demonstrate any fetal tissue, but rather demonstrated cystic adenomyoma.
Conclusion: Juvenile cystic adenomyosis (JCA) is a rare form of focal adenomyosis which is usually located near the uterine insertion of the round ligament, contains a cystic inner area >1cm and is encountered before the age of 30 years. Some authors report JCA to be an accessory cavitated uterine mass (ACUM) anomaly developing because of gubernaculum dysfunction. The only difference between the two conditions is the presence of a denser area of adenomyosis surrounding the cystic area lined with endometrium in JCA. This case demonstrates decidual changes observed in ectopic endometrial tissue within an area may be misdiagnosed as a focus of ectopic pregnancy. In non-emergency situations, waiting for the decidualization effect of ectopic endometrium to subside can help in the definitive diagnosis of such cases.

5978

Deep Endometriosis: An Anatomical Challenge - Unraveling and Restoring Anatomy

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Study Objective: Demonstrate a complex case of deep endometriosis, with the restoration of the pelvic anatomy and identification of important anatomical landmarks.
Design: Sequential demonstration of deep endometriosis treatment with narrated video footage
Setting: Deep endometriosis is defined as endometriosis infiltrating more than 5 mm of the peritoneum, and should be suspected in women presenting dysmenorrhea, chronic pelvic pain, deep dyspareunia and intestinal symptoms. In most of the cases, deep endometriosis requires surgical

treatment. However, in the majority of these cases there are anatomic distortion due to its severity. Therefore, the anatomical knowledge and the surgeon experience is fundamental for the success of the surgery.
Patients or Participants: Female 47-years old patient.
Interventions: The patient underwent Total Laparoscopic Hysterectomy with bilateral salpingoophorectomy, linear rectosigmoidectomy and excision of deep endometriosis. During the surgery a fundamental step to safely perform the surgery was to identify the ureter, hypogastric plex nerves, splanchnic nerves and the iliac artery.
Measurements and Main Results: The patient progressed with complete remission of the pelvic pain. She returned to sexual activity with light dyspareunia (VAS 2/10).
Conclusion: Endometriosis is a challenging disease, as it determines important anatomical distortion in severe form. It requires surgeons experience and knowledge of the pelvic anatomy to obtain a satisfactory surgical result.

6365
Definitive Management of C-Section Scar Ectopic Pregnancy with Robotic-Assisted Laparoscopic Total Hysterectomy
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Study Objective: To describe an approach for treatment of c-section scar ectopic pregnancy in women who do not desire future fertility potential.
Design: This video describes the minimal invasive surgical approach for treatment of a CSP type1.
Setting: The robotic approach was utilized to offer better visualization and greater surgical dexterity for fine lysis of adhesions.
Patients or Participants: This case depicts a 38 y/o G4P2103 diagnosed as having a missed abortion at 7 weeks. However, on ultrasound a CSP was diagnosed. She was counseled on possible management approaches and elected to proceed with definitive surgical management.
Interventions: Intraoperatively, dense adhesions of the bladder were noted to the lower uterine segment. Once adhesiolysis was performed, CSP was identified bulging in the lower uterine segment covered by a thin layer of myometrium. Pathology confirmed gestational sac in the thin lower uterine segment consistent with the clinical impression of CSP. Excellent hemostasis was achieved.
Measurements and Main Results: Blood loss from surgery was 200 mL. Patient had an uncomplicated postoperative course and was discharged on POD# 0.
Conclusion: Robotic-assisted laparoscopic hysterectomy can be considered for treatment of CSP for women who do not desire future fertility potential.

5768
Development and Implementation of a Robotic Surgery Training Curriculum
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Study Objective: To evaluate efficacy of instituting a formal robotic surgery curriculum as part of residency training.
Design: Resident survey prior to and after implementing a new robotic surgery training curriculum.
Setting: Obstetrics and gynecology resident simulation at robotic simulation center located in the medical school of a large, urban, academic medical center.
Patients or Participants: 17 PGY1 through PGY4 residents who are currently training at Temple University Hospital obstetrics & gynecology program.
Interventions: We created a robotic surgery curriculum that includes online robotic training followed by hands-on robotic bedside assistant training. Residents were trained on proper instrument terminology, handling, robotic docking and bedside assisting.
Measurements and Main Results: Each resident was given a pre-intervention survey that included training level, number of times assisted in a robotic surgery, subjective comfort level with assisting in robotic surgery, and 12 objective questions regarding assisting in robotic surgery. Pre-intervention responses were compared to post-intervention responses. Number of mean correct objective questions pre-intervention was 5.3 independent of training year or experience with bedside assisting and mean correct objective questions post-intervention was 10 ($p < 0.0001$). Median comfort level with bedside assisting pre-intervention was somewhat uncomfortable and post-intervention was neutral ($p = 0.16$). When asked if residents would like to have another structured robotic training exercise, 16 residents (94%) agreed or strongly agreed and one resident (6%) was neutral.
Conclusion: Resident knowledge of bedside assisting during robotic surgery increased as a result of the new robotic surgery training curriculum. Median comfort level with bedside assisting increased, however results were non-significant. Residents expressed interest in further robotic surgery training during residency, leaving comments such as "This was great! I feel like I learned a lot and will feel less clueless in the future. Please do again" and "Wish we could have had this earlier in residency" and "This was useful- made me more comfortable to assist in the OR."

6642
Development of a Haptic Simulator for Laparoscopic Trocar Insertion Training
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Study Objective: To create an effective haptic simulator for laparoscopic trocar insertion training.
Design: The haptic simulator is based on six degree-of-freedom parallel manipulator with a force sensor and attached standard trocar. To operate the device, the user applies a downward force on the trocar which displaces to provide force feedback, based on a virtual simulation of the tissue planes of the anterior abdominal wall. This type of design is called an admittance haptic device. The simulated tissue model has the same layers as real tissue and the thickness of the layers can be changed.
Setting: The simulator is intended to be used in simulation and training centers to provide an effective method for skills training.
Patients or Participants: N/A.
Interventions: This haptic simulator was developed using typical insertion force profiles through measurement of rotational and downward forces of novice and expert surgeons while placing trocars through a simulated anterior abdominal wall model. The simulator was validated using standard metrics for haptic simulators and its ability to replicate a typical insertion force profile.
Measurements and Main Results: A physical model was developed using published data on trocar insertion force metrics. The results show that regardless of the unique insertion technique of the human user, the recorded force profile (an experimental analog of what the subject feels)

follows the expected force profile during trocar insertion, meaning the force felt is not dependent on the user movement but rather the applied force.

Conclusion: This abstract presents a novel haptic simulator for laparoscopic trocar insertion which can be shown to accurately simulate insertion through the anterior abdominal wall. We hope that further development of the prototype, including validation with human subjects, will yield a more effective training method than is currently available, ultimately leading to safer trocar insertions and improved patient outcomes during this critical step in all laparoscopic surgeries.

6248

Development of a Simulation Model for Minimally Invasive Myomectomy

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Study Objective: To describe the development and applications of a low-cost, low-fidelity, reproducible simulation model for laparoscopic and robotic myomectomy.

Design: Educational video demonstration using cost-effective materials for myomectomy model with setup for both laparoscopic and robotic trainers.

Setting: Academic medical center.

Patients or Participants: N/A.

Interventions: The construction of a low-fidelity minimally invasive myomectomy model is demonstrated using the following low-cost materials: a "cup turner" foam cylinder (uterus), pink felt (uterine serosa), a stress ball wrapped in self-adhesive bandage (fibroid) wrapped in multipurpose sealing wrap (fibroid pseudocapsule), red marker (myometrial layer), and Velcro to affix the model to a laparoscopic or robotic trainer. Use of the model is demonstrated alongside surgical footage of similar laparoscopic and robotic cases while highlighting relevant tips and tricks for myomectomy.

Measurements and Main Results: The minimally invasive myomectomy model is constructed using less than $5 worth of materials purchased online and from local craft stores and may be reused. Key steps of a myomectomy are demonstrated on the model, including fibroid dissection and enucleation and hysterotomy repair.

Conclusion: We have developed a low-cost, low-fidelity, reusable myomectomy model that can be used for both laparoscopic and robotic training. This simple model allows learners to focus on key aspects of minimally invasive myomectomy that are often the most challenging for trainees and may therefore improve readiness for the operating room. Future research is needed to validate this model.

6518

Dissection and Removal of Retroperitoneal Cyst of Unknown Origin

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Study Objective: The objective of this video is to highlight the application of basic surgical concepts for dissecting in the retroperitoneal space when challenged with unexpected findings.

Design: This is a video case report highlighting surgical concepts involving one patient.

Setting: The surgery was performed at a university hospital. Procedure was completed laparoscopically.

Patients or Participants: This video pertains to a 37-year-old who was incidentally found to have an adnexal mass while undergoing infertility evaluation. Patient demonstrates no evidence of recurrence to date.

Interventions: Patient underwent laparoscopic removal of retroperitoneal mass.

Measurements and Main Results: Once an adnexal mass was found on dedicated gynecologic ultrasound, patient was referred to gynecologic oncology for surgical intervention. Patient was taken to the operating room for right salpingo-oophorectomy. In the OR, patient was found to have normal ovaries and fallopian tubes bilaterally but a large retroperitoneal mass. Retroperitoneal space was accessed by opening up the pelvic sidewall. The cyst was found to be abutting the obturator nerve, which was identified early in the dissection process. Ureters, anterior division with its branches and external iliac vessels were all identified for anatomic orientation. Patient did well post-operatively. Final pathology demonstrated acellular fibrinous material origin not determined but no evidence of malignancy.

Conclusion: Key learning points from this case is that despite unexpected findings, surgical technique and application of core surgical principles can help navigate in a familiar space even when something unknown. Identifying key structures helps with orientation as well as avoidance of injury. Knowing the anatomy and utilizing techniques like traction and counter-traction, tissue planes could be better identified and dissected more easily. This case highlights whether working in a familiar or unfamiliar space, utilizing anatomical structures with core surgical principles can help guide dissection regardless of pathologic or anatomic distortions.

5961

Distinct Strategy in Challenging Myomectomies: Associated Techniques with Two Stages Laparoscopy Surgery

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Study Objective: To show an innovative therapeutic strategy with laparoscopy and associated hemostatic techniques aiming minimally invasive treatment in a challenging of giant uterus and multiple fibroids.

Design: Sequential demonstration of diagnosis, therapeutic planning, surgical approach and results with video surgery.

Setting: Myomectomy has been described as an alternative treatment of symptomatic uterus fibroids who desire fertility. The laparoscopy approach has relevant benefits like decreased blood loss, reduced length of hospital stays and quicker recovery[1]. However, in a big fibroid, specially 6 cm or more, the risk of bleeding increase[2]. In these cases, the use of associated techniques like clipping vessels and use of hemostatic solutions can be helpful, besides the imperative laparoscopic skills to achieve a good outcome.

Patients or Participants: A 27-year-old woman with symptomatic uterus fibroids refractory to medical therapy and with fertility desire.

Interventions: Diagnosis challenging uterus fibroids, the use of radiology exam, specially IRM and the sequential therapeutic planning with two stages laparoscopy surgery. The strategy in the first surgery stage included clamping the uterine artery at the origin and using hemostatic solutions: vasopressin and oxidized regenerated cellulose. The landmarks identification was the primary step to do these techniques and decides the incision local, and then the safely myomectomy was performed. The second stage of laparoscopic myomectomy was performed. Follow-up was performed with clinical evaluation and radiology exam.

Measurements and Main Results: Final pathology report showed leiomyoma with no evidence of malignancy. Patient had a great recovery after the surgeries, with no complications. An MRI was performed 3 months of postoperative with a significantly uterine volume reduction.
Conclusion: Big fibroids is a real challenging in women who wants a future fertility. A therapeutic arsenal that includes different hemostatic techniques must be used to achieve the goal of uterine preservation associated with minimally surgery benefits. Moreover, be familiar with all options and use them can provide a success outcome.

5908

Does Procedure Time and Size Matter for Office Hysteroscopy Treatment of Retained Products of Conception?

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Study Objective: To establish the procedure time (PT) and mean size of retained products of conception (RPOC) treated in office hysteroscopy (OH).
Design: Retrospective Study (Canadian Task Force II- b).
Setting: Private Office Setting.
Patients or Participants: Patients with RPOC with or without prior treatment.
Interventions: Patients treated with a 5 mm continuous flow office hysteroscope, or Truclear™ 5C System, or with 16 Fr resectoscope.
Measurements and Main Results: A total of 486 cases were reviewed, and 137 cases were included. 74(54%) patients had a PUS, and adherent RPOC was found in 6 (4.4%) (Chi - square analysis, p=-021) patients, all of which had a PUS. Descriptive analysis found the overall intra-operative visual analogue score (VAS) of pain < 5 to be 96.9 % and the Likert's scale of satisfaction with the procedure to be high (93.4%). The overall mean PT is 14.2±8 (mean±SD) min & the overall mean size is 2.1± .8 cm, and in PUS group it is 15±9 min & 2.2±.8 cm. Independent samples test was applied to variables, and no significant difference was found in VAS or satisfaction rates with or without PUS, but as the overall PT increases, the VAS increases (.307; sig(2-tailed)=.00) and satisfaction rate decreases (-.219; sig(2-tailed)=.01). Truclear had the shortest duration at 10±4 min(p=.00). 127(87.6%) patients who were very satisfied with the procedure, had a PT of 13.6±8 min(p=.064) & size of 2.1±.9 cm.
The ROC curve was plotted for the PT and the size of RPOC. The PT was > 6.5 min in patients who had a PUS (86.5% sensitivity), but the specificity is low (14.3%), therefore, even in patients who had no PUS, the PT may be > 6.5 min. A risk of RPOC size > 1.55 cm is higher in PUS with 77% sensitivity and 42.9% specificity.
Conclusion: Women reported highest satisfaction with RPOC of size < 2.1 cm and the procedure time of < 14 min.

6605

Does the Presence of Adenomyosis Affect the Results of DEEP Infiltrating Endometriosis Surgery?

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Study Objective: To evaluate the impact of adenomyosis on surgical outcomes in women with deep infiltrating endometriosis (DIE) undergoing laparoscopic surgery.
Design: Retrospective study including women undergoing DIE surgery during a 3-year period.
Setting: Referral tertiary university hospital.
Patients or Participants: 157 women with DIE undergoing surgery.
Interventions: Two expert sonographers preoperatively diagnosed DIE and adenomyosis. DIE was defined according to the criteria of the International Deep Endometriosis Analysis group, and adenomyosis was considered when 3 or more ultrasound criteria of the Morphological Uterus Sonographic Assessment group were present. Demographical variables, current medical treatment, symptoms, DIE location, surgical time, hospital stay and difference in pre and post hemoglobin levels were collected. The Clavien-Dindo classification was used to assess surgical complications, and multivariate analysis was performed to compare patients with and without adenomyosis.
Measurements and Main Results: 157 DIE patients were included into the study; 77 (49.05%) had adenomyosis according to transvaginal ultrasound (TVS) and were classified in the A group, and 80 (50.95%) had no adenomyosis and were classified in the noA group. There were no differences between groups regarding demographic characteristics, current treatment, symptoms, r-ASRM classification or type of surgery. The mean operating time was higher in the A group (237min±98.4) compared to noA group (188min± 79.3) (p=0.017). The mean hospital stay was also higher in the A group compared to noA group (3.62±4.3 vs 2.55±1.79 days, p<0.05). Adenomyosis was associated with a higher rate of surgical complications: 33.76% (A group) vs. 12.5% (noA group) (p<0.001). There was a statistically significant association between the number of criteria of adenomyosis present in each patient and the proportion of patients presenting surgical complications (p<0.001).
Conclusion: Adenomyosis seems to play a detrimental role in DIE surgical procedures. It increases the risk of presenting complications in DIE surgery after controlling for demographic, clinical and surgical factors. Adenomyosis should be considered an independent preoperative risk factor of surgical complications.

5705

Double Trouble: Pelvic Pain Associated with a Dual Presentation of Endometriosis and Granulomatous Peritonitis

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Study Objective: Identify abnormal appearing lesions suspicious for endometriosis and describe the appropriate surgical techniques for complete excision.
Design: Patient case-report with surgical video footage.
Setting: A university tertiary care hospital. Patient was placed in steep Trendelenburg positioning.
Patients or Participants: Patient is a 34-year-old female with a history of chronic pelvic pain and one prior laparoscopic surgery for suspected endometriosis.
Interventions: Robotically-assisted diagnostic laparoscopy with complete peritonectomy, bilateral ureterolysis, and excision of endometriotic-appearing lesions.
Measurements and Main Results: Excisional biopsies confirmed the presence of endometriotic glands and stroma, as well as granulomatous peritonitis. Granulomas were identified by rims of palisading histiocytes and giant cells surrounding central necrotic cores. Acid-fast bacilli (AFB) staining revealed rod-like structures that may be artifactual of a prior tuberculosis (TB) infection. Exposure to mycobacteria must be excluded to determine the presence and history of TB in this patient.
Conclusion: The biopsy results indicate that the patient's chronic pelvic pain may be due to endometriosis and an additional factor: granulomatous peritonitis. Consequently, excising any abnormally appearing lesions in patients with pelvic pain is critical to identifying the involved pathology and reaching a more accurate diagnosis.

6036

Effect of Age on Surgical Outcomes and Rate of Complication in Women Undergoing Laparoscopic Sacrocolpopexy and Sacrohysteropexy

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Study Objective: To compare perioperative and long-term outcomes of laparoscopic sacrocolpopexy/ sacrohysteropexy in different groups of age.
Design: This was a prospective study.
Setting: All surgeries were made by single surgeon, in a referral unit for pelvic reconstructive surgeries.
Patients or Participants: All the patients who underwent laparoscopic sacrocolpopexy/ sacrohysteropexy, between July 2005 and December 2019 were prospectively evaluated preoperatively and postoperatively (starting from 1 month after surgery, and then annually).
Interventions: Laparoscopic sacrocolpopexy/ sacrohysteropexy.
Measurements and Main Results: The study population was divided to three groups, according their age at time of surgery: group 1- younger than 65 years, group 2- between 65-75 years, and group 3- older than 75 years. We compared patients' demographics, surgical characteristics, perioperative complications, and immediate and long-term outcomes, between the groups. A total of 347 women were included: group 1: (n=192, 55.3%), mean age 53.4±8.2; group 2- (n=98, 28.2%), mean age 69.2±2.9; group 3 (n=57, 16.4%), mean age 79.3±3.5 (p<0.001). The older patients were less married (group 1- 82.3%, group 2- 72.5%, group 3- 54.4%; p<0.001), sexually active (group 1- 35.4%, group 2- 27.5%, group 3- 19.3%; p=0.05), and had lower rate of past obstetric trauma (group 1- 27.6%, group 2- 23.5%, group 3- 3.5%; p<0.001), however they had higher rates of previous hysterectomy (group 1- 11.4%, group 2- 17.3%, group 3- 31.5%; p=0.005), as compared to the younger patients. The rates of perioperative complications, as well as long term complications or recurrence were similar between the groups.
Conclusion: Laparoscopic sacrocolpopexy and/ or sacrohysteropexy is associated with low rates of perioperative and long- term complications. The rates of complications and/ or long-term results are not affected by patients' age.

6037

Effect of Body Mass Index on Surgical Outcomes and Complications in Women Undergoing Laparoscopic Sacrocolpopexy

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Study Objective: To compare the risk of intraoperative and perioperative complications and prolapse recurrence among normal-weight, overweight, and obese women after minimally invasive sacrocolpopexy and sacrohysteropexy for pelvic organ prolapse (POP).
Design: A retrospective study.
Setting: A pelvic reconstructive surgery unit.
Patients or Participants: Patients who had laparoscopic sacrocolpopexies and hysteropexies performed at a single center from July 2005 and December 2019.
Interventions: Laparoscopic sacrocolpopexies and hysteropexies.
Measurements and Main Results: The cohort was divided to three groups, according to body mass index (BMI). Patient demographics and clinical and surgical data were compared between the groups, using $\chi 2$ test, analysis of variance (ANOVA), and logistic regression. Group 1- Normal (BMI 18- 25 kg/m^2); Group 2- Overweight (BMI 25-30 kg/m^2); Group 3- Obese (BMI >30 kg/m^2).
A total of 347women were included: group 1: mean BMI 22.1±2.0 kg/m^2 (n=217); group 2: mean BMI 27.2±2.4 kg/m^2 (n=106); group 3: mean BMI 33.0±3.1 kg/m^2 (n=24), (p<0.001). Patients with higher BMI had higher rates of comorbidities (group 1- 16.1%, group 2- 30.2%, group 3- 45.8%; p<0.001). Anatomical results (post-operative stage of prolapse) were comparable between the groups. Surgical outcome, including operative time, rate of complications, and rate of reoperation due to complications were similar between the groups.
Conclusion: Laparoscopic sacrocolpopexy and/ or sacrohysteropexy is associated with low rates of perioperative and long- term complications. In our experience, the rate of complications and/ or long-term results are not affected by patients BMI.

6380

Effect of Gabapentin on Sedation and Same Day Discharge in Gynecologic Laparoscopy

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Study Objective: To compare sedation scores, pain scores, and hospital length of stay among patients undergoing outpatient minimally invasive gynecologic procedures based on preoperative gabapentin administration.
Design: Retrospective cohort study.
Setting: Academic teaching hospital.
Patients or Participants: The first thirty patients meeting inclusion and exclusion criteria for each group were selected in a retrospective manner. The sample size was calculated to detect a 1-point difference in the Aldrete sedation score. Patients undergoing outpatient gynecologic laparoscopic surgery with a single surgeon between May 2020 and March 2021 were eligible for inclusion.
Interventions: Dosages of routine preoperative gabapentin were sequentially decreased from 600 mg to 300 mg to none. Outcomes included sedation based on the Aldrete score and Pasero Opioid-Induced Sedation Scale (POSS) and pain based on the numerical rating scale during the initial recovery period. Rates of same day discharge and hospital length of stay were also tracked.
Measurements and Main Results: A total of 91 unique persons were included in the analysis. There was no difference between groups for age, race, ASA score, operating time, administered morphine equivalents, or benzodiazepine administration. Comparison between the three groups did not detect significant differences in either sedation scores or pain scores. Same day discharge did differ between groups with 89% of patients receiving 0 mg discharged on the day of surgery compared to 81% and 59% of patients in the 300 mg and 600 mg groups, respectively (p-value=0.019). Hospital length of stay did not reach a statistical difference.
Conclusion: No differences were identified in sedation or pain scores based on preoperative administration of gabapentin. The percentage of same day discharges was inversely related to dose of preoperative gabapentin, with 0 mg having the highest rate of same day discharge. These results support current recommendations to discontinue routine administration of gabapentin in outpatient gynecologic surgery.

6504

Effect of the COVID-19 Pandemic on Ectopic Pregnancy Outcomes

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Study Objective: The purpose of this study was to evaluate the effect of the COVID-19 pandemic on the ectopic pregnancy surgical volume, both ruptured and stable cases, at a New York City high-volume, tertiary-care center.
Design: A retrospective chart review of 2 years of ectopic pregnancy surgical case volume. The time period evaluated included March 2019-February 2020 prior to the COVID-19 pandemic in New York City followed by March 2020-February 2021 when hospital services shifted to care of such patients.
Setting: N/A.
Patients or Participants: All patients who underwent emergent gynecological surgery for ectopic pregnancies were reviewed by weekly and monthly volume over a 2-year period. Further review of ruptured as compared to unruptured cases was performed, with particular interest regarding hemoperitoneum at time of abdominal entry.
Interventions: N/A.
Measurements and Main Results: There was no significant difference ($t(21) = 0.52$, $p = 0.612$) between the pre-pandemic year March 2019 – February 2020 with a total of 33 ectopic cases (mean monthly volume 2.75, SD = 1.42) as compared to March 2020 – February 2021 total of 37 ectopic cases (mean monthly volume 3.08, SD = 1.73). There was no significant difference ($t(22) = 0.56$, $p = 0.583$) regarding ruptured ectopic case volume between 2019-2020 and 2020-2021 (total of 23 and 27, mean monthly volume 1.92 and 2.25 respectively). Finally, for ruptured ectopic cases, the mean estimated hemoperitoneum encountered upon entry into the abdomen (excluding subsequent operative blood loss) was 184.29 cc pre-pandemic and 244.8 cc during the pandemic with no significant difference between the years ($t(44) = 1.18$, $p = 0.244$).
Conclusion: There were no significant differences in ectopic case volume prior and after the COVID-19 pandemic and no significant differences in hemoperitoneum upon abdominal entry, suggesting that the fear of the pandemic was not a deterrent to care for patients needing emergent ectopic surgery.

5740

Effects of Tranexamic Acid Administration at Time of Myomectomy with a Particular Focus on Fibroid Characteristics

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Study Objective: To compare the effect of tranexamic acid (TXA) administration on estimated blood loss (EBL) in patients undergoing myomectomy.
Design: Retrospective cohort study of women undergoing myomectomy between January 2015 and January 2020.
Setting: Academic-affiliated community hospital system.
Patients or Participants: All women (n=71). who underwent myomectomy with a Minimally Invasive Gynecologic Surgeon (MIGS) at a single institution between January 2015 and January 2020.
Interventions: In 2017, the MIGS department underwent a practice change and began routine administration of TXA to all myomectomy cases without an absolute contraindication.
Measurements and Main Results: Overall mean EBL was 236mL. There was no statistically significant difference in EBL between the TXA (184mL) and no TXA groups (266mL) (p=0.42). However, when stratified by fibroid characteristics, patients with total pathology fibroid weight >173g or a largest fibroid >73mm had a statistically significant decrease in EBL when they received TXA compared to those who did not (No TXA vs TXA, 405.4mL vs 205.6mL, p=0.006 and 408.3mL vs 229.2mL, p=0.01, respectively). No patients required a blood transfusion. Average operating time was 238 minutes and was also not statistically different between the two groups (p=0.95). There were no cases of anaphylaxis in either group. There was one case of thromboembolism which occurred in the non-TXA group. Rates of nausea/vomiting and headaches did not differ between the two groups (p=1.0 and p= 0.41, respectively).
Conclusion: There was a statistically significant reduction in blood loss at the time of myomectomy in patients with a large fibroid burden treated with TXA. Furthermore, TXA is demonstrated as a safe hemostatic agent associated with extremely low rates of adverse events. TXA is a safe and effective hemostatic agent that may reduce intraoperative blood loss during myomectomy.

5539

Efficacy of Laparoscopic and Trans-Abdominal Cerclage in Patients with Cervical Insufficiency: A Systematic Review and Meta-Analysis

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Study Objective: We aimed to conduct this systematic review and meta-analysis to investigate and compare the efficacy of laparoscopic and TAC in patients with CI.
Design: Systematic Review with Meta-analsysis.
Setting: We searched PubMed, Scopus, MEDLINE, ClinicalTrials.Gov, Cochrane and Web of Science using suitable keywords. Retrieved citations were screened for our criteria. We extracted all outcomes reported then analyzed using Open Meta-Analyst and Review Manager Software.
Patients or Participants: We included all study designs (observational and randomized controlled trials) that included patients with CI that underwent laparoscopic cerclage or TAC. We excluded non-English trials and full-text not available.
Interventions: N/A.
Measurements and Main Results: We included a total of 43 studies. Laparoscopic and TAC had a positive effect by increasing gestational age; for laparoscopic (MD = 14.86 weeks (W), 95% CI [10.67, 19.05], $P < 0.001$) and TAC (MD = 12.79 W, 95% CI [10.97, 14.61], $P < 0.001$). Also, laparoscopic had a positive effect regarding neonatal survival (RR = 0.981, 95% CI [0.95, 1.012], $P < 0.001$) and TAC (RR = 0.23, 95% CI [0.18, 0.31], $P < 0.00001$). Furthermore, all outcomes assessed (total fetal survival rate, baby weight, operative time, hospital stay, gestational age > 34, < 34 and < 24 weeks) were significant except preterm delivery; laparoscopic (RR = 0.116, 95% CI [-0.006, 0.238], P = 0.063) and TAC (MD = 1, 95% CI [0.45, 2.24], P = 1), and Gestational age < 34 weeks for laparoscopic group (RR = 0.446, 95% CI [-0.323, 1.215], P = 0.256).
Conclusion: In patients with CI, both TAC and laparoscopic cerclage procedures revealed a positive effect in preserving the pregnancy. In contrast to previous reviews including fewer studies, our meta-analysis did not show a statistically significant difference in survival in the laparoscopic over trans-abdominal cerclage groups.

6013

Endometrial Micropoliposis, Hysteroscopic Manifestation of Chronic Endometritis

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Study Objective: Identify the relationship between hysteroscopic findings of micropoliposis and the histopathological result of chronic endometritis in a series of cases.

Design: Between 02/01/17 and 02/15/21, cases diagnosed with endometrial micropoliposis were analyzed through hysteroscopy and histopathology in the gynecological endoscopic surgery service of the Hospital "Lic. Adolfo López Mateos" ISSSTE.
Setting: Hysteroscopy in gynecological position, 2.7 mm outer diameter lens, 105° visual field angle, 4.5 mm outer diameter. Saline solution was used to dilate the uterine cavity. The anterior and posterior uterine walls were examined.
Patients or Participants: 42 patients undergoing hysteroscopy were included in which micropoliposis was reported.
Interventions: A biopsy was taken of the compatible lesions with micropoliposis by hysteroscopy, reporting inflammatory infiltration with plasma cells was reported in relation to endometritis.
Measurements and Main Results: The mean age was 28 years, 39 with abnormal uterine bleeding (92%), 1 with infertility (2%) and 2 with a bicornuate uterus with a non-communicating cavity (4%), no patient presented data of vaginal or pelvic infection, cultures: Mycoplasma hominis in 17 (40%), Ureaplasma urealyticum in 15 (35.7%), Chlamydia in 2 (4%), E. Coli in 4 (8%), Gardnerella vaginalis in 2 (4%) and 2 with Müllerian malformations and negative cultures (4%). All patients were treated according to antibiogram with a new culture after 3 months, the infection persisted in 3 patients (7%), having negative cultures with a second antibiotic scheme. All patients had improvement in bleeding, after the management of the Müllerian malformation, micropoliposis persisted 6 months after surgery.
Conclusion: Chronic endometritis can be manifested as micropoliposis by hysteroscopy, just with abnormal uterine bleeding without data of an active infectious process. Although chronic endometritis has been mentioned as an infertility factor, none of our patients had a desire for pregnancy. In the presence of endometrial micropoliposis by hysteroscopy, chronic endometritis should be suspected, and special cultures against Mycoplasmas and Chlamydia should be performed.

6300

Endometriosis and Pelvic Pain in the Adolescent: Delayed Diagnosis Leading to Long-Term Suffering and the Need for Intervention

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Study Objective: To discuss the atypical presentation of endometriosis in adolescents, importance of decreasing delays in diagnosis and management and reducing long-term suffering in our adolescent population
Design: Narrative Review.
Setting: N/A.
Patients or Participants: N/A.
Interventions: N/A.
Measurements and Main Results: A database search was performed using MEDLINE/PubMed and CINAHL Plus. Keywords included, adolescent endometriosis, pelvic pain adolescents, secondary dysmenorrhea in adolescents, adolescent endometriosis presentation, adolescent endometriosis management. The committee opinion from the American College of Obstetrics and Gynecologists on dysmenorrhea and endometriosis in the adolescent was utilized. A manual search from reference lists of relevant articles was conducted.
Endometriosis is the most common cause of secondary dysmenorrhea in adolescents. Delay in diagnosis of endometriosis in adolescents, continues to be a barrier in early intervention and management, leading to chronic pelvic pain and long-term suffering well into adulthood. Atypical presentation of endometriosis in adolescents contributes to the delay in diagnosis. In adolescents, endometriotic lesions present as red, clear, white, or glandular lesions rather than the powder burn lesions seen in adult women. Additionally, adolescents develop non-cyclical pain, not the classic cyclic pain associated with endometriosis. Pelvic ultrasounds and Magnetic Resonance Imaging are helpful in diagnosis, however laparoscopy remains the gold standard, even in adolescents, because the likelihood of discovering endometriosis in an adolescent presenting with dysmenorrhea and chronic pelvic pain refractory to medical therapy is at least 50%. Hormonal therapy, NSAIDs, GNRHa and, surgical management with postoperative hormonal therapy are the recommended treatments for adolescent patients.
Conclusion: Early intervention and management of endometriosis and pelvic pain in the adolescent population can decrease delay in diagnosis, long-term suffering, and potentially a reduction in disease progression. Diagnostic laparoscopy with biopsy and surgical therapy should not be delayed in the adolescent patients who are refractory to medical therapy; it still remains the gold standard in the diagnosis of endometriosis.

5738

Endometriosis in Transgender Men − a Systematic Review with Metanalysis

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Study Objective: To assess the prevalence of endometriosis in transgender men during surgery and clinical treatment for the reported symptoms.
Design: Systematic review.
Setting: N/A.
Patients or Participants: Transgender men that were being treated at their institutions with or without presenting pelvic pain at the time of their investigation.
Interventions: A literature search was performed using the PubMed, Embase, Web of Science (WOS) and AAGL JMIG Abstracts since inception to April 4th, 2021, with no language restrictions. Two authors screened for study eligibility and extracted data. Metanalysis of the prevalence and heterogeneity was calculated with the MetaXL package whether two studies could be pooled. Quality of the studies were measured by the Newcastle-Ottawa Scale (NOS) for cross-sectional studies.
Measurements and Main Results: Our search strategy retrieved 102 results (PubMed =6, Embase=19, WOS = 6, AAGL/JMIG Abstracts =71). Of these, only 2 retrospective studies were included, comprising 102 patients. One study focused on patients under 26 years that were followed in an outpatient clinic (n=35); the other described intraoperative findings for patients undergoing hysterectomy as gender affirmation surgery (n=67). The pooled prevalence of endometriosis in this population was 25.14% (17.24-33.94%) and the frequency of patients using testosterone without other medications and presenting dysmenorrhea was 70.58% (63.87-80.91%); mean pooled duration of using testosterone was 25 months. Five patients were using combined testosterone and progestins. Stage 1 (40%) and 2 (32%) endometriosis were the most reported findings. In one study, endometriosis was found in 21.9% of the patients without pelvic pain. Both studies scored 4 out of 10 in the NOS assessment. A high heterogeneity was found across the studies.
Conclusion: The prevalence of endometriosis in transgender men is higher than the female cisgender population. Surgeons must perform a careful intraoperative assessment of endometriotic foci within this group of patients. However, these data need confirmation with future, prospective studies.

5627

Enhanced Myometrial Vascularity: Case Presentation and Review

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Study Objective: To describe the etiology of arteriovenous malformations (AVM) and enhanced myometrial vascularity (EMV) and review updates in management for patients with retained products of conception (RPOC) associated with EMV through a case presentation.
Design: The etiology, symptoms, imaging findings/interpretation, and updates in management based on symptoms are reviewed in detail.
Setting: Tertiary referral center.
Patients or Participants: Eight weeks following suction dilation and curettage (D&C) for an incomplete abortion, a 28-year-old G1P0 patient presented with RPOC, menorrhagia and an acute drop in hemoglobin to an outside facility. After a diagnosis of a uterine AVM was made, she was transferred to our facility for further care.
Interventions: After transfer to our center, ultrasound demonstrated RPOC, with prominent internal vasculature containing peak systolic velocity (PSV)>20 cm/sec. A diagnosis of EMV was made. An MRI confirmed prominent serpentine vessel at the endometrium and in the RPOC. Due to her anemia, she underwent a uterine artery embolization (UAE) followed by suction D&C. Hysteroscopy was performed before and after suction D&C and following curettage, a large vascular bundle was appreciated at the surface of the endometrium.
Measurements and Main Results: The patient presented to clinic 2 weeks post operatively with resolution of AUB symptoms and a negative Beta hCG.
Conclusion: The management of patients with EMV is dependent on the extent of their symptoms. If significant bleeding is present, surgical management is required. Previous reports suggested that patients with EMV and RPOC should undergo UAE prior to D&C, but more recent studies suggest that D&C may be initiated without UAE, as EMV associated with RPOC may be a normal transient placentation phenomenon and have less risk of hemorrhage than previously suspected. Each patient requires individualized management based on symptoms, signs, imaging, and plans for future fertility. The ideal management of patients with RPOC and EMV remains to be determined.

6182

Environmental Toxicants and Uterine Leiomyoma in Patient and in-Vitro Studies: A Systematic Review

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Study Objective: Uterine leiomyoma, often called fibroids, are benign tumours in the uterus and are prevalent in up to 70% of women. Environmental toxicants that can mimic and disrupt estrogen signaling have led to the hypothesis that toxicants may be associated with increased prevalence of leiomyoma. Our objective was to systematically review the literature examining this association.
Design: A systematic search of MEDLINE, EMBASE, SCOPUS, and Web of Science was conducted (to October 2020) to identify primary literature reporting toxicant exposure on leiomyoma. Only human or human cell studies in English were included. Data extracted included type of exposure, dosage and effect size. Quality assessment was done using the Newcastle-Ottawa Scale.
Setting: N/A.
Patients or Participants: N/A.
Interventions: N/A.
Measurements and Main Results: Thirty-three studies (24 patient and 9 in-vitro) were included. Patient studies examined plasticizers (phthalates, n=9; others, n = 3), bisphenol A (n = 7), phenols (n=5), organohalogen compounds (n = 5), heavy metals (n = 3), polycyclic aromatic hydrocarbons (n=1), and hair relaxers (n=1). Positive associations were identified for each group of toxicants, though results were often conflicting. Specific compounds most commonly positively associated with fibroids were di (2-ethylhexyl) phthalate (DEHP) metabolites (phthalates; n=5); nonylphenol (phenols; n=5), and bisphenol A (n=4). The majority of in vitro studies (n=6) reported effects of bisphenol A on leiomyoma growth and half of these suggested mediation through the estrogen receptor alpha signaling pathway. Studies that measured toxicants in urine had more positive outcomes than studies examining the same toxicants in the serum.
Conclusion: Review of the literature supports environmental toxicants as potential contributors in leiomyoma prevalence. We found that DEHP, bisphenol A, and nonylphenol were often positively associated with leiomyoma. Additionally, we found differential outcomes based on the tissue which the exposure was drawn from. The cause-effect relationship of toxicant exposure on leiomyoma will be an imperative topic for future research.

6541

Ergonomics for the Minimally Invasive Gynecologic Surgeon

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Study Objective: Educate gynecologic surgeons on ergonomic techniques to reduce musculoskeletal injuries attributed to minimally-invasive gynecologic surgery.
Design: Surgical video.
Setting: Operating room for laparoscopic surgery.
Patients or Participants: N/A.
Interventions: Surgical ergonomic guidelines exist but are often not highlighted to surgeons and training is rare. This video serves to educate surgeons on ergonomic techniques to reduce or avoid musculoskeletal strain or injury.
Measurements and Main Results: There are unique ergonomic risks with minimally invasive surgery. Ergonomics training can improve efficiency, work satisfaction, and fewer lost work-days and sick-leave. Surgical training in gynecology should include education on proper ergonomic techniques.
Conclusion: The lack of knowledge among surgeons regarding proper ergonomic technique suggests that surgeon safety receives little attention. It has been established that the impact of poor surgical ergonomics has a profound and long-lasting impact on surgical performance and longevity. Interventions in other professional work-spaces have improved efficiency, employee satisfaction, as well as fewer lost workdays and sick-leave. We can assume these improvements can be made in gynecologic surgery as well, and proper ergonomic techniques should therefore be universally incorporated into surgical training.

5873

Evaluating the Content, Understandability, and Actionability of Endometriosis-Related Instagram Posts

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Study Objective: To assess the subject matter, understandability, and actionability of the endometriosis-related content shared on the social media platform Instagram.
Design: Qualitative retrospective content analysis.
Setting: Instagram.
Patients or Participants: N/A.
Interventions: A novel Instagram account was created to avoid algorithm bias. Search was performed utilizing the term "#endometriosis". The most recent 100 results in the English language were analyzed independently by two reviewers. Reviewers catalogued the type of author and content of each post. Patient Education Materials Assessment Tool (PEMAT) was used to assess the understandability and actionability of the content.
Measurements and Main Results: The most common speaker/author was a health blogger (n=75), followed by advocacy groups (n=11), industry (n=7), and healthcare provider (n=7). Patient testimonial (n=37) was most common, followed by awareness (n=22), quote/meme (n=13), education regarding symptoms or pathology (n=11), management strategies (n=9), and advertisements (n=8). There were 42 posts that discussed pain, 16 related to infertility, and 42 that addressed non-pelvic complaints. Only 34 of these 100 posts mentioned treatments, with 7 mentioning surgery and 2 discussing hormonal medication. The PEMAT Audiovisual Understandability average is 64 points (95% CI 58.8-69.0) out of 100. The PEMAT Audiovisual Actionability average score is 31.5 (95% CI 24.1-38.6).
The most common co-hashtags were #chronicillness, #endowarrior, #endometriosisawareness, and #endometroisisawarenessmonth.
Conclusion: The understandability of endometriosis-related Instagram content is relatively high for patients at all degrees of health literacy. In comparison, the level of actionability is poor. This implies that while endometriosis content is accessible on the platform, it does not direct users on further steps to take for evaluation and management. This data suggests Instagram is useful as a community-building and support platform rather than as an educational resource for the disease.

6026

Evaluation of Perioperative Venous Thromboembolism Prophylaxis after Minimally Invasive Hysterectomy

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Study Objective: Evaluate appropriate utilization of postoperative venous thromboembolism prophylaxis using recommendations from the Modified Caprini Risk model.
Design: We performed an IRB-approved retrospective cohort study.
Setting: Academic medical institution.
Patients or Participants: Patients who underwent a robotic -assisted total laparoscopic hysterectomy and were admitted for postoperative care with the gynecologic oncology service from January 2019 to May 2020.
Interventions: Patients were stratified into VTE risk categories using the Modified Caprini Risk model. We analyzed VTE prophylaxis received and trends in following recommendations.
Measurements and Main Results: A total of 171 patients met inclusion criteria and were stratified into risk categories – 2 low risk, 42 moderate risk, 45 high risk, 82 high risk with cancer. Intermittent pneumatic compression (IPC) devices were used in 50%, 85.7%, 88.9%, and 90.2% of patients in the low, moderate, high, and high risk with cancer categories. Immediate chemoprophylaxis was used in 45.2%, 40%, and 63.4% of patients in the moderate, high, and high risk with cancer categories. Extended chemoprophylaxis was used in 2.4%, 8.9%, and 9.8% of patients in the moderate, high, and high risk with cancer categories. Patients were more likely to receive immediate and extended chemoprophylaxis with increasing risk (P=.001 and P=.02).
Conclusion: Our analyses indicate we appropriately utilize IPC devices with the majority of minimally invasive hysterectomies on the gynecologic oncology service. However, identification of high-risk patients and use of pharmacologic interventions to prevent VTE are lacking. These findings highlight an opportunity for a quality improvement initiative on perioperative VTE prophylaxis.

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Evaluation of Resident Training in Preoperative Assessment for Gynecologic Surgery

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Study Objective: The goal of this study is to assess, teach, and re-evaluate the knowledge of Obstetrics and Gynecology residents in regard to preoperative assessment and planning for gynecologic surgery patients.
Design: Obstetrics and gynecology residents participated in a didactic series of three lectures. There was a four-week separation in between each lecture. Residents each completed a pre-didactic assessment and survey prior to the lecture series and then completed a post-didactic assessment and survey two to four weeks after completion of lecture series.
Setting: Academic medical center.
Patients or Participants: 21 Obstetrics and Gynecology residents, spread between four years of training.
Interventions: Participation in up to three lectures on the topic of preoperative assessment and planning.
Measurements and Main Results: Pre- and post-didactic assessments comparative mean analysis was calculated for the entire cohort and per residency class. Weighted score improvement per assessment question was also calculated. Pre- and post-didactic surveys contained four questions identified as "golden questions," focused on residents' self-assessment pertaining to comfort in the area of preoperative planning and interest level on the topic. "Golden question" responses were assessed and comparative mean analysis was calculated for the entire cohort, as well as per residency class.
Total mean assessment score increased by 15.8%. Mean assessment score increased most with the second-year residents. Total mean "Golden Questions" score increased by 30.2%. Improvement of mean "Golden Questions" score was greatest in the first-year residents. Regression analysis showed a statistically significant (p=0.05) negative association between year of training and percent increase in "Golden Questions" score.
Conclusion: There were noted deficits in resident knowledge in the area of preoperative assessment and management of gynecologic patients. Structured didactic increased knowledge of, familiarity with, and importance placed on preoperative concepts. Baseline comfort with preoperative evaluation and management increases with year of training.

6681

Evaluation of Sentinel Lymph Node Sampling in Complex Atypical Hyperplasia

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Study Objective: Primary objective - to evaluate safety and efficacy of sentinel lymph node (SLN) sampling during robot assisted total laparoscopic hysterectomy and bilateral salpingo-oophorectomy (TLH/BSO) of patients with complex atypical hyperplasia (CAH). Secondary objective - to determine the risk of endometrial carcinoma in patients with preoperative diagnosis of CAH.
Design: Retrospective chart review performed from May 2012 to February 2020 of CAH patients who underwent TLH/BSO. Demographic data, operative data, histopathology, SLN ultra-staging data collected. Intraoperative and 30-day postoperative complications evaluated using Clavien-Dindo classification.
Setting: Single institution.
Patients or Participants: Inclusion criteria was preoperative diagnosis of CAH, ages 18-90, robotic assisted TLH/BSO. 74 charts reviewed 57 patients included.
Interventions: Of 57 patients, 25 patients underwent SLN sampling under near infra-red light after cervical injection of indocyanine green dye. 32 patients in control group that did not have lymph node sampling.
Measurements and Main Results: Two-sided t-test, Chi squared test and Fisher's exact test used in data analysis. The incidence of cancer was 32/57 (56.1%). Thirteen (52%) patients in SLN group had cancer vs 19 (59.4%) in the control group. The rate of deep (>50%) myometrial invasion in SLN group was 30.8% vs 5.3% in control group (P=0.05). The map rate of SLN was 100% (76% Bilateral, 24% Unilateral). Zero SLN sampled were positive for metastatic disease. 30-day complication rate in SLN group was 0% vs 6.3% in control group (P=0.5). Sixteen (28%) patients had borderline (bordering on carcinoma) pathology on preoperative sampling. Eight (50%) had SLN sampling. Twelve (75%) had a postoperative diagnosis of cancer. There were no identified preoperative risk factors for cancer.
Conclusion: The incidence of endometrial cancer in patients with preoperative diagnosis of CAH was 56%. Zero patients had metastatic disease to SLN. SLN dissection was not associated with more operative time or complications. Patients with a preoperative borderline pathology seem to have a higher risk of cancer.

5727

Excision of Stage IV Endometriosis Extending to the Diaphragm Following Removal of Seven Liters of Peritoneal Fluid

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Study Objective: Educate on procedures for endometriosis removal.
Design: Educational surgical video.
Setting: Patient placed in dorsal lithotomy position, with robot docked initially for excision of lesions in superior abdomen, followed by undocking and repositioning of robot for approach of inferior abdominal cavity and pelvis.
Patients or Participants: Single patient selected following referral from outside hospital system.
Interventions: Robotic-assisted excision of endometriosis throughout abdominal cavity, with complete resection of visible lesions.
Measurements and Main Results: Biopsies of pericardium, right diaphragm, falciform ligament, hepatic lesion, rectum, bladder, right and left pelvic sidewall, and right and left upper abdominal wall positive for endometriosis.
Conclusion: Complete excision of endometriosis has been shown to potentially eradicate disease and should be attempted. Atypical endometriosis can be found throughout the abdominal cavity, which requires proficiency in both anatomy and surgical technique outside of the pelvis.

5731

Expectant Versus Medical Management of Retained Products of Conception after Induced Abortion

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Study Objective: To compare the efficacy of medical management versus expectant management of retained products of conception (RPOC) after first trimester medical abortion.
Design: An open-label randomized controlled trial.
Setting: Academic tertiary-care medical center.
Patients or Participants: A total of 125 women who were diagnosed with RPOC 3 weeks after medical abortion by mifepristone and misoprostol. Sixty-three were allocated to expectant management and 62 to medical management.
Interventions: Recruited women were randomized into either expectant group or medical group (800 mcg misoprostol administered sublingually). RPOC was defined as a thick irregular endometrium (>12 mm) with positive Doppler flow. All women underwent repeat ultrasound scan every 2 weeks after randomization until a maximum of 6 weeks to rule-out persistent RPOC. Women with persistent RPOC at the end of the 6-week follow-up (9 weeks from abortion) were referred to operative hysteroscopy. The primary outcome was the rate of women referred to operative hysteroscopy.
Measurements and Main Results: There were no significant differences in demographic and clinical characteristics including age, BMI, nulliparity, smoking rates and mean gestational age at termination of pregnancy. The rate of women who were referred to operative hysteroscopy due to persistent RPOC was similar between the expectantly and medically managed groups (49.2% vs. 41.9%, respectively, $P = 0.41$). The mean RPOC thickness was similar between the expectant management and medical management groups (15±5.4 mm vs. 15±5.3 mm, respectively, $P = .891$). There was no difference in adverse outcomes between the two groups.
Conclusion: Compared with expectant management, the administration of sublingual misoprostol in women diagnosed with RPOC after first trimester medical abortion does not reduce the need for operative hysteroscopy.

5527

Factors Associated with Burnout Among Minimally Invasive Gynecologic Surgery Fellows (FMIGS) in the Midst of COVID-19

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Study Objective: To assess burnout prevalence and associated factors among FMIGS fellows in the midst of COVID-19.
Design: Cross-sectional survey.
Setting: Online survey.
Patients or Participants: FMIGS fellows, classes of 2021 and 2022.
Interventions: Anonymous survey including the validated Copenhagen Burnout Inventory (CBI).
Measurements and Main Results: 100 FMIGS fellows were invited to participate in the study. Of the 58 fellows with complete CBI survey data, 78% were 30-34 years old, 72% were female, 50% were first year, and 50% were second year fellows.

The mean CBI score was 39.0 (*SD*=14.6), indicating moderate burnout. 22.4% of fellows had scores over 50, indicating high burnout. Personal and work-related burnout were highest, with CBI scores of 47.6 (*SD*=17.0) and 44.8 (*SD*=17.8), respectively. Patient related burnout scores were the lowest, at 23.6 (*SD*=16.7).

With respect to the COVID-19 pandemic, 76% reported a decrease in surgical volume, 43% were assigned to roles outside their typical scope, and 28% experienced inadequate access to personal protective equipment.

Factors associated with burnout included career choice dissatisfaction (Beta=6.3, 95% CI [1.7-10.9], p=0.009), and absence of a positive and respectful work environment (Beta=6.4, 95% CI [1.6-11.1], p=0.01). Fellows who were somewhat satisfied with their career choice scored 12.6 points higher than those who were highly satisfied. Fellows whose work environment was almost never positive and respectful scored 19.1 points higher than those whose work environment was always positive and respectful.

Only one third reported regular individual wellness behaviors: mindfulness (24%), exercise (36%), sleep (31%), recreation (28%); however, these factors were not associated with burnout.

Conclusion: In the midst of the COVID-19 pandemic, fellows had moderate to high personal and work-related burnout, while patient related burnout was low. Individual wellness behaviors were not associated with burnout, while the culture of the work environment was associated with burnout, highlighting the need to look beyond individual behavior in the fight against physician burnout.

6708

Fibroids as a Risk Factor for Deep Vein Thrombosis (DVT) at an Urban Academic Institution: A Retrospective Observational Study

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Study Objective: To assess if and how fibroids increase the risk of developing a DVT, and review how these patients have been managed.

Design: This retrospective observational study reviews the characteristics of fibroids in patients who have been diagnosed with a DVT.

Setting: Urban academic tertiary-care hospital, single institution.

Patients or Participants: Women ages 18 to 65 years old with a diagnosis of a fibroid uterus who had a thrombotic event from January 1, 2012, to December 31, 2019, were reviewed. ICD-10 codes were used to obtain charts of a total of 1293 patients. Of these, 221 met inclusion criteria and 73 underwent full chart review. Their average BMI was 34.5 and average hemoglobin was 10.2.

Interventions: A retrospective observational chart review was completed to assess how patients with a fibroid uterus who had a thrombotic event were managed and the characteristics of these fibroid uteri.

Measurements and Main Results: 100% of the patients (n=73) were diagnosed with a fibroid uterus and lower extremity DVT and/or pulmonary embolism (PE). 66% (n=48) of these thrombotic events were unprovoked. Of those that were provoked, 32% (n=8) were postoperative after a hysterectomy for symptomatic uterine fibroids. Of those patients diagnosed with a thrombotic event subsequently needing surgery for their fibroids, only 24% (n=4) were able to complete their surgery within the first 3 months of the thrombotic event. Characteristics of fibroids in patients with a thrombotic event were as follows: the mean size of the largest fibroid was 6.3cm; the mean uterine volume was 575cc with 64% of the uteri ranging from 100-700cc; 80% had 5 or fewer fibroids with 16% only having one fibroid.

Conclusion: Fibroid uteri may be an independent risk factor for developing a DVT in women ages 18 to 65 years old. These patients should be risk-stratified and appropriate chemoprophylaxis should be considered in an attempt to prevent thrombotic events.

5829

Frozen Pelvis

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Study Objective: To demonstrate that a pelvis is never really frozen in a case of a deep infiltrative endometriosis.

Design: Surgical video of a pelvis completed affected by deep endometriosis with significant anatomical distortion.

Setting: We describe a case of a 37 years-old woman referred to our center complaining of severe dysmenorrhea, dyspareunia and chronic pelvic pain. The patient had no relevant past medical. The pre-operative investigation involved a transvaginal magnetic resonance imaging that showed an infiltrative endometriotic nodule on the paracervix and posterior vaginal fornix, with involvement of the left ovary and a retossigmoid nodule with 4cm of diameter and 8cm from de anal verge. The patient was in clinical treatment with dienogest, without response. We scheduled a surgical procedure for radical eradication of the deep infiltrating endometriosis.

Patients or Participants: One patient with a pelvis completed affected by deep endometriosis with significant anatomical distortion.

Interventions: A step-by-step surgical video, demonstrating a systematic approach in case of deep infiltrating endometriosis, indicating surgical landmarks and a proper technique. It emphasizes mainly the development of the avascular spaces, isolation of the ureteral course, identification of the parametrial ligaments, preservation of the cranial, middle and caudal parts of the hypogastric plexus, performance of retossigmoid resection.

Measurements and Main Results: full and complete excision of all endometriosis lesions and restore of the anatomy.

Conclusion: The main indication for surgical treatment in women with endometriosis is pain and impairment in quality of life and the radical eradication of deep endometriosis is related not only with the relieve of symptoms, but also with the minimization of recurrences. The nerve-sparing technique is considered a feasible, safety and reliability approach and clearly is associated with lower post-operative complication rate and better results in terms of debilitating impairments in neurological functions.

5965

Frozen Pelvis – Stepwise Approach to Multifocal Endometriosis

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Study Objective: To demonstrate the step-by-step approach to the treatment of endometriosis. The idea is to systematize all the steps to make this surgery more reproducible, safe and less time consuming.

Design: Case report for surgical technique and description of the procedure using video.

Setting: Tertiary hospital.

Patients or Participants: A 36-year-old woman with a complaint of metrorrhagia for 2 years. She had one pregnancy with a normal delivery. The patient denied comorbidities and previous surgery. On the bimanual vaginal examination, it was possible to palpate a painful nodule in the retrocervical region as well as bilateral thickening of the uterus sacral ligaments, it was also possible to notice that the uterus had reduced mobility. The vaginal ultrasound described an area of tissue thickening next to the anterior uterus, measuring $1.8 \times 0.7 \times 1.4$cm and another on the posterior measuring $3 \times 1 \times 2.6$cm, determining an

adherent process with the rectosigmoid 10cm from the anal border. It was also visualized a hypoechoic thickening on the anterior wall of the rectosigmoid affecting the external muscle itself and involving 15% of the circumference, measuring 2.7 × 0.6 × 1cm and 12 cm from the anal border. Thickening areas are noted near the distal ileum, measuring about 2 × 1.2 × 1.4cm, with signs of impairment of the distal portion of the cecal appendix.
Interventions: We performed a laparoscopic resection of deep endometriosis with bowel shaving and appendectomy.
Measurements and Main Results: We could restore the pelvic anatomy that was distorted by stage 4 endometriosis with bowel involvement without prejudice to the patient's function.
Conclusion: We should be conservative towards function considering that most patients with endometriosis are young and operate only symptomatic lesions.

5959

Gynecological and Obstetrical Outcomes after Laparoscopic Repair of a Cesarean Scar Defect in a Series of 15 Women

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Study Objective: To evaluate gynecological and obstetrical outcomes, as well as remaining myometrial thickness, after laparoscopic repair of a cesarean scar.
Design: Observational study and retrospective evaluation of the remaining myometrium before and after repair.
Setting: Obstetrics and Gynecology Department in a University hospital.
Patients or Participants: A series of 15 symptomatic women with cesarean scar defects and remaining myometrial thickness of less than 3 mm, according to transvaginal ultrasound scan imaging.
Interventions: Laparoscopic repair of the cesarean scar defect.
Measurements and Main Results: Increase in myometrial thickness at the site of cesarean section, gynecological and obstetrical outcomes. The mean thickness of the myometrium increased significantly from 2mm before surgery to 7mm after surgery. Six months after surgery, all but two patients were free of symptoms. The persistence of intermenstrual bleeding in of one of them required a posterior hysteroscopic correction. Among the 7 women with infertility, 3 (42%) became pregnant and delivered healthy babies by cesarean section at 38–39 weeks of gestation. Two of these pregnancies were obtained spontaneously and the other one was an in vitro fertilization.
Conclusion: In symptomatic women with residual myometrial thickness of less than 3mm who wish to conceive, laparoscopic repair could be considered an appropriate approach.

6174

Hand Assisted Laparoscopic Myomectomy

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Study Objective: To demonstrate the utility of using hand assisted laparoscopic surgery (HALS) for myomectomy of large uterine fibroids in carefully selected patients.
Design: Case series on hand assisted laparoscopic surgery for myomectomy.
Setting: Tertiary Gynecology Hospital in Sydney Australia.
Patients or Participants: Two patients.
1. 37-year-old G1P1 (BMI 20) with a 20 cm FIGO type 7 posterior fundal leiomyoma with pressure symptoms.
2. 41-year-old G4P4 (NVD with BMI 28 with a 13cm FIGO type 3 fibroid with heavy menstrual bleeding.
Both patients desired uterine preservation and proceeded with HALS myomectomy. Both patients had Pelvic MRI with no suspicious features.
Interventions: Preoperative misoprostol and intraoperative vasopressin was used to minimise blood loss. Following laparoscopic entry, a pelvic assessment was performed to confirm the decision to proceed with 5cm suprapubic incision for the HAL port. Myomectomy was facilitated via the HAL port which enabled sharp and blunt dissection under laparoscopic vision. Following myomectomy, fibroids were manually morcellated in bag via the HAL port.
[Pictures illustrating the operative procedure and steps].
Measurements and Main Results: HALS was successfully used in both cases to perform a myomectomy of extremely large uterine fibroids that would have otherwise required midline laparotomy. Access and visualisation of the entire pelvis was enhanced by the presence of a pneumoperitoneum and laparoscopic magnification. Use of the HAL port improved exposure, and traction. Blunt dissection was optimised due to the feedback of tactile sensation with the surgeon's hand enabling faster dissection and enucleation of the fibroids minimising blood loss and reducing operative time.
Conclusion: Conventional laparoscopic surgery can be unsuitable for patients with some large myomoas. Use of HALS has been limited in gynaecological surgery (as opposed to other specialities such as urology and colorectal). This case series demonstrates the benefits of using HALS in carefully selected patients for minimally invasive myomectomy.

5907

Histologic-Proven Recurrence of Endometriosis after Previous Ablation Vs. Excision Surgery

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Study Objective: compare incidence of recurrence of endometriosis after previous ablation or excision surgery for endometriosis.
Design: retrospective study.
Setting: academic medical center.
Patients or Participants: all patients who underwent excision endometriosis surgery from January 2013 to December 2020 who had history of previous ablation or excision surgery for endometriosis either at study institution or outside institution.
Interventions: repeat excision surgery for endometriosis.
Measurements and Main Results: Of the 139 patients that met inclusion criteria, 47 had previous ablation and 92 had previous excision of endometriosis. Differences in baseline characteristics at time of repeat surgery between the two groups included age < 35 (59.6% vs. 41.3%, p=0.04), historical American Society of Reproductive Medicine (ASRM) stage of endometriosis (Stage 1-2: 76.6% vs. 43.5%; Stage 3-4: 23.4% vs. 54.3%, p<0.001), and history of previous hysterectomy (2.1% vs. 14.1%, p=0.026).
Overall, 80.5% of patients were found to have histologic evidence of endometriosis on repeat surgery. For those without versus with recurrence, proportion of nulliparity (59.3% vs. 72.3%, p=.21), interval since prior surgery (mean months 42 vs. 41, p=0.07), number of surgeries for endometriosis prior to surgery of interest (mean 2.5 vs. 1.7, p=0.92), previous

hysterectomy (7.4% vs. 10.7%, p=0.61) and postoperative hormonal suppression (63% vs. 56.2%, p=0.73) did not differ. Overall recurrence did not vary by type of previous surgery (82.9% ablation vs. 79.3% excision). However, for those with previous ASRM stage 1-2, recurrence incidence was higher if ablation was previously performed (84.8% vs. 63%, p=0.04).
Conclusion: Most women pursuing repeat surgery for endometriosis are found to have histologic evidence of endometriosis recurrence. Excision surgery has lower recurrence of endometriosis for patients with lower ASRM stage. Although possible that initial surgery undertreated pre-existing disease, these findings support excision surgery as the preferred surgical approach for treatment of endometriosis.

5858

How Good Is the Surgeon Eye? Evaluating Histopathologic Diagnosis of Endometriosis Compared to Gross Visualization

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Study Objective: Evaluate the sensitivity and specificity of visual diagnosis of superficial endometriosis at the time of laparoscopy via comparison to final histopathologic evaluation.
Design: Prospective clinical study of women with pelvic pain who undergo laparoscopic pelvic peritonectomy for suspected endometriosis.
Setting: Tertiary-care, academic center.
Patients or Participants: All patients undergoing laparoscopic evaluation by high-volume endometriosis surgeons for the identification and excision of suspected endometriosis were screened from November 2020 to March 2021. Inclusion criteria included female patient >18 years old with pelvic pain suspicious for endometriosis and ability to provide informed consent. Exclusion criteria included evidence of deeply infiltrating endometriosis on preoperative deep pelvic ultrasound or identified intraoperatively.
Interventions: 43 patients underwent laparoscopic pelvic peritonectomy for suspected endometriosis and were included in analysis.
Measurements and Main Results: Final histopathologic diagnosis of endometriosis was detected in 32 patients (74.42%) in at least one location in the pelvis. Of the patients with positive histopathology for endometriosis, overall visual sensitivity and positive predictive value (PPV) were 100%. Endometriosis was correctly visually identified on lesions excised from the peritoneum in 100% of left pelvic sidewall, 83.3% of left uterosacral ligament, 75% of right pelvic sidewall, 66.7% of right uterosacral ligament, 81.5% of posterior cul-de-sac, and 71.4% of bladder. Of the patients with negative histopathology for endometriosis, overall visual specificity was 45% and negative predictive value (NPV) was 84%. Visual detection of endometriosis without final histopathologic confirmation was reported for 30% of left pelvic sidewall, 37.5% of left uterosacral ligament, 40% of right pelvic sidewall, 57.1% of right uterosacral ligament, 29% of posterior cul-de-sac, and 54.5% of bladder specimens.
Conclusion: Overall sensitivity, specificity, PPV, and NPV for the visual detection of endometriosis at the time of laparoscopy was 100%, 45%, 100%, and 84% respectively. This suggests a role for complete resection of the peritoneum during evaluation for endometriosis.

5869

How to Manage Cervical Os Postmenopausal Stenosis by Hysteroscopya Safe, Painless and Efective Aproach Office-Based

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Study Objective: Present a feasible, safe, painless, office-based procedure to treat by hysteroscopy cases of cervical OS postmenopausal stenosis.
Design: Systematic approach to all postmenopausal patients in the clinic with cervical stenosis.
Setting: Office-based hysteroscopy with Bettocchi Set, without premedication.
Patients or Participants: 8 Postmenopausal Women with endometrial thickness documented by pelvic ultrasound or MRI & cervical stenosis.
Interventions: Office-based Hysteroscopy, plasty of the cervical internal OS with fine hysteroscopic scissors.
Measurements and Main Results: Pain sensation or discomfort, false pathway trough the cervical canal, achieve the goal to enter the cavity safely.
Conclusion: 8 cases with postmenopausal cervical OS stenosis and need to assess the uterine cavity we could easily and painless perform a safe office-based cervical OS plasty with this systematic approach.

5714

Hyaluronic Acid Gels Versus Estrogen Therapy as Treatments for Reducing Adhesions in Patients Undergoing Hysteroscopic Adhesiolysis

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Study Objective: The purpose of this paper is to analyze studies on medication therapy (preoperative and postoperative estrogen) versus physical barrier application (hyaluronic acid-based gels) in reducing adhesions in patients undergoing hysteroscopic adhesiolysis. We discuss the success of these treatment methods in the context of their safety profiles and reduction of complications such as infertility.
Design: Articles from 2010 to 2020 that provided data specific to hysteroscopic adhesiolysis were compiled through a PubMed search with Boolean logic.
Setting: Dosing of estrogen therapy varied. The American Society for Reproductive Medicine's classification system for intrauterine adhesions (based on extent of involvement in the uterine cavity, menstrual pattern, and type of adhesion) were utilized by the majority of studies.
Patients or Participants: 728 patients were treated with hyaluronic acid gels and 475 patients with estrogen therapy.
Interventions: IUA recurrence rate and severity ratings, menstrual patterns, pregnancy rates, and adverse events from all studies were evaluated alongside aggregate findings with meta-analysis.
Measurements and Main Results: Returning to normal menstrual pattern was more commonly reported with estrogen therapy than with hyaluronic acid gel usage. No major adverse effects were reported for either treatment. Adhesion severity displayed a positive correlation with reduction in adhesion recurrence in the group treated with hyaluronic acid gels and among 5 patients with Asherman's Syndrome who received estrogen therapy as part of their management of a false passage following hysteroscopic adhesiolysis. Neither treatment yielded a significant effect on pregnancy rate.
Conclusion: While both treatments display a positive safety profile, randomized controlled trials with hyaluronic acid gels suggested more favorable outcomes in menstrual pattern and adhesion recurrence. Further research should aim to document all three factors measured in our study. We emphasize the need for data on gravidity and parity as well as concrete dosage amounts of estrogen over numerical ranges for a nuanced investigation of how these new treatments affect post-surgery pregnancy.

5755

Hysterectomy Outcomes Associated with Surgical Time-of-Day

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Study Objective: Literature from various surgical specialties has demonstrated that procedural start time is associated with operative outcomes. Herein, we sought to examine these diurnal associations in benign hysterectomy cases.
Design: Retrospective cohort analysis.
Setting: Five hospital healthcare system.
Patients or Participants: Women undergoing hysterectomy for benign indications from 7/1/2014 to 2/28/2019.
Interventions: Patients were stratified into two cohorts based on time entering the operating room: AM (before noon) and PM (after noon) groups. Demographic, clinical, and perioperative characteristics were collected. We evaluated post-operative outcomes including estimated blood loss (EBL), length of stay (LOS), and adverse perioperative events (blood transfusion, organ injury, conversion to laparotomy, cuff dehiscence, surgical site infection, readmission, reoperation, and death). Additionally, we assessed hospital costs. Statistical analysis included descriptive statistics, t-tests, and multivariate regression models.
Measurements and Main Results: Study included 2894 patients, 1910 AM patients and 984 PM patients. EBL was significantly higher in the PM start time group (mean AM: 181 mL vs mean PM: 218 mL, $p<.001$) whereas same-day discharge was more prevalent in the AM start time group (24.4% vs 12.5%). Multivariate regression models were constructed to evaluate for possible confounding variables: year, age, BMI, race, comorbidities, uterine size, surgical indication, and surgeon subspecialty. These models continued to show significantly increased EBL and LOS in the PM group. There was no association with operative times or adverse perioperative events. Regarding cost, AM start time was associated with increased hospital costs (median AM: $14,055, median PM: $11,725). Multivariate regression models also demonstrated these findings.
Conclusion: Our data suggests surgical outcomes can be associated with surgical time-of-day. While the underlying mechanism remains unclear, utilization of this information can help with surgical planning to personalize risk reduction and increase same-day discharge. Further analysis is underway to elucidate the time-of-day cost discrepancies.

5722

Hysteroscopic Approach to a Morbidly Adherent Placenta in the Postpartum Period

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Study Objective: Morbidly adherent placenta (MAP) is associated with major maternal morbidity and mortality with risk factors most frequently related to previous uterine surgery. In rare occasions, retained products of conception (RPOC) could complicate low risk births or first trimester termination of pregnancy, resulting in abnormal bleeding patterns or infectious morbidity.
We present a case of unsuspected focal (MAP) that was diagnosed two months after a cesarean delivery. Uterine Sparing treatment was accomplished by a 2-stage hysteroscopic resection without complications.
Design: Case Report Video.
Setting: Surgical Suite.
Patients or Participants: A 35-year-old G1 P0 woman had a cesarean delivery at 37 weeks and 4 days due to persistent fetal breech presentation and premature rupture of the membranes. The cesarean delivery was complicated by estimated blood loss of 1019mL with no mention of any precipitating factors. The patient presented with history of prolonged vaginal spotting while on Depot Provera. Office hysteroscopy and Pelvic MRI were utilized for diagnosis and evaluation. Uterine Sparing treatment was accomplished by a 2-stage hysteroscopic resection without complications.
Interventions: 2-stage hysteroscopic resection was performed. The first stage was approached by a mechanical morcellation device that resolved the main bulk of the RPOC. The second stage was approached with a Resectoscopic approach to the deep myometrial nodule that persisted on follow up imaging after the index procedure.
Measurements and Main Results: Complete resection of the RPOC and deep myometrial nodule was accomplished without complication.
Conclusion: Retained products of conception should be considered in the differential diagnosis of patients who present with abnormal uterine bleeding after birth. Treatment can be accomplished with hysteroscopic resection. Resectoscopic approach is more challenging and has a higher risk of uterine perforation yet has the ability to reach the deep-seated lesions. Provider's understanding of the limitations of each method and appropriate referral to an expert surgeon is key for optimal results.

5995

Hysteroscopic Endometrial Resection Sterilization (HERS): Complete Endometrial Resection for Permanent Transcervical Sterilization

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Study Objective: To discuss the concept of hysteroscopic complete resection of the endometrium for permanent transcervical sterilization.
Design: Retrospective review for women ≤ 45 undergoing complete resection of the endometrium.
Setting: Minimally Invasive Gynecologic Surgery private practice.
Patients or Participants: Endometrial resection ablation (ERA) has been offered as a treatment for heavy menstrual bleeding (HMB) at AWHI since 1994. It became apparent ERA results in complete obliteration of the cavity after myometrial fusion, which takes 4-6 months. As a result, women were counseled they could rely on ERA for permanent sterilization after that time. We have offered HERS to women without HMB for over 20 years.
Interventions: Complete resection of the endometrium to 6-8 mm myometrial depth using an operative hysteroscope and wire resecting loop, from interstitial portion of tubes to mid-cervical canal. Many, but not all patients were pretreated to reduce endometrial thickness.
Measurements and Main Results: The AWHI database was queried and 356 patients were identified. It is assumed an unanticipated pregnancy following ERA would be reported, since litigation would likely ensue. To date, no pregnancies have been recorded.
Conclusion: ERA is an established procedure for HMB which results in complete obliteration of the cavity and amenorrhea with no foreign body left in place. HERS can be offered to women without HMB for permanent transcervical sterilization.

6729

Hysteroscopic Resection of an Endocervical Cesarean Scar Fibroid

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Study Objective: To present a case of a hysteroscopic resection of an endocervical fibroid from within a Cesarean scar defect (CSD), also known as an isthmocele.
Design: Video case presentation.
Setting: Operative hysteroscopic procedure performed at an urban, academic surgical center.
Patients or Participants: 37-year-old G4P3013 with a history of 3 prior Cesareans, a hysteroscopic and abdominal myomectomy. For 3 months following a spontaneous abortion, she experienced abnormal uterine bleeding. Saline infusion sonogram and MRI revealed a 2.9 cm anterior endocervical fibroid. Options for management were reviewed. Following a short course of progestins that resulted in persistent intermenstrual spotting, and considering desire for future pregnancy, hysteroscopic resection was subsequently decided.
Interventions: Hysteroscopic myomectomy of CSD myoma.
Measurements and Main Results: Successful hysteroscopic resection and techniques to limit intraoperative and postoperative bleeding are described. Postoperatively, the patient had heavy bleeding in PACU with a quantitative blood loss of 700 mL.
Conclusion: Preoperative, intraoperative, and postoperative considerations for this case are reviewed. Preoperative considerations include adequate counseling, imaging such as MRI, thorough discussion of the risks and understanding of the patient's desires in the event of possible hysterectomy. Intraoperatively, primary prevention of bleeding can be attempted with the use of vasoconstrictive agents for both parametrial and intramyoma instillation to reduce blood flow to the uterus and fibroid. Minimizing the use of electrosurgery may be preferable given the high risk of perforation. Postoperatively, uterotonics are often ineffective at controlling CSD bleeding given the minimal residual myometrium, but antifibrinolytics such as tranexamic acid may be more helpful. If not placed in the operating room under hysteroscopic or ultrasound guidance, an intrauterine Foley balloon can also be inserted postoperatively for tamponade.

6594

Hysteroscopic Tubal Cannulation & Foam Contrast Hydrotubation for the Treatment of Proximal Tubal Occlusion and Tubal Patency Assessment

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Study Objective: To assess the feasibility, benefits and advantages of combining hysteroscopic fallopian tube cannulation with selective foam contrast hydrotubation and pelvic ultrasonography in the treatment of proximal fallopian tube occlusion and simultaneous tubal patency confirmation.
Design: Case Series from September 2020 to March 2021.
Setting: Day case outpatient procedure in a hysteroscopy suite.
Patients or Participants: 10 patients diagnosed with proximal fallopian tube occlusion, desirous of natural fertility and consented for hysteroscopic tubal cannulation and foam contrast hydrotubation and pelvic sonography.
Interventions: Hysteroscopic fallopian tube cannulation, using a vaginoscopic approach under conscious sedation with the patient in the dorsal lithotomy position and under aseptic conditions, selective foam contrast hydrotubation at hysteroscopy simultaneous pelvic ultrasound assessment of tubal patency post procedure.
Measurements and Main Results: 1. Successful Hysteroscopy 2. Successful Tubal Cannulation and foam contrast hydrotubation. 3. Demonstration of tubal patency. 4. Pain Score. 5. Complications. 6 Procedure time 7. Patient convalescence. 8. Pregnancy outcome post procedure.
Conclusion: Outpatient hysteroscopic tubal cannulation with foam contrast hydrotubation in patients with proximal fallopian tube occlusion is a safe, feasible, comfortable method that allows for simultaneous confirmation of tubal patency. The method avoids the need for a simultaneous laparoscopic or radiographic procedure thus saving time and reducing costs.

5677

Hysteroscopy Assisted Suction Curettage for Early Miscarriage: Does It Reduce Rpocn and Postoperative Intrauterine Adhesions?

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Study Objective: To describe the feasibility of hysteroscopy assisted suction curettage for early pregnancy loss and to investigate whether it reduces the rates of retained products of conception (RPOC) and intrauterine adhesions (IUA).
Design: Prospective single-arm cohort study.
Setting: University-affiliated department of Obstetrics and Gynecology.
Patients or Participants: Women admitted for surgical evacuation in cases of early pregnancy loss.
Interventions: Vaginal misoprostol was administered for cervical ripening preoperatively. Under general anesthesia, hysteroscopy was performed to identify the pregnancy's implantation wall, followed by ultrasound-guided suction and curettage directed to the implantation wall, and hysteroscopy to verify uterine cavity emptying. Postoperative IUA were evaluated by follow-up hysteroscopy.
Measurements and Main Results: Identification of the pregnancy's implantation wall on hysteroscopy, and intra- and postoperative complications associated with the procedure. The evaluation of postoperative IUA was limited due to the COVID-19 pandemic restrictions.
Main Results: 40 patients, with early pregnancy loss were studied. In 33 out of 40 cases (82.5%), the implantation wall was clearly visualized on hysteroscopy. In 4 cases, suspected RPOC were diagnosed intraoperatively by hysteroscopy and removed. The histology examination confirmed the presence of RPOC in 3 out of 4 cases. Follow-up office hysteroscopy was performed in 9 women, diagnosing mild IUA in one out of 9 cases. In 15 cases, a new pregnancy was reported at time of follow-up.
Conclusion: Hysteroscopy assisted suction curettage for early pregnancy loss is safe procedure, which allows the identification of the pregnancy's implantation wall in most cases and may reduce the rates of RPOC and IUA. By identification of uterine anomalies, the procedure may offer a potential benefit in terms of reproductive outcomes for hypo-fertile patients.

Registry*:* clinicaltrials.gov #NCT04637373

5616

Impact of Body Mass Index on Clinical and Financial Outcomes of Benign Minimally Invasive Hysterectomy

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Study Objective: To evaluate the impact of obesity on clinical and financial outcomes of minimally invasive hysterectomy (MIH) for benign indications.
Design: This is a retrospective cohort study of women who underwent MIH for benign indications. We obtained demographic, operative, and surgeon characteristics to analyze the impact of obesity on various outcomes by hysterectomy approach including operating room (OR) time, estimated blood loss (EBL), length of stay (LOS), adverse perioperative events, and procedure costs.
Setting: N/A.

Patients or Participants: All women who underwent MIH for benign indications between 2013-2019 at five affiliated hospitals.
Interventions: N/A.
Measurements and Main Results: We identified 2,494 women who underwent MIH for benign indications. Laparoscopic approach was most commonly performed (78.5%) followed by robotic (13.5%) then vaginal (8.0%). Mean total cost was $13,928 (± $5,954), age was 48.04 years (± 9.62), and BMI was 30.13 (± 6.99). OR time and EBL were higher among patients with obesity (BMI 30-39) and highest among patients with class III obesity (BMI > 40) (p<0.001). After stratifying by surgical approach, the impact of class III obesity on OR time was most accentuated among the laparoscopic group (37 min increase, p <.001) and on EBL among the vaginal group (199.2 mL increase, p<.001) compared with normal weight. While class III obesity (BMI > 40) was a significant predictor of hysterectomy charges, patients with obesity (BMI of 30-39) had a lower laparoscopic hysterectomy cost by $702.2 compared with non-obese patients. Logistic regression analysis showed no significant impact of obesity on LOS or occurrence of adverse perioperative events.
Conclusion: Obesity appears to have a significant impact on several clinical and financial outcomes of benign hysterectomy that is approach-dependent and most notable among morbidly obese patients. Increased awareness of this impact should guide gynecologists towards approaches that optimize care of high-risk patients while decreasing procedure costs.

6590
Impact of the COVID-19 Pandemic in the Practice of MIGS in the Philippines

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Study Objective: To establish baseline information on the practice of gynecologic endoscopists amid the COVID-19 pandemic
Design: Online survey was conducted among Fellows of the Philippine Society for Gynecologic Endoscopy (PSGE) from October 3 to October 12, 2020.
Setting: Nationwide.
Patients or Participants: Fellows in practice.
Interventions: Online survey distributed to participants via email.
Measurements and Main Results: The survey consisted of 5 subsections: (1) demographic data, (2) impact of COVID-19 pandemic on MIGS practice, (3) changes of practice during the COVID-19 pandemic, and (4) changes in the conduct of surgery and post-operative care. A frequency distribution table was used to summarize responses.
A total of 119 out of 144 PSGE Fellows participated in the survey. Average age was 53 years old, majority practicing in the National Capital Region, and practicing for more than fifteen years.
Nearly all respondents cancelled surgeries due to the pandemic. As of the time of the survey, only 41% and 68.1% of Fellows had returned to perform laparoscopy and hysteroscopy respectively.
Most respondents noted that their hospital of practice provided protocols for elective surgery. Majority (71.4%) reported reduced surgical staff with 30.6% due to resignation.
Clinical practice saw the shift from face-to-face consults to the use of telemedicine (74.8%). Face masks and shields, and PPE were the top three precautions taken in the clinics, while symptom assessment, temperature screening, and RT-PCR testing were the most common screening procedures prior to surgery. Respondents also preferred laparotomy over laparoscopy (64.7%).
Most of the respondents reported availability of disposable equipment, use of face mask, eye protection, and half or full respirator mask in the operating room.
Conclusion: The findings show that the COVID-19 pandemic markedly disrupted clinical and surgical practice among Fellows across the country. Adaptation of several precautionary measures and screening procedures to reduce the risk of SARS-CoV 2 transmission to patients and healthcare workers were done.

6001
Impacts on Clinical and Surgical Volume after Development of a Gynecology Gender Health Program at a Rural Tertiary Care Center

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Study Objective: To evaluate changes in clinical and surgical volume pre- and post- establishment of a dedicated Gynecology Gender Health Program at a rural academic medical center.
Design: We conducted a retrospective chart review of transgender and gender diverse individuals who sought care and/or underwent gender affirming gynecologic surgery at our institution.
Setting: Rural academic medical center.
Patients or Participants: We included patients who identify as transgender or gender diverse presenting for gender care (including surgery) at the generalist outpatient gynecology clinic from 2017-2018 compared to the dedicated Gynecology Gender Health Program from 2019-2020.
Interventions: A dedicated Gynecology Gender Health Program was started in 2019 providing evidence-based multidisciplinary gender care including minimally invasive gender affirming hysterectomies and other surgeries.
Measurements and Main Results: In this retrospective chart review, we used descriptive statistics to assess total number of patients served (new patients and total encounters) and surgical volume for gender affirming hysterectomies in the two years before and after the creation of a dedicated program. Total patient numbers increased by 3.86 times (from 15 to 58 patients) and new patients per year increased five-fold (from 9 to 46 patients). Hysterectomies performed increased four-fold. Of the 20 surgeries performed over the last two years, 18 were laparoscopic total hysterectomies, while two were vaginal approach. Eighty percent of patients underwent concomitant salpingo-oophorectomy, while two patients underwent concomitant laparoscopic upper vaginectomy.
Conclusion: The development of a Gynecology Gender Health Program has led to an increase in clinical and surgical volume over the last two years, improving access to care for this often medically underserved, rural population. Our data demonstrates demand for specialized care even in rural communities once these programs are established. We anticipate continued growth at our institution, with our primary means of new patient recruitment through word of mouth as well as internet searches.

6446
Implementing FLS Training Protocol for Minimally Invasive GYN Surgery Training

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Study Objective: The number of minimally invasive surgeries required for residents has increased alongside the requirement of passing the Fundamentals of Laparoscopic Surgery (FLS) program for board certification in Obstetrics and Gynecology (OBGYN) programs. Simulation training has been proposed as a method to increase the proficiency of training surgeons; however, no gynecologic simulation models have been validated. We hypothesized that 24-hour access to the FLS trainer would improve the residents' times to complete the standardized FLS tasks and improve first time pass rates, and that increased training time would increase resident confidence.
Design: We performed an observational prospective study. Each resident was timed on the FLS tasks and surveyed to assess confidence each

quarter. We compared first time pass rates of the FLS exam for residents who took the exam prior to having access to the trainer to the first-time pass rates of the residents who did have access to the trainer.
Setting: N/A.
Patients or Participants: 20 residents were enrolled. During the study period, 1 resident left the program.
Interventions: N/A.
Measurements and Main Results: There was no statistical significance between first time pass rates for the FLS exam. Paired t-test was used and found no significant differences in timed task completion or survey question.
Conclusion: Voluntary simulation-based training was not an effective way to improve gynecologic surgical skills during this study. We suspect this to be a result of lack of defined structure, limited free time, and challenges due to the COVID 19 pandemic. There were low compliance rates of the residents using the FLS trainer and no significant improvement in the time required to finish the standardized FLS tasks, first time pass rates on the FLS exam, or resident confidence levels measured by survey results. More research is needed to evaluate barriers to simulation training to improve minimally invasive surgical skills

6617

In-Office Histeroscopic Removal of Intrauterine Device (IUD) during Early Pregnacy. *Step By Step*

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Study Objective: This video aims to demonstrate the step-by-step removal of an intrauterine device during early pregnancy using office hysteroscopy.
Design: Step by step video explaining removal of IUD in office hysteroscopy settings.
Setting: Advanced gynecology laparoscopic and pelvic pain unit.
Patients or Participants: We present a case of a 23-year-old G2P1 with malpositioned Cu-IUD and 9.5 weeks of gestation.
Interventions: We present an intrauterine copper device retrieval in an office hysteroscopy setting. First, we performed transvaginal ultrasound identifying pregnancy location, viability, and exact IUD position. Detailed informed consent assessed risks, benefits, and potential procedure complications. Using Bettocchi-type office hysteroscopy equipment through a vaginoscopy approach and under real ultrasound guidance we got into uterine cavity and visualized the gestational sac. Saline as distention media allowed for the hysteroscope to navigate safely around the gestational sac and provided space for atraumatic IUD removal. Post procedure ultrasound confirmed embryo viability. No tocolytics or antibiotics were prescribed.
Measurements and Main Results: Successful uncomplicated intrauterine device removal in early pregnancy in office hysteroscopic settings.
Conclusion: In situ Intrauterine device during pregnancy represents a risk of abortion and preterm delivery. IUD removal during pregnancy is a safe and feasible procedure when performed by trained and experienced personnel. Office hysteroscopic IUD removal can be performed without anesthesia and with low risks of maternal and fetal complications.

5794

Incidence and Clinical Implications of Placenta Accreta Spectrum (PAS) after Hysteroscopic Treatment for Asherman's Syndrome

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Study Objective: To investigate the incidence of placenta accreta spectrum (PAS), predictors for malplacentation and clinical implications in pregnancies after hysteroscopic treatment for Asherman syndrome.
Design: Retrospective cohort study.
Setting: Minimally invasive gynecologic surgery practice in a community teaching hospital.
Patients or Participants: 355 patients hysteroscopically treated for Asherman's Syndrome 01/01/2015 - 03/01/2019
Interventions: Observational study, retrospectively followed patients after hysteroscopic treatment for Asherman's Syndrome
Measurements and Main Results: Through telephone survey and confirmatory chart review, we identified 97 patients who achieved pregnancy passed the first trimester, following hysteroscopic treatment for Asherman's Syndrome. Among these patients, 23 (23.71%) patients had PAS. History of cesarean section was the only variable statistically significantly associated with having PAS (adjusted OR 4.03, 95% CI 1.31-12.39). PAS was diagnosed antenatally in three patients (13.04%), with patients having placenta previa more likely to be diagnosed ($P<0.01$). Nine patients (39.13%) with PAS required cesarean hysterectomy, which is 9.28% of those whose pregnancy progressed past first trimester. Factors associated with higher risk for cesarean hysterectomy were etiology of Asherman's syndrome (dilation and evacuation after the second trimester pregnancy or postpartum instrumentation, $p<0.01$), invasive placenta (increta or percreta, $p<0.05$) and history of morbidly adherent placenta in previous pregnancies ($p<0.05$). Two patients (8.70%) had uterine rupture, and another two (8.70%) experienced uterine inversion. For 76.19% patients with PAS, there was antenatal documentation on counseling on Asherman's Syndrome as a risk factor for PAS, however only 11 (47.82%) had documented counseling about the possible risk for having a cesarean hysterectomy.
Conclusion: High incidence of PAS and associated morbidity in pregnancies following hysteroscopic treatment for Asherman's Syndrome, together with the low rate of antenatal diagnosis, stresses the importance of clinical awareness, counseling and delivery planning. Clinicians who treat Asherman's Syndrome, including gynecologic surgeons and reproductive endocrinologists, should properly counsel and empower women to be their own advocates.

5790

Incidence, Diagnosis and Treatment of Broad Ligament Fibroids in Women Undergoing Minimally Invasive (MIS) Myomectomy: A Chart Review

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Study Objective: The incidence of broad ligament fibroids is reported to be approximately 1% in the literature, however based on our surgical population, we propose that the incidence is much higher. Broad ligament fibroids are commonly misdiagnosed on preoperative MRI imaging. We aim to determine preoperative imaging characteristics that suggest a diagnosis of broad ligament fibroid. We aim to determine the true incidence of broad ligament fibroids in women undergoing MIS myomectomy at a single institution.
Design: Retrospective chart review was performed to identify preoperative imaging, operative reports, and postoperative data in the acute postoperative period (10 weeks following surgery).
Setting: N/A.
Patients or Participants: Patients were identified for inclusion via review of the surgical schedule during the study period (January 2018 – December 2020). Women ≥18 years-old undergoing MIS myomectomy were eligible for inclusion. 227 patients were identified for inclusion and chart review.
Interventions: N/A.

Measurements and Main Results: A total of 27 (11.9%) patients were identified to have a broad ligament fibroid at the time of surgery. One additional patient was identified in whom the fibroid had significant adhesions to the broad ligament but did not arise from the broad ligament itself. No patients had preoperative imaging correctly identifying the location of the fibroid as within the broad ligament. Complications included pelvic sidewall hematoma (1), thermal colon injury (1), postoperative hypotension (1), incisional hernia (1), readmission for hemoperitoneum (1), reoperation for hemoperitoneum (1), incisional cellulitis (1), and unexpected salpingo-oophorectomy secondary to adhesions (1).
Conclusion: The 11.9% incidence reported here is significantly higher than previously reported. Correct preoperative diagnosis is exceedingly rare, making accurate surgical counseling difficult. A goal of gynecologic imaging should be to identify common characteristics of broad ligament fibroids on MRI imaging because such patients can have increased rates of complications after MIS myomectomy. Accurate imaging and preoperative diagnosis are critical for proper surgical counseling, planning and intraoperative management.

6704

Influence of COVID-19 in Selection of Route of Hysterectomy in Benign Disease

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Study Objective: The objective of this study is to show how prioritizing minimally invasive surgical routes during the COVID 19 allowed our gynecology department to continue performing surgery during operational shutdowns during the pandemic.
Design: This is a retrospective chart review study of all patients who underwent hysterectomy for a benign indication between July 1, 2020, and Feb 28, 2021.
Setting: NA.
Patients or Participants: Charts of all patient's undergoing hysterectomy for benign disease between July 1, 2020, and Feb 28, 2021, were reviewed. Patients were excluded if they underwent hysterectomy for malignancy.
Interventions: Between July 2020 and Feb 2021 out institution experienced two operational shutdowns. The first operational shutdown was July through August 2020 and the second was January through February 2021. During both shutdowns our department had limited operating room availability. During the second shutdown we moved the majority of our minor cases to outpatient ambulatory surgery centers and prioritized cases than could be performed laparoscopically and vaginally.
Measurements and Main Results: During our chart review we collected information including age, race, BMI, route of hysterectomy, comorbidities (including need for transfusion due to abnormal uterine bleeding), length of surgery, estimated blood loss, weight of uterus reported by pathology, length of hospital stay, and complications for all patient undergoing hysterectomy in the between July 1, 2020, and February 28, 2021, at University Hospital.
Conclusion: In conclusion utilization of ambulatory surgery centers for our minor cases and prioritizing vaginal and laparoscopic approach to benign hysterectomy allowed our department to double the number of hysterectomies we were able to perform during our 2nd COVID-19 shutdown.

Route of Hysterectomy	Number of cases 1st COVID Shutdown	Number of cases 2nd COVID Shutdown	P - value
Total	20	40	0.000
Abdominal	2	3	0.756
Laparoscopic	11	22	0.040
Robotic Assisted	4	6	0.652
Vaginal	2	9	0.040

6393

Inpatient/Outpatient Status as a Predictive Factor for Increasing Probability of Mortality for Bilateral Salpingo Oophorectomy Patients

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Study Objective: Previous research has demonstrated the association between a patient's inpatient/outpatient status and improved predicted mortality odds for a wide range of surgical procedures. This study aimed to determine if such a relationship was also present for Bilateral Salpingo Oophorectomy (BSO) patients.
Design: The American College of Surgeons National Surgical Quality Improvement Project (ACS NSQIP) database was queried from 2005 to 2019 to identify any surgical procedure involving a BSO surgery (filtered by inclusion of the term "BSO" in the Principal operative procedure CPT code description). Student unpaired t-tests were used to identify inpatient/outpatient status as an independent risk factor associated with increased estimated probability of mortality. Probability of mortality was developed for all cases based on a logistic regression analysis using the patient's preoperative characteristics as the independent variables.
Setting: N/A.
Patients or Participants: N/A.
Interventions: N/A.
Measurements and Main Results: A total of N=16486 patients undergoing BSO surgeries were identified, with N=370 outpatient procedures and N=16116 inpatient procedures. Overall, 30-day postoperative mortality was 2.65%. Upon conducting a 1-sided student unpaired t-test, inpatient BSO surgeries had a statistically greater estimated probability of mortality than outpatient BSO surgeries ($p = 6.495e^{-12} < 0.001$).
Conclusion: Patients undergoing an outpatient BSO surgery had a statistically lower estimated probability of mortality when compared to patients undergoing an inpatient BSO procedure in documented patient cases from the ACS 2005-2019 NSQIP. This study highlights the potential benefit to manage low risk patients with an elective outpatient BSO procedure over an inpatient procedure to lower their estimated risk of mortality.

5497

Intraoperative Tumor Spill during Minimally Invasive Hysterectomy for Endometrial Cancer: A Survey Study

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Study Objective: Tumor spill during surgical treatment is associated with adverse oncologic outcomes in many solid tumors. However, in minimally invasive hysterectomy for endometrial cancer, intraoperative tumor spill has not been well studied. This study examined surgeon experiences and practice patterns related to intraoperative tumor spill during minimally invasive hysterectomy for endometrial cancer.
Design: This was a cross-sectional survey composed of 20 questions regarding surgeon demographics, surgical practice patterns (fallopian tubal ablation / ligation, intra-uterine manipulator use, and colpotomy approach), and tumor spill experience (uterine perforation with intra-uterine manipulator and tumor exposure during colpotomy).
Setting: An online survey sent to the Society of Gynecologic Oncology members on three separate occasions between December 2020 to January 2021 via SurveyMonkey.
Patients or Participants: Gynecologic oncologists practicing minimally invasive hysterectomy for endometrial cancer in the United States.
Interventions: None.
Measurements and Main Results: A total of 220 results were available for analysis. Nearly half of the responding surgeons completed

subspeciality training >10 years ago (50.5%), and. 74.1% of surgeons had annual surgical volume of >40 cases. The majority of surgeons use an intra-uterine manipulator during minimally invasive hysterectomies for endometrial cancer (90.1%), and 87.2% of the users have experienced uterine perforation with an intra-uterine manipulator. Almost all surgeons perform the colpotomy laparoscopically (95.9%), and nearly 60% of surgeons have experienced tumor spill during colpotomy (59.8%). Nearly 10-15% of surgeons have changed their postoperative therapy as a result of intraoperative uterine perforation (11.8%) or tumor spill (14.5%). Surgeons were found to infrequently ablate or ligate the fallopian tube prior to performing the hysterectomy (14.1%).
Conclusion: This survey study suggests that many surgeons have experienced intraoperative tumor spillage during minimally invasive hysterectomy for endometrial cancer, warranting further studies examining its incidence and impact on survival effect.

6349
Introduction to Transcervical RF Ablation of Myomas
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Study Objective: Introduce surgeons to transcervical RF ablation of myomas.
Design: Instructional video.
Setting: Outpatient operating room.
Patients or Participants: 1 patient undergoing transcervical RF ablation of myomas.
Interventions: Sonata transcervical RF ablation of myoma.
Measurements and Main Results: transcervical RF ablation of myomas is a safe, effective new technology .
Conclusion: Transcervical RF ablation of myomas is an exciting new incisionless technology to address uterine fibroids in select patients.

6629
Investigation of the Association between Surgeon Sex and Ergonomic Strain with Laparoscopic Device Use
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Study Objective: To determine if surgeon sex is associated with amount of grip strength decline with use of 3 advanced energy laparoscopic devices.
Design: Observational cohort study.
Setting: Ergonomic simulation performed at an academic tertiary care site.
Patients or Participants: 20 participants (sex and academic role matched) were recruited from the Department of Obstetrics and Gynecology between 2/2021-3/2021.
Interventions: Anthropometric measurements were collected. Baseline grip strength was measured using a handheld dynamometer. Subjects performed 120-second trials of rapid repetitive use of the LigaSure, HALO PKS, and ENSEAL. Order was randomized with 5 minutes rest between trials. Grip strength at 0, 60, and 120 seconds and after 5 minutes rest was normalized to each participant's baseline grip strength. Participants completed a NASA Raw Task Load Index (RTLX) scale to assess workload for each device.
Measurements and Main Results: Using one-way ANOVA, the intervention was confirmed to result in grip strength decline, with up to 18% loss of grip strength after 120 seconds of exertion and recovery to baseline after rest. Grip strength decline was not significantly dependent on sex or device type using two-way repeated measures ANOVA, although there was a trend towards an effect of device type (p=0.05). Using linear regression, no significant association was found between hand length and grip strength decline. Female and male participants reported similar levels of physical discomfort, muscle fatigue, and RTLX workload for each device. Participants of smaller versus larger glove size reported greater cumulative discomfort (p=0.02) and RTLX workload (p=0.04).
Conclusion: This experiment adequately captured participant grip strength decline over time with laparoscopic device use. No associations between participant sex or hand size and grip strength decline were demonstrated, although participants of smaller glove size reported greater perceived workload. Future evaluation using electromyography in an operating room setting will continue to explore predisposing characteristics to ergonomic strain.

6204
Jain Point: To Study the Efficacy and Safety in Previous Upper Abdominal Scars
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Study Objective: To study the safety of Jain Point, the left lateral port, in previous surgery cases especially upper abdomen scars.
Design: All laparoscopic entries made through the Jain Point, which has already been established to be free of adhesions and data analyzed retrospectively for previous surgery cases, especially scars in upper quadrant of abdomen.
Setting: Tertiary care referral centre.
Patients or Participants: We had 8059 patients enrolled in this study from Jan 2011 to March 2021. A full decade of developing and using this point. 2345 patients had one or multiple previous surgeries out of which 106 were having upper abdomen scars.
Interventions: Jain Point is located is 10-13 cm left and lateral to umbilicus. In all cases, first blind entry of veress needle and 5 mm trocar was made from this point, which continued as main working port throughout the surgery.
Measurements and Main Results: Special emphasis in this study was on entry in patients with upper quadrant surgical scars. We took note of major intra-operative or post-operative complication. Out of 8059, 2345 patients had previous surgeries, single or multiple. 1229 patients had open surgeries and 1116 had combination of laparoscopic and open procedures. 106 patients had upper abdominal scars or extension of long vertical scars. There was no bowel injury in upper abdominal scars, only one injury noted in a transverse scar at level of umbilicus for childhood Koch's. The incidence of bowel injury at Jain point was 0.04%, 1 in 2345 cases. There were no other major complications noted.
Conclusion: In previous upper abdominal scars, where entry is deemed more challenging by conventional non-umbilical, upper abdomen ports, namely Lee Haung and Palmer's, our study suggests Jain Point is a safe alternative being more lateral and lower at para-umbilical position.

6451
Justifying Bilateral Salpingo-Oophorectomy at Hysterectomy: A Large Retrospective Study
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Study Objective: Evaluate proportion of patients with justified bilateral salpingo-oophorectomy (BSO) at hysterectomy based on pathologic diagnosis and determine rate and predictors of avoidable BSO based on preoperative considerations, surgical characteristics and pathologic diagnosis.
Design: Multicenter retrospective analysis.
Setting: 7 Ontario, Canada hospitals (4 academic, 3 community).

Patients or Participants: Patients with concomitant BSO at hysterectomy.
Interventions: All hysterectomies with concomitant BSO from July 2016 to December 2019. Cases by gynecologic oncologists were excluded.
Measurements and Main Results: Demographics, surgical factors, surgeon characteristics and pathologic diagnoses were recorded. BSO was considered justified if pathologic diagnosis was endometriosis or any (pre) malignant diagnosis except for gestational trophoblastic neoplasia or cervical cancer/dysplasia. Criteria for avoidable BSO included: age <51 years, preoperative diagnosis of cervical dysplasia or benign diagnosis other than gender dysphoria, risk reduction or premenstrual dysphoric disorder, absence of intraoperative endometriosis and adhesions, and unjustified final pathology. Those with avoidable BSO were compared to patients with at least one criterion for BSO. Multivariate analyses identified factors most strongly associated with avoidable BSO. During the study period, 4191 hysterectomies were completed with 1422 (33.9%) having concomitant BSO. Final pathologic diagnosis justified BSO in 72.8% (1035/1422). The most common pathologic diagnoses were endometrial cancer (439/1422, 30.6%), endometrial hyperplasia (275/1422, 19.3%) and endometriosis (200/1422, 14.1%). The remaining cases were unjustified, with 42/1422 (3%) BSOs deemed avoidable. Compared to cases with at least one criterion for BSO, avoidable BSOs were more frequently completed by generalists (OR 2.01, 95% CI 1.04 to 4.08, p=0.044) and for preoperative diagnoses of abnormal uterine bleeding (OR 3.75, 95% CI 1.96 to 7.43, p<0.001) and/or fibroids (OR 3.26, 95% CI 1.70 to 6.23, p<0.001).
Conclusion: Final pathologic diagnosis justified most BSOs at hysterectomy. Ovarian preservation may have been possible in 3% of women, underscoring the need to standardize practice with respect to BSO among gynecologic surgeons.

5953
Labia Majora Lift. for Whom? When? How? What Is Next?

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Study Objective: The study aims to present our technique of wedge excision(lifting) labia majora,how the first important step in the sequence of rejuvenating procedures in this area.
Design: prospective cohort study since July 2018.
Setting: A wedge excision technique (fotos and video step by step).
Patients or Participants: The total number of the procedures was 127, including: 78 (65%) combined procedures with labia minora reduction; 51 (40%) combined procedures with skin lightening. A wedge excision technique with subsequent suturing was used (photos and video will be demonstrated) under intravenous or pudendal anesthesia.
Interventions: the aesthetic treatment of labia majora is as relevant and demanded as labia minora enhancement. Our patients notice tissue sagging, laxity, wrinkling and hyperpigmentation in this area and seek its improvement. These goals can be achieved in a number of ways, the most common of which are lipoplasty, treatments with HA fillers and laser-assisted rejuvenation. We believe that surgical treatment of labia majora is of great interest, and it opens opportunities for obtaining predictable aesthetic outcome and higher satisfaction with this procedure in general.
Measurements and Main Results: The mean duration of the procedure was 45 minutes. There were no serious complications. The recovery period lasted 2-3 weeks. Postoperatively, edema was observed in 32 % of cases. There were no cases of hematomas, bleeding, or purulent/septic complications. Antimycotic agents were used.
During the next 1-3 months, additional correction with fillers was used in 20 cases (15%), which was indicative of high satisfaction with the procedure outcome among the majority of the patients and of proper strategy choice in each individual case.
Conclusion: Surgical labia majora lift is a promising technique, which gives long-lasting and, most importantly, predictable outcomes. Good aesthetic results can be obtained using this technique alone or in combination with other rejuvenating procedures. It provides high satisfaction along with low complication rates.

5857
Laparoscopic Abdominal Cerclage: Ensuring the Best Fertility Outcome

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Study Objective: To present the case of a patient undergoing fertility treatment, who required a Laparoscopic Abdominal Cerclage to improve fertility outcome.
Design: Descriptive video of Laparoscopic placement of Benson Cerclage.
Setting: Patient was in lithotomy position during surgery. One umbilical 5 mm port was used for the camera. Two 5 mm accessory ports were placed on both lower quadrants, and a left lateral 5 mm port was placed. A 5 mm Mersilene suture was used and tied with a posterior knot to avoid friction with bladder.
Patients or Participants: Only one patient was selected for this video.
Interventions: A laparoscopic abdominal cerclage (Benson) was placed in a patient with history of cervical cone due to a low-grade intraepithelial lesion at 22 years old. She underwent an IVF cycle due to idiopathic infertility. A frozen embryo was programmed, knowing that a cerclage needed to be placed after 12 weeks gestation. The cerclage (McDonald) was placed on an extremely short cervix (1 cm). She suffered a 2nd trimester loss due to rupture of membranes with *Klebsiella* positive culture. In preparation for next frozen embryo transfer, we recommended placement of an abdominal cerclage via laparoscopy.
Measurements and Main Results: The patient was seen after the laparoscopic procedure, with a vaginal ultrasound confirming the adequate placement of the abdominal cerclage. The patient will undergo frozen embryo transfer in the next months.
Conclusion: Initially, we informed the patient that, due to her gynecologic history, a cerclage was to be placed once a pregnancy reached the first trimester. We explained that given her extremely short cervix, an abdominal cerclage was needed to improve the outcome of her next frozen embryo cycle.

6519
Laparoscopic Approach to Tubal Torsion in the Pregnant Patient

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Study Objective: To highlight the diagnosis and management of fallopian tube torsion and address laparoscopic modifications in pregnancy for patient safety.
Design: Case report.
Setting: Academic based community hospital.
Patients or Participants: 23-year-old multigravida at 18 weeks 5 days gestation presented to the emergency department for intermittent right flank and groin pain. Ultrasound, which confirmed dating, showed possible 5-centimeter hemorrhagic cyst with blood flow, although ovarian torsion could not be excluded. Pelvic magnetic resonance imaging, while unable to visualize the appendix, did reveal a right-sided pelvic mass with surrounding cystic fluid. She was admitted for observation and pain control, but her symptoms continued to worsen.
Interventions: Emergent operative laparoscopy was performed with pregnancy modifications of left lateral tilt, supra-umbilical abdominal entry, and secondary port placement in right upper quadrant. During the procedure, a gravid uterus with normal appearing bilateral ovaries and left fallopian tube was noted. There was a 4-centimeter isolated right fallopian tube torsion. Right salpingectomy was performed without complications for the patient and fetus. Post-operative fetal cardiac activity was confirmed. Surgical pathology noted benign right fallopian tube with hemorrhage.
Measurements and Main Results: Pregnancy is a known risk factor for tubal torsion, with an annual prevalence of 1 in 1.5 million. Presenting symptoms are nonspecific, making diagnosis difficult. Imaging is generally

unreliable; however, an ultrasound may reveal a dilated fallopian tube with absent blood flow. Definitive treatment is surgical detorsion, fixation, or salpingectomy. With pregnancy, surgical considerations such as trocar placement, positioning, equipment selection, and fetal monitoring based on gestational age are important. Medically necessary urgent or emergent surgical treatment should not be delayed.
Conclusion: Fallopian tubal torsion is a rare condition. Surgical treatment with laparoscopy can be safely performed in pregnancy with modifications to overcome the challenges of the unique anatomy and physiology of pregnancy.

6507

Laparoscopic Cystectomy in Pregnancy: Viability in a 9,9 × 7,5 Inches Lesion

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Study Objective: Voluminous ovarian cysts during pregnancy constitute a rare and challenging situation. Minimally invasive techniques can potentially provide safe and effective removal without compromising the fetus. This video demonstrates a case of a 28 years old and 17-week pregnant patient with a 9.9 inches ovarian cyst with thin septae managed by laparoscopy.
Design: This video demonstrates a case of a 28 years old and 17-week pregnant patient with a 9.9 inches ovarian cyst with thin septae managed by laparoscopy. The patient had a prior salpingo oophorectomy and a strong fertility desire. We started evacuating the cyst content, without content spillage to the peritoneal cavity.
Setting: We start with a first entry under direct view in the upper left quadrant with an 11mm trocar millimeters (mm). After retrieving 2.5 gallons of clear fluid liquid, the cyst was kept attached to the abdominal wall until empty, and evaluation of the abdominal cavity was performed. An umbilical 11mm port and 3 other 5mm accessory ports were inserted.
Patients or Participants: Directly selected after analysis of exams and patient's desire.
Interventions: An incision was performed with a monopolar hook and scissors, with a careful dissection of the plane between the cyst wall and a normal ovarian parenchyma. The cyst was completely removed, and a significant amount of this single ovarian tissue was preserved. Total time was 183 min, total blood loss was 150 cc, and the patient was discharged next morning. An ultrasound confirmed fetal vitality before and after surgery.
Measurements and Main Results: Surgery occurred uneventfully with ovarian preservation. The pregnancy was uneventful and a healthy child was born at 38 weeks, weighing 3.6 kilos. The final anatomopathological report consisted of a borderline mucinous tumor, with an intact capsule.
Conclusion: This video demonstrates that laparoscopic cystectomy is feasible for large ovarian cysts, during pregnancy, if oncologic rules are followed.

5974

Laparoscopic Hemostasis and Management of Following Pseudoaneurysm for Inferior Epigastric Artery Injury

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Study Objective: An inferior epigastric artery (IEA) injury may occur during laparoscopic surgery, however the pseudoaneurysm of the IEA is a rare condition. We will report a case of hypovolemic shock due to injury of IEA during surgical drain placement, which was managed successfully with percutaneous coil embolization after a relapse scenario.
Design: A case report.
Setting: Gynecology and Obstetrics department of a general hospital.
Patients or Participants: N/A.
Interventions: A 40-year-old, G0 woman underwent laparoscopic-assisted myomectomy after 4 courses of GnRH agonist for multiple uterine fibroids. The weight of the removed fibroids was 600g and a low-pressure continuous suction drain was placed in the lower left abdomen. The initial postoperative course was uneventful, however the patient presented with hypovolemic shock immediately after the removal of the drain tube which had inadvertently penetrated left IEA on post-operative day 1. Emergency laparoscopy was performed and hemostasis was obtained by compression suture at the distal and proximal areas of the IEA injury site using a straight needle from the abdominal wall. A computed tomography scan on post-operative day 2 revealed a 6mm-pseudoaneurysm arising from the left IEA. This disappeared spontaneously during conservative observation, and the patient was discharged on post-operative day 16. However, two weeks postoperative, an emergency percutaneous coil embolization was needed because of relapse of the pseudoaneurysm. Following this repair surgery no further postoperative relapse or complications were observed.
Measurements and Main Results: N/A.
Conclusion: The IEA is located 4 to 8cm from the midline on average. Direct visualization is preferred, however anatomical landmark of the anterior sacral iliac spine or midline is an alternative technique if visualization is not possible. Pseudoaneurysm may have a risk of subsequent rupture and cause life-threatening bleeding, therefore accurate evaluation and adequate treatments are required for vessel injuries. Coil embolization can be a relatively safe and optimal management for pseudoaneurysm as a minimally invasive procedure.

6093

Laparoscopic Hysterectomy for Uteri >250g: Analysis of Outcomes in a Single Surgery Center

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Study Objective: There is conflicting data regarding the safety of hysterectomy performed on large uteri. This study aims to examine the outcomes of laparoscopic and robotic hysterectomies for large uteri in a referral tertiary academic center.
Design: This is a retrospective chart review study examining surgical characteristics and complications of laparoscopic/robotic hysterectomies performed for large uteri over a year-long period.
Setting: The setting for the study is tertiary academic institution.
Patients or Participants: A total of 67 laparoscopic/robotic hysterectomy cases with final pathological evaluation yielding a specimen weight of >250g were examined.
Interventions: The interventions for the study included laparoscopic/robotic hysterectomy.
Measurements and Main Results: All procedures were completed in a minimally invasive fashion. Patient characteristics included a median BMI of 31.8 (range 21-64). Average pre-operative uterine size was 16.5 weeks. The final specimen weight ranged from 255g to 2825g. The mean procedure time was 195 minutes (SD 69 minutes). Intraoperative complications included three serosal injuries and six vaginal/peroneal lacerations. In 76% of the cases, the uterine artery was ligated at the origin to minimize the blood loss. The estimated blood loss for surgery ranged from 25 to 600cc, with a median blood loss of 150cc. All the specimens were removed vaginally. Morcellation was completed in a contained fashion within a bag. The median post-operative stay in the hospital was 0 days (range 0-2 days). Post operatively, three patients had vaginal cuff dehiscence's with only one patient requiring readmission and reoperation. There were two admissions for post-operative small bowel obstruction vs ileus which were managed conservatively, and one readmission for post-operative pain. Final pathological evaluation of specimens showed leiomyomata in 91% of cases, adenomyosis in 51%, endometriosis in 18%, and malignancy in 1%.
Conclusion: The findings from this study add to existing data confirming that laparoscopic/robotic hysterectomy for large uteri is a feasible surgical approach without compromising patient safety or increasing surgical risks.

6350

Laparoscopic Hysterectomy with Large Posterior or Upper Cervical Myomas

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Study Objective: To present our approach to overcoming surgical challenges of a laparoscopic hysterectomy with a large posterior, upper cervical myoma.
Design: A guided explanation of the surgery using video.
Setting: A university hospital.
Patients or Participants: N/A.
Interventions: A 49-year-old woman with complaints of pelvic pain from a large posterior, upper cervical myoma desired surgical management with minimally invasive hysterectomy. Magnetic resonance imaging showed a 13 × 9 × 8 cm posterior wall myoma distending the cervical canal and displacing the rest of the uterus superiorly. After counseling, she proceeded with a laparoscopic supracervical hysterectomy, bilateral salpingectomy, and cystoscopy. We present key strategies in managing distorted anatomy, minimizing blood loss, and safe dissection of the myoma.
1. Due to the myoma distortion, a uterine manipulator could not be placed. A laparoscopic tenaculum and vaginal sponge stick were used to mobilize the specimen throughout the case.
2. To minimize blood loss, we secured the four main blood supplies to the uterus before starting the myoma dissection.
3. When dissecting the myoma, the goal is to excise all the layers encasing the myoma. We present a systematic method of proper traction, dissecting on the surface of the myoma and frequent anatomical re-orientation to identify the appropriate surgical planes and prevent injury to surrounding structures.
4. It is important to note the close proximity of the myoma to the bladder and ureters. Backfilling the bladder and dissecting out the ureters are helpful strategies to avoid injury.
The specimen was placed in a containment bag and hand morcellated through the umbilicus. The patient was discharged home on postoperative day 0 and recovered without any complications.
Measurements and Main Results: N/A.
Conclusion: Large posterior, upper cervical myomas that distort the lower uterine segment and cervix can be surgically challenging when performing a minimally invasive hysterectomy. We demonstrate applicable techniques and strategies to minimize blood loss and prevent complications.

6659

Laparoscopic Management of Interstitial Ectopic Pregnancy Following Ipsilateral Salpingo-Oophorectomy for Granulosa Cell Tumor

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Study Objective: To describe a unique laparoscopic surgical technique for the management of a highly unusual incidence of interstitial ectopic pregnancy following ipsilateral salpingo-oophorectomy.
Design: Case report
Setting: Patient presented to the emergency room of a community hospital where she was diagnosed with an ectopic pregnancy. She was brought to the operating room where diagnostic laparoscopy confirmed right interstitial ectopic pregnancy with prior surgically removed right ovary and fallopian tube.
Patients or Participants: 34-year-old G4P2012 with history of right ovarian granulosa cell tumor, status post right salpingo-oophorectomy eight months prior, presented with vaginal bleeding and pelvic pain.
Interventions: A unique laparoscopic surgical approach involving blunt dissection of the interstitial pregnancy followed by electrocautery of the implantation site. The patient was followed with serial bHCG levels.
Measurements and Main Results: A minimally invasive approach with laparoscopy was used for the management of the interstitial ectopic pregnancy. The products of conception were grasped through a thin, nearly ruptured serosa and bluntly dissected off the implantation site. The implantation site was then cauterized and two hemostatic agents were applied. There were no complications. The patient was discharged on postoperative day zero. Her postoperative course was uncomplicated. She was followed with serial bHCG levels, which progressively dropped to a negative value without the addition of methotrexate.
Conclusion: Interstitial pregnancy is a rare type of ectopic pregnancy. This already rare occurrence is far more unusual following an ipsilateral salpingo-oophorectomy. Only one other similar case was identified through thorough literature review. Here we describe a unique laparoscopic approach for the management of an interstitial ectopic pregnancy following ipsilateral salpingo-oophorectomy. This particular technique could have benefit compared to more standard technique, such as the wedge resection, because it allows less advanced minimally invasive surgeons to maintain a minimally invasive approach. This approach may also reduce risks to patient by avoiding the addition of methotrexate and deep myometrial incisions.

6030

Laparoscopic Management of Intra-Abdominal Abscess Following Caesarian Section: A Case Report

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Study Objective: To present a case of post cesarean intra-abdominal abscess managed laparoscopically.
Design: A case report.
Setting: A gynecology unit in a tertiary medical center.
Patients or Participants: A 32-year-old patient, with a history of three cesarean sections (CS), was admitted three weeks after her 3rd CS due to abdominal pain. Upon her visit she Presented with pain above uterine scar. Lab showed leukocytosis of 14.3 and elevated CRP (14.66). Ultrasound showed no residual placenta, in front of the uterus a murky finding suggestive of collection of puss. During hospitalization she had several episodes of fever as high as 38.2 degrees Celsius and leukocytosis, as well as pain unresponsive to antibiotics. CT scan demonstrated a large puss collection in the abdominal area, preceding the uterus. An inconsistency in the uterine wall was suspected.
Interventions: Due to these findings, it was decided to surgically intervene. Because the uterus appeared to be rather small and adhered to the abdominal was, it was decided to begin in a laparoscopic approach and if necessary to convert to a laparotomy.
Measurements and Main Results: When entering the abdominal cavity multiple adhesions of the uterus to the abdominal wall were observed in the omental area in general, specifically surrounding the area of the uterine scar. A large puss collection, containing murky fluid, was detected and drained.
The area of the uterine flap was sewn, for proximation the flap to the uterus. An antiadhesion sheet was placed in order to prevent adhesions.
Conclusion: The laparoscopic approach has several advantages over laparotomy in cases of post CS complications: First, a better visualization due to the ability to view the area from several angles. Second, the entrance to the abdomen is not through the prior surgical scar, which is the problem area itself, thus enabling a better vantage point.

5780

Laparoscopic Management of Type 2 Cesarean Scar Pregnancies - Planning and Procedural Execution

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Study Objective: With increasing caesarean deliveries, Caesarean scar pregnancies CSP are also on the rise. We report our experience from successful laparoscopic management of type 2 exogenic CSPs which invades deep, projects into the vesicouterine fold and has the dangerous potential for rupture and massive hemorrhage.
Design: NA.
Setting: tertiary referral center.
Patients or Participants: four women confirmed to have type 2 cesarean scar pregnancy.
Interventions: MRI was done for preoperative planning to clearly define the sac, note dehiscence of scar and adherence of uterine corpus to anterior abdominal wall. This spatial resolution gave a good mental picture. At Laparoscopy, first adhesions are released and round ligaments divided temporarily, giving better access to lower uterine segment for surgery and suturing. Prior to making an incision on the uterus, the complete scar with sac inside is exposed till the anterior cervix. Careful controlled dissection avoids excessive bleeding and staining, which could result in loss of anatomic orientation and even panic. Bilateral uterine artery occlusion and Local injection of vasopressin are interventions used for decreasing bleeding from otherwise highly vascular gravid uterus. After complete resection and removal of the products, Full thickness, equidistant repair of LUS defect is aided by barbed suture. A Hegar's dilator placed in situ during the suturing phase prevents accidental approximation of uterine walls. Here we humbly acknowledge that we have managed laparoscopically one of the most advanced CSP reported so far at 16 weeks gestational age.
Measurements and Main Results: all four women had procedures accomplished laparoscopically, with complete resection of the type 2 CSPs and satisfactory reconstruction of defect, also received the benefits of the minimally invasive surgery such as less pain, less scar and rapid return to work.
Conclusion: Laparoscopy here is proven safe and effective, in view of excellent visualization, complete removal of pathology, good reconstruction of the defect, and should be the choice where facilities exist.

6192

Laparoscopic Management of a Non-Ruptured Ectopic Pregnancy in a Rudimentary Uterine Horn

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Study Objective: To describe the successful laparoscopic management of a non-ruptured ectopic pregnancy with cardiac activity in a rudimentary uterine horn.
Design: Case report.
Setting: Operating room, tertiary care facility.
Patients or Participants: 30-year-old gravida 5, para 1, abortion 3 who presented with a 7-week ectopic pregnancy with cardiac activity in a non-communicating rudimentary uterine horn. Beta hCG level was 22,504 mIU/mL.
Interventions: Laparoscopic exploration revealed a left-sided unicornuate uterus with normal left-sided adnexa, and a right rudimentary horn on a 3 cm stalk enlarged and engorged with ectopic pregnancy. The right fallopian tube was removed up until the level of the rudimentary horn using a vessel sealing device. A barbed suture was then anchored medial to the stalk prior to resection. The stalk of the right rudimentary horn was then desiccated and divided using the vessel-sealing device. Bleeding was noted at the base of the stalk, so the previously anchored barbed suture was then utilized to do a 2-layer laparoscopic closure across the base. The specimen was removed using a tissue extraction bag. Total blood loss was 20cc, and patient was discharged the same day. Pathology confirmed rudimentary horn with myometrial implantation site and chorionic villi consistent with ectopic pregnancy.
Measurements and Main Results: N/A.
Conclusion: This is a unique case of laparoscopic management of a rudimentary uterine horn ectopic pregnancy with cardiac activity. Most cases reported in the literature thus far involve medical management with interval surgery. When immediate surgical management has been described for non-ruptured ectopic pregnancies in rudimentary horns, it has been in cases with lower beta hCG levels and fetuses without cardiac activity. Laparotomy has been a common approach for excision of rudimentary horns, however laparoscopy has been shown to be effective. This case highlights that laparoscopic management of an advanced non-ruptured ectopic pregnancy in a rudimentary horn is safe and feasible.

5811

Laparoscopic Myomectomy Assisted by Hysteroscopy: A Case Report

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Study Objective: To demonstrate the benefits of laparoscopic myomectomy assisted by hysteroscopy to minimize endometrium damage, therefore providing a better fertility outcome.
Design: Case report for surgical technique and description of the procedure using video.
Setting: Tertiary hospital.
Patients or Participants: A 30-year-old nulliparous woman presents with abnormal uterine bleeding and pelvic pain for a year and a half. She previously tried clinical treatment with Tranexamic Acid and Oral Progesterone without symptoms remission. In the physical examination there weren't any irregular findings. The MRI evidenced multiple nodular formations: a 2 cm submucous fibroid on the fundus with cavity distortion and 8mm of myometrial free margin and others intramural and subserous fibroids measuring up to 1.7cm.
Interventions: We performed a diagnostic hysteroscopy to locate the submucous fibroid and used the hysteroscope's pressure and light to guide de surgeon on the laparoscopy towards that fibroid. We did a vertical incision and proceeded to enucleate the fibroid. We also excised other subserous and intramural nodules along the surgery. Uterine suture was done with a 2-0 barbed suture in two layers. We finished the procedure with another diagnostic hysteroscopy to evaluate endometrium damage.
Measurements and Main Results: In the final hysteroscopy we could see little endometrium damage. The patient was discharged on the first postoperative day without significant pain.
Conclusion: We were able to achieve minimal endometrium damage in a Type 2 FIGO staging fibroid, which would not be possible if we had performed a hysteroscopic myomectomy. On the other hand, if we had done only a laparoscopic procedure, we would have had a significant higher degree of difficulty at finding the fibroid due to its deep placement. Therefore, we reached a favorable outcome regarding the surgical approach in resecting a submucous fibroid in a patient with intention of childbearing.

5583

Laparoscopic Myomectomy for 16cm Pedunculated Myoma with Extensive Small and Large Bowel Adhesions Using Honda Lasso Knot

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Study Objective: To describe a technique for laparoscopic loop ligation of a large pedunculated myoma using a Honda knot for hemostasis when attempting myomectomy with massive myoma.
Design: Surgical video detailing indications, evidence, technique and course of a single patient treated with loop myoma ligation.
Setting: Conventional laparoscopy within academic hospital operating room.

Patients or Participants: Single patient.
Interventions: A Honda slipknot was prepared using 0 polyglactin suture. The free end was passed through a laparoscopic trocar and around the myoma base. The Honda knot end was brought into the peritoneal cavity and the free end passed through this loop. This was tightened around the base of the myoma until it blanched.
Measurements and Main Results: We describe a 38-year-old G5P1041 who presented with multiple emergency visits for lower abdominal pain in the month following an 8-week termination of pregnancy. Ultrasound confirmed a 16cm pedunculated myoma and myomatous uterus but no retained products of conception. She was added for laparoscopic myomectomy and D&C after failing endometritis antibiotics and NSAIDs. Laparoscopy revealed extensive small and large bowel adhesions to the 16cm myoma. A Honda knot was placed around the base of the myoma to facilitate a lysis of bowel adhesions in a plane close to the myoma serosa. After injecting vasopressin into the pseudocapsule, laparoscopic myomectomy was completed, and the specimen removed through a 3-cm umbilical incision via manual in-bag morcellation. The patient recovered well after a 600mL intraoperative blood loss and reported resolution of all symptoms at follow-up.
Conclusion: Loop ligature around the base of a pedunculated myoma can aid in hemostasis prior to complex lysis of adhesions and during laparoscopic myomectomy. Hemostatic benefits were previously shown in a small, randomized trial of patients undergoing laparoscopic myomectomy for lesions averaging 5cm.

6399

Laparoscopic Peritoneal Pull through Vaginoplasty with Ovarian Hitching to Facilitate Transvaginal Oocyte Retrieval for Mrkh Syndrome

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Study Objective: Video demonstration of laparoscopic peritoneal pull through vaginoplasty using the midline bands and mobilization of ovaries in the pelvis to facilitate transvaginal oocyte retrieval in a case of MRKH.
Design: Interesting case video.
Setting: Lithotomy.
Patients or Participants: Case of MRKH Syndrome.
Interventions: Laparoscopy.
Bladder and rectum was dissected away from midline band between the Uterine buds.
NeoVagina created vaginally making a U-shaped incision at the perineum. Peritoneal flaps made using the midline band. This band was cut. The vaginal vault opened using a sponge on holder inserted through the neovagina. The right and left peritoneal flaps were pulled down to the introitus to line the anterolateral part of neovagina and stitched at the end, smooth surface facing out. Releasing incisions made around the ureter, to prevent kinking. The rectovaginal peritoneal was brought down and stitched at the introitus to line the posterior surface of vagina. The neoapex made by passing a circumferential suture of the peritoneum. A mould made was inserted in the neovagina.
Ovaries were mobilized into the pelvis and hitched in the POD, after making releasing incisions over the infundibulopelvic and the round ligament to facilitate transvaginal oocyte retrieval.
Measurements and Main Results: Post surgery mould kept for 4 days. A vaginal dilator for 3 to 6 months. Tranvaginal oocyte retrieval planned after 12 weeks. Now 6 weeks post-surgery and can use the vaginal dilator 10 hrs/day.
Conclusion: A peritoneal pull through vaginoplasty can be performed for a case of MRKH using the peritoneum covering the midline band for lining the anterolateral surface of neovagina and rectovaginal peritoneal lining the posterior surface of neovagina. Since this patient needs IVF and surrogacy, the oocyte retrieval in a case of MRKH is a challenge since the ovaries are high at the pelvic brim. The ovaries can be mobilized into the pelvis and a tranvaginal oocyte retrieval can be performed.

6512

Laparoscopic Repair of a Large Cesarean Scar Defect after a Prior T-Incision

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Study Objective: The objective of this video is to demonstrate the feasibility of the laparoscopic repair of a cesarean scar defect after a prior T-incision.
Design: N/A.
Setting: Urban, academic tertiary care hospital.
Patients or Participants: Case report of single patient.
Interventions: Laparoscopic repair large cesarean scar defect.
Measurements and Main Results: N/A.
Conclusion: Laparoscopic cesarean scar defect repair after a prior T-incision is feasible.

6385

Laparoscopic Resection of Deep Infiltrative Endometriosis of the Bowel and Bladder

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Study Objective: To show a systematic approach to perform resection of deep infiltrating endometriosis of the bowel and bladder in the setting of posterior cul-de-sac obliteration and intentional cystotomy creation.
Design: Step-by-step video demonstration of the technique.
Setting: A university tertiary care hospital.
Patients or Participants: A 28-year-old gravida 0 with a history of several years of severe dysmenorrhea, pelvic pain, and dyspareunia. She had been managed with hormonal medical therapy and physical therapy with little improvement in her symptoms. Pelvic ultrasound and MRI was significant for 0.8 × 1 cm rectal nodule located between the posterior wall of the uterus and anterior wall of the rectum, suggestive of deep infiltrating endometriosis.
Interventions: Studies have shown that surgery can improve pain in the context of deep infiltrating endometriosis. Moreover, deep infiltrating endometriosis has been associated with infertility with retrospective and prospective nonrandomized studies showing that resection improves spontaneous conception rates. Laparoscopy with resection of deep infiltrating endometriosis is performed using a conservative fertility sparing endometriosis surgery with bowel discoid resection. Deep infiltrating endometriosis of the bladder is performed with repair of therapeutic cystotomy.
Measurements and Main Results: We describe three phases of deep endometriosis nodule excision. First, opening pelvic avascular spaces, restoring anatomy, and identifying important anatomical structures. Second, resection of deep infiltrative endometriosis lesions with relevant vital structures properly identified and lateralized. Third, ensure integrity of our repair and hemostasis. At postoperative follow up, the patient reported improvement in pain symptoms. She had no bowel or bladder dysfunction postoperatively.
Conclusion: Management of deep infiltrating endometriosis begins in the preoperative period and continues beyond the immediate postoperative period. Appropriate preoperative evaluation, systematic and skilled intra-operative surgical technique, and appropriate postoperative follow up are important steps necessary to perform safe and effective fertility sparing endometriosis surgery.

6500

Laparoscopic Resection of Parasitic Fibroids after Hysterectomy

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Study Objective: The purpose of this video is to demonstrate resection of parasitic fibroids after hysterectomy.
Design: Case Presentation.
Setting: Academic affiliated community hospital.
Patients or Participants: 47yo G3P3 with history of uterine fibroids, status post laparoscopic supracervical hysterectomy and bilateral salpingectomy, who re-presented after eight years with abdominal pain. Review of prior surgical operative report revealed that mechanical morcellation was perform at the left lower quadrant trocar site. On imaging, patient was found to have multiple intra-abdominal masses and a 4 cm abdominal wall mass.
Interventions: Laparoscopic resection of fibroids and radical resection of soft tissue mass
Measurements and Main Results: Intraoperative frozen section and final pathology was consistent with leiomyoma. The patient tolerated the procedure well and was discharged approximately 3 hours after her procedure.
Conclusion: Iatrogenic parasitic leiomyomas can occur after uterine morcellation. This risk is increased if mechanical morcellation is performed. Thorough inspection and washing of the abdominopelvic cavity postoperatively can decrease risk of occurrence.

6342
Laparoscopic Resection of a Non-Communicating, Functional Uterine Horn

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Study Objective: To demonstrate a case of the surgical correction of a unicornuate uterus with a functional non-communicating horn connected by a thick, fibrous band
Design: A brief literature review and case report with demonstration of surgical technique
Setting: Operating Room environment
Patients or Participants: In this video, we explore a case of a post-menarchal 14-year-old patient who presents with severe dysmenorrhea. Imaging findings were consistent with a functional non-communicating uterine horn.
Interventions: Despite medical suppression, the patient required surgery for intractable pain. Indications for surgical management and preoperative considerations are outlined. The necessary preoperative imaging helped to prepare for surgical excision of the non-communicating uterine horn.
Measurements and Main Results: The ideal surgery includes 10 key surgical steps, including proper dissection of the retroperitoneum, use of blood-conserving strategies and delineation of the connecting band. Assessment for and treatment of any endometriosis can ensure optimal symptom management.
Conclusion: By identifying these patients early with appropriate imaging and through meticulous surgical planning, laparoscopic treatment is both possible and restorative.

6403
Laparoscopic Sacrocervicopexy for Uterovaginal Prolapse: Step by Step for Safety and Efficiency

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Study Objective: The purpose of this video is to demonstrate the step by step of laparoscopic sacrocervicopexy for uterovaginal prolapse using a Y-shaped monofilament polypropylene mesh.
Design: Laparoscopic Subtotal hysterectomy is performed. After that, opening of the posterior peritoneum took place on the sacral promontory and was extended under the right uterosacral ligament. The Douglas pouch was then opened, and the rectovaginal plane was exposed. This maneuver was facilitated by the introduction and the relevant movements of a vaginal malleable valve. Dissecting the inter vesicovaginal space, the anterior mesh is on the anterior vaginal apex with two other sutures and the anterior mesh was fixed on the anterior vaginal wall just before the trigone and at the isthmus of the uterus. After that, the posterior mesh was fixed on the posterior vaginal apex with two other sutures and on the posterior vaginal wall. Both sutures with a 2/0 polygalactin suture. Mesh were anchored on the sacral promontory using a 0 polypropylene non absorbable suture on the longitudinal ligament. At the end, full peritonization of the mesh with a 2−0 polyglactin running suture.
Setting: Patient positioned in a Trendelenburg lithotomy position with legs slightly bent. A 10-mm trocar was placed at the umbilicus, two 5-mm trocars were positioned 2 cm above and medially to the anterior superior iliac spine and a third was positioned midway between the umbilicus and the pubic symphysis.
Patients or Participants: One 56 years old female patient with uterovaginal prolapse stage IV.
Interventions: laparoscopic sacrocervicopexy for uterovaginal prolapse with Y-shaped monofilament macroporous polypropylene mesh.
Measurements and Main Results: The laparoscopic sacrocervicopexy can be performed in patient at stage IV uterovaginal prolapse after partial hysterectomy in an efficient way. After the laparoscopic sacrocervicopexy surgery, the patient evolved with correction of the prolapse to stage I.
Conclusion: Laparoscopic surgery allows a good view of the vaginal walls performing this procedure safely and efficiently

5559
Laparoscopic Supra-Cervical Hysterectomy Using Instrument with Wristed Movement

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Study Objective: To demonstrate the use of a novel bipolar surgical grasping device in Laparoscopic Supra-Cervical Hysterectomy (LSH).
Design: A single surgical case is selected.
Setting: Private GYN Surgical practice operating in an ambulatory surgical center.
Patients or Participants: Single patient with menorrhagia requiring LSH.
Interventions: Laparoscopic Supra-Cervical Hysterectomy and Opportunistic Bilateral Salpingectomy are performed in the usual manner with a novel bipolar graspinging device with articulating head. Salpingectomy begins with division of the tube on the broad ligament to the cornua. Two contiguous bites are always taken from medial to lateral prior to transection with endoscopic scissors. The round ligament and utero-ovarian ligament pedicles are coagulated and divided. Dissection proceeds cauded to the area of the ascending branches of the uterine artery. Following retrograde fill of the bladder, the visceral peritoneum of the uterus is divided cephalad to the vesico-uterine plicae. Bladder is reduced on the pubo-cervical-vesical fascia. The cervix is then transected at the cervico-isthmic junction. Hemostasis is achieved at the base of the resection on the cervix. Specimen is delivered en-bloc through a posterior colpotomy. The parietal peritoneum is then sutured intercurrently between infiidibulopelvic ligaments. Copious irrigation and inspection to ensure hemostasis is conducted prior to closure.
Measurements and Main Results: Successful completion of surgery
Conclusion: Laparoscopic grasper / coagulator with articulating head adds to functionality and versatility without need to resort to use of robotics.

6212

Laparoscopic Transverse Abdominis Plane Block

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Study Objective: To describe a technique for laparoscopic application of a transverse abdominis plane (TAP) block.
Design: Video description of a laparoscopic technique in a single patient.
Setting: Standard operating room equipped for laparoscopic procedures.
Patients or Participants: Single patient undergoing total laparoscopic hysterectomy for uterine fibroids and abnormal uterine bleeding.
Interventions: The patient was positioned in lithotomy in Trendelenburg position to allow adequate visualization of pelvic organs. After completion of surgery, a transverse abdominis plane block was performed using 30 ml of a 1:1 mixed solution of 0.25% bupivacaine hydrochloride and 1.3% liposomal bupivacaine injected with a 22-gauge spinal needle in a space between the internal oblique and transversus abdominis muscles. The following landmarks were used to identify the insertion site externally: anterior superior iliac spine and the inferior costal margin at the level of the anterior axillary line. Direct laparoscopic visualization of the injection site was obtained to monitor development of a bulge underneath the peritoneum and transverse abdominis muscle, first by creating a peritoneal blister, followed by a bulge (Doyles bulge). The procedure was repeated in the contralateral side by the assisting surgeon. The total time of procedure is usually 1 minute or less on each side.
Measurements and Main Results: The patient required no opiate analgesia in the immediate postoperative period. Her pain was adequately managed with non-steroidal anti-inflammatory medication. The patient was discharged home the same day of the procedure. During a telephonic follow-up two days after the surgery, patient reported no use of opiates for pain control.
Conclusion: Laparoscopic transverse abdominis plane block is a quick and effective method of postoperative pain control, consistent with ERAS protocols. Further, studies have shown TAP block to provide superior pain relief and reduced opiate use in the postoperative period.[1, 2.]

6095

Laparoscopic Tubal Reanastamosis

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Study Objective: We aim to demonstrate a laparoscopic technique for tubal reanastomosis. We include two patients who have undergone bilateral tubal ligation, in addition to demonstrating modifications to the surgical approach based on intraoperative findings.
Design: Video presentation of a laparoscopic tubal reanastomosis technique.
Setting: Academic medical center.
Patients or Participants: The first patient is a 41yo G3P1021 who had undergone bilateral tubal ligation with falope rings. The second patient is a 36yo G3P1021 who had previously undergone bilateral tubal ligation with fulguration. Both patients desired reversal of tubal ligation for future fertility.
Interventions: The steps of a laparoscopic tubal reanastomosis are described in this video. The procedure includes performing a diagnostic laparoscopy. Next, the portion of the proximal tube is transected with cold scissors until healthy tissue is exposed. Subsequently, chromopertubation is performed to ensure proximal patency. The most proximal portion of the distal tube is then transected to expose healthy tissue. The proximal tube is then sutured to the distal tube at 4 cardinal points using 4-0 or 5-0 vicryl suture. Repeat chromopertubation is then performed to confirm tubal patency. The first patient demonstrates the technique for laparoscopic tubal reanastomosis, while the second patient displays modifications for potential complications, such as proximal tubal occlusion and a broad ligament defect.
Measurements and Main Results: N/A.
Conclusion: Laparoscopic tubal reanastomosis is a minimally invasive surgical option for patients that wish to conceive after a prior tubal ligation and desire an alternative to IVF. The goal is to remove abnormal tissue from the prior sterilization and reapproximate healthy tubal remnants to establish tubal patency and achieve another chance at spontaneous conception. We demonstrate a technique for laparoscopic tubal reanastomosis, as well as intraoperative modifications for potential complications.

6583

Leakage-Proof, Single-Incision Laparoscopic Ovarian Cystectomy for Huge Ovarian Masses: "Hybrid Cystectomy and Reimplantation" Method

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Study Objective: To introduce a new technique for fast leakage-proof, ovarian tissue-preserving surgical technique of intraumbilical, single-incision laparoscopic ovarian cystectomy for huge ovarian masses (>10 cm) regardless of mass content or accessibility.
Design: Retrospective study.
Setting: University-based hospital.
Patients or Participants: Seven consecutive, reproductive-aged women, including three adolescents, with huge ovarian masses (>10 cm) (MCT, n=4; endometrioma, n=2; and mucinous cystadenoma, n=1) who underwent transumbilical single-incision ovarian cystectomy with the new "hybrid cystectomy and reimplantation" method between April 2020, and February 2021.
Interventions: 1) Make a 2.0 cm transumbilical single-incision for laparoscopy 2) inspection of the pelvic cavity and placing the mass in laparoscopic endo-bag for cystic content leakage prevention 3) in-bag resection using cold scissors and minimal cauterization of the cystectomy site 4) in-bag tissue extraction 5) rapid extracorporeal cystectomy with traction using long Kelly clamps (without use of electrocautery) on the back-table without limitation of range of motion as in the case of intracorporeal cystectomy 6) re-insertion of the retrieved ovarian cortex intracorporeally 7) intracorporeal suture of the retrieved tissue to the in-situ ovary.
Measurements and Main Results: The mean age was 24.71±6.56 (range 17–37) years and mean maximal diameter was 17.71±2.86 (range 13–22) cm. There was no case of unintended intracorporeal cyst rupture and no need of copious irrigation for washing and suctioning the leaked mass content. The mean total OT was 76.42±6.39 (range 65–85) min, total volume of saline used for irrigation was 814.28±331.35 (range 500–1,500) mL; and EBL was 107.14±47.72 (range 50–200) mL. The time taken for extracorporeal cystectomy at the back-table was 5–10 min. No perioperative complications. All patients except the two endometriosis patients had normal and regular menstruation at the postoperative 3-month follow-up.
Conclusion: Our preliminary findings were encouraging in terms of safety and efficiency of the new method. Future trials need to elucidate the benefits of this method in terms of fertility preservation.

5763

Literature Review of the Use of Transvaginal Ultrasound for Rectovaginal Endometriosis

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Study Objective: To review recent literature in the Journal of Minimally Invasive Gynecology (JMIG), the only peer-reviewed journal dedicated to minimally invasive gynecologic surgery, on the use of transvaginal ultrasound (TVU) in patients with rectovaginal endometriosis (RVE).
Design: An all-content search of "rectovaginal endometriosis transvaginal ultrasound" on JMIG.org.
Setting: JMIG.org.
Patients or Participants: N/A.
Interventions: N/A.
Measurements and Main Results: The search retrieved 135 results of which 56 were from the last five years. Of these, 22 addressed TVU for RVE patients: 16 research articles, 3 abstracts, 2 editorials, and 1 case report. The research articles were assigned Canadian Task Force classifications to evaluate quality. Only 3 reached level II-1 and none reached level I. There was an even mix of prospective, retrospective studies and case reports.
Conclusion: The majority of articles currently cite TVU as first-line imaging in RVE, but more work is needed to harness sonography's potential. The three studies that met the II-1 classification reviewed conditions that improved TVU's accuracy for RVE, e.g., when used with bowel prep.
Presently, use of TVU for RVE is wide-ranging and unstructured. The most common uses include preoperative diagnosis, comparison with different imaging and comparison to histopathology, long-term maintenance and fertility assessment.
Clinician experience and limited collaboration can create variability in ultrasound data. As TVU is more globally accessible than other imaging modalities, training gynecologists in endometriosis ultrasound can improve diagnosis and preoperative planning for RVE patients. Given its lower cost, accessibility, and high sensitivity and specificity for endometriosis, TVU is poised to improve patient outcomes for RVE patients.
This review of recent literature in *JMIG* on TVU for RVE indicates a need for standardized structured imaging reports, guidelines, and support. In keeping with *JMIG*'s mission to improve the quality and safety of healthcare for women through access to minimally invasive surgical options, we must work towards the full potential of ultrasound imaging.

6091

Lost Specimen in the Abdominal Wall: A Novel Approach to Retrieval

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Study Objective: To demonstrate a novel use of the operative hysteroscope to locate a specimen lost in the abdominal wall
Design: Surgical video.
Setting: Operating room.
Patients or Participants: 57-year-old G2P2002 post-menopausal patient with chronic left sided pelvic pain.
Interventions: The patient's pre-operative imaging revealed dilated left pelvic varices. She was counseled and consented for diagnostic laparoscopy with left oophorectomy and opportunistic bilateral salpingectomy. During attempted retrieval of the transected left ovary, the specimen became lodged in the abdominal wall within the left lateral incision and was lost to visualization. We inserted an operative hysteroscope through the left lateral incision to locate the specimen within the abdominal wall. Hysteroscopic graspers were used to grasp and push the specimen back into the peritoneal cavity, where the specimen was divided into small pieces for complete removal.
Measurements and Main Results: A specimen lost in the abdominal wall was located with an operative hysteroscope, retrieved, and successfully removed from the peritoneal cavity.
Conclusion: One of the challenges of laparoscopy is removing larger pathology from small incisions. If faced with a specimen, needle or instrument tip that becomes lodged in the abdominal wall, an operative hysteroscope can provide distension for better visualization and an operative channel for instrumentation to locate the lost items.

6643

Management of Abdominal Pregnancy

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Study Objective: Abdominal pregnancy (AP) accounts for 1-2% of all extrauterine gestations and is associated with 80% perinatal mortality. Despite advancements in antenatal care and imaging, the standard management protocol for AP is not yet established. In this series, we report two cases of interval surgical management of AP following medical treatment.
Design: Case Series.
Setting: Academic institution.
Patients or Participants: Two patients.
Interventions: Pregnancy interruption medically and subsequent surgical removal.
Measurements and Main Results: Case 1
33-year-old P0 with history of uterine fibroids presents with abdominal pain. Imaging demonstrated a 12-week fetus in the rectouterine space. Fetal intracardiac KCl and intra-sac methotrexate were administered with a plan for close outpatient follow up. She re-presented with severe sepsis and underwent emergent surgery for pelvic abscesses.
Case 2
37-year-old P0010 with a prior abdominal myomectomy at 13-weeks' gestation presented for scheduled antenatal ultrasound. AP was identified on the posterior uterine wall. Fetal intracranial digoxin was administered and the patient was followed with serial beta-human chorionic gonadotropin (bHCG). bHCG remained persistently elevated for 6 months and underwent robotic-assisted laparoscopic removal of products of conception.
Conclusion: Abdominal pregnancy is a rare and complex entity which encompasses a broad spectrum of clinical presentations. There is a range of methods described to manage AP with the majority of cases managed by primary surgical intervention. In this series, our cases of AP were initially managed medically, with planned interval surgery in order to decrease morbidity of primary surgical intervention. Possible complications related to AP include intra-abdominal hemorrhage, sepsis, and persistent products of conception. Currently, a consensus regarding the management of AP and related complications does not exist. We recommend a high clinical suspicion, multidisciplinary approach, and strict follow-up in order to optimize maternal outcomes.

6190

Management of Atypical Endometrial Hyperplasia with a Focus on Conservative Treatment

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Study Objective: To compare local management of women diagnosed with atypical endometrial hyperplasia (AH) against RCOG Greentop Guideline No. 67 "Management of endometrial hyperplasia," with specific emphasis on conservative treatment.
Design: An existing database of patients with endometrial pathology from 2012 to 2019 was used to identify 118 cases of AH. Patient demographics, management, and follow up were interrogated.
Setting: NHS Lanarkshire, Scotland (population 655,000).
Patients or Participants: Patient age ranged from 26-83 years with 50% over the age of fifty. 75% of patients were postmenopausal and 90% were overweight (BMI >25).

Interventions: Seventy-eight women (66%) had immediate hysterectomy. Thirty-five women (30%) underwent conservative management and five (4%) were lost to follow up.
Conservative treatment comprised of levonorgestrel-releasing intrauterine system (LNG-IUS) (67%), oral progestogens (18%), GnRH analogues (9%), weight loss alone or no management (6%).
Measurements and Main Results: Follow up biopsy results in the conservative treatment group showed regression in fourteen patients (67%), persistence in five (23%) and progression to endometrial cancer in two (10%). Low rates of progression (12% overall) and persistence were observed overtime alongside continued regression rates.
Eight women (23%) managed conservatively subsequently progressed to hysterectomy. Four of which required surgery due to the development of endometrial carcinoma.
Conclusion: Local management is consistent with current RCOG guidelines with more than half of women proceeding immediately to hysterectomy. The majority of patients managed conservatively had the LNG-IUS, consistent with guidelines. Follow up was appropriate in terms of monitoring and tissue sampling with four cases of endometrial cancer detected. This emphasises the importance of regular monitoring.
Over 90% had an elevated BMI, a known risk factor for developing AH. Literature supports weight loss in improving regression rates in this demographic.
In some cases, an initial conservative approach may allow peri-operative optimisation and risk factor modification which has a role in improving surgical outcomes.

6720

Management of Endometriosis-Associated Ascites

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Study Objective: Non-malignant ascites in a rare, but clinically important, presentation of endometriosis. This video presents an approach to endometriosis-associated ascites.
Design: Surgical video.
Setting: Surgical video.
Patients or Participants: Surgical video.
Interventions: Surgical video.
Measurements and Main Results: We demonstrate two contrasting case presentations, and describe diagnostic, medical and surgical management considerations in this patient population.
Conclusion: We propose a stepwise approach to the diagnosis and initial treatment of endometriosis-associated ascites for clinical application. This algorithm includes pertinent history, investigations including paracentesis and imaging, fertility considerations and targeted surgical management goals to ensure optimal patient care.

5759

Management of Late 1st Trimester Cesarean Scar Ectopic Pregnancy

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Study Objective: To describe the safe surgical management of late 1st trimester cesarean scar ectopic pregnancy.
Design: Case report.
Setting: Academic tertiary care hospital. Patient placed in dorsal lithotomy in Trendelenburg position.
Patients or Participants: 33-year-old G8P4044 presenting with foul smelling discharge and an LMP 10 weeks prior. Her surgical history is notable for 3 prior cesarean sections and laparoscopic right salpingectomy for ectopic pregnancy. Pelvic ultrasound notable for live intrauterine pregnancy measuring 10 weeks 6 days with complete posterior placenta previa and thin myometrium in lower uterine segment concerning for cesarean scar ectopic pregnancy.
Interventions: Patient was diagnosed with cesarean scar ectopic pregnancy by Maternal Fetal Medicine. She underwent preoperative bilateral uterine artery embolization by Interventional Radiology. She underwent total laparoscopic gravid hysterectomy and left salpingectomy with lysis of adhesions by Benign Gynecology.
Measurements and Main Results: Diagnosis and management of cesarean scar ectopic pregnancy often requires multidisciplinary collaboration for safe management. Here, we present a case of a late 1st trimester cesarean scar ectopic pregnancy managed safely with input from Maternal Fetal Medicine, Family Planning, Interventional Radiology and Benign Gynecology teams. We show the diagnosis of cesarean scar ectopic pregnancy through transvaginal ultrasound and discuss management options in the late 1st We then show preoperative bilateral uterine artery embolization. Finally, we show technique for safe lysis of adhesions with relatively low estimated blood loss during laparoscopic total gravid hysterectomy. The final pathology was consistent with intrauterine fetus with placenta accreta. The patient was discharged home on day of surgery without any postoperative complications.
Conclusion: A detailed 1st trimester ultrasound should be considered in patients who are high risk for cesarean scar ectopic pregnancy. Embolization of bilateral uterine arteries prior to gravid hysterectomy can potentially decrease intraoperative blood loss. A multidisciplinary approach is preferred for management of late 1st trimester cesarean scar ectopic pregnancies.

5851

Minimally Invasive Approach to Pelvic Arteriovenous Malformation (AVM) Refractory to Embolization

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Study Objective: To describe a minimally invasive approach to hysterectomy and excision of a pelvic AVM after embolization failed twice.
Design: Case report.
Setting: Single center academic institution.
Patients or Participants: A 33-year-old female presented with chronic pelvic pain after a cesarean section. Ultrasound and CT angiogram showed a left-sided dilated vessel with turbulent flow adjacent to the uterus consistent with pelvic AVM. The AVM persisted despite two embolizations by vascular surgery.
Interventions: Upon abdominal entry, extensive vascularity was noted in the left gonadal vessels, paravesical space, and pararectal space. A 5cm AVM was noted adjacent to the uterus. Each of the multiple blood vessels leading to the AVM, including those to the bladder serosa, were isolated, fulgurized, and cut. Concomitant left ureterolysis was completed. The paravesical space dissection involved separating dense bladder adhesions, left ovarian fossa, external iliac vein and medial umbilical ligament, from the malformation. Blood vessels from the deep sidewall encircling and feeding the AVM were serially fulgurated and separated from the ureter. The ascending branch of the uterine artery on the underside of the AVM was serially fulgurated. Lateral to the ureter, the uterine artery from origin to insertion was unroofed and excised. The AVM was excised by isolating it from the level of the cervix upwards along the pelvic sidewall and uterus. The remainder of the modified radical hysterectomy was uncomplicated.
Measurements and Main Results: Estimated blood loss was 50cc. Total surgical time was 4.5 hours. The postoperative course was uncomplicated. Final pathology was consistent with AVM. At her post-operative appointment, the patient experienced a significant reduction of symptoms.
Conclusion: In the absence of large series or randomized trials, we suggest that robotic-assisted surgery is a valid treatment option for pelvic AVM in the setting of failed embolization.

6002

Minimally Invasive Trachelectomy after Supracervical Hysterectomy

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Study Objective: To review outcomes and perioperative recommendations for supracervical hysterectomy, and to demonstrate a robotic technique for trachelectomy after supracervical hysterectomy.
Design: Educational video.
Setting: Robotic assisted laparoscopic procedure. Patient in dorsal lithotomy position. An EEA Sizer is used vaginally to delineate the cervix.
Patients or Participants: We describe a case of a 74-year-old patient who was referred to our service after undergoing a supracervical hysterectomy with an unexpected diagnosis of carcinosarcoma. Her past medical history includes hypothyroidism and hypertension. An MRI was performed with no evidence of recurrent or metastatic disease in the abdomen or the pelvis. After extensive counseling, she decided to proceed with surgery.
Interventions: Robotic assisted trachelectomy after supracervical hysterectomy was performed. Omental biopsy and removal of vaginal cuff fibrosis was also performed.
Measurements and Main Results: Whether to retain or remove the cervix remains controversial. In this video, an overview of supracervical hysterectomy is described. The supracervical and total laparoscopic hysterectomy techniques are compared regarding future pelvic organ prolapse, sexual and psychologic function, hospital readmission, estimated blood loss, and operative times. A discussion surrounding endocervical ablation as a measure to prevent postoperative bleeding with the supracervical route is included. Additionally, concerns with supracervical hysterectomy including removal of the uterine corpus with potential occult malignancy fragmentation and dissemination are presented. This last point is exemplified by the case presented. The technique for trachelectomy after supracervical hysterectomy is demonstrated.
Conclusion: Endocervical ablation does not seem to decrease postoperative spotting. Patients should be warned about the increased risk of spotting, need for cervical surveillance, and higher rates of reoperation when undergoing supracervical hysterectomy. Surgical technique for trachelectomy after supracervical hysterectomy includes key steps such as delineating the colpotomy site, dissecting the vesicouterine space, and controlling the vascular supply.

5574

Mixed Gonadal Dysgenesis in a Mosaic 45,X / 46,X+Mar (with +SRY/TPSY/DYZ3 genes): A Rare Case Report

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Introduction: Y chromosome-derived material in Turnerś Syndrome patients is a risk factor for the malignant transformation of the dysgenetic gonad and/or virilization. Small fragments of Y chromosome, can be missed by conventional cytogenetics, so PCR techniques for such markers can aid in the identification.
Study Objective: To present a rare case of Gonadal Dysgenesis.
Design: Video case report.
Setting: Laparoscopic approach and complete genetic and histopathological study.
Patients or Participants: 14-year-old female patient with primary amenorrhoea complained after 1 year of clitoris enlargement and deepening of the voice. She had short height, low posterior hairline with low set ears, short neck, cubitus valgus and incipient bilateral breast buds. External gynecologic was unremarkable for an enlarged clítoris. Her karyotype was Mos45,X/46,X,+mar. FISH for Y Chromosome was +, and molecular determination through PCR for specific Y chromosome genes SRY, TSPY and DYZ3 were also +. Lab tests: free testosterone 128 ng/dl (normal 15-70 ng/dl), a normal DHEA-S (64 mcg/dl) and androstenodione (0.5ng/ml).
Interventions: She was counseled for laparoscopic gonadectomy.
Measurements and Main Results: Uterus was hypoplastic. Her left ovary was a 4 cm cystic appearance opaque smooth mass of unusual appearance for a normal ovary. Her right ovary was an underdeveloped ovarian strip. She was discharged on POD 1 Her biopsy showed normal testicular stroma with seminiferous tubules and hyperplasic Leydig cells on the left gonad and normal ovarian tissue on the right gonad.
Conclusion: Of all Turnerś Syndrome patients, only a 2-5% will have a mosaic 45,X/46,XY karyotype. Any TS patient with signs of virilization must be investigated for the presence of Y chromosome genes. If SRY or similar genes are present, surgical removal of the dysgenetic gonads must be done in order to treat virilization and prevent malignant transformation.

6270

Myomectomy Trends in a Population-Based Cohort from 2005-2018

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Study Objective: To analyze trends in operative approach for myomectomy (open vs. minimally invasive myomectomy, MIM), as well as identify patient and facility factors associated with approach.
Design: Population based cohort study.
Setting: All non-VA Facilities in the state of California from 01/01/2005 through 12/31/2018.
Patients or Participants: Women undergoing myomectomy in California from 01/01/2005-12/31/2018 were identified from the Office of Statewide Health Planning and Development datasets using appropriate ICD-9/10 diagnosis codes and CPT procedure codes.
Interventions: Demographics, facility of surgery and surgical approach were identified. Univariate (chi-square, t-test) and Multivariate (logistic regression) associations were explored between the above factors and rates of a minimally invasive (vs. open) approach. Given that the minimally invasive approach was used only rarely prior to 2012, this comparative analysis included only patients who had their surgery after 01/01/2012.
Measurements and Main Results: Of the 71,747 cases of myomectomy identified, 10,708 (14.9%) were MIM. Although the annual number of myomectomies was consistent between years (mean 5,125 annually), there was an increase in MIM (3.7%, 14.7% and 38.9% of cases in years 2005, 2012 and 2018, respectively). Multivariate analysis revealed that, compared to White women, Black and Hispanic women were less likely to have MIM (OR 0.88, $p<0.001$, OR 0.74, 95% CI 0.69-0.79, $p<0.001$ respectively). Compared to the Privately insured, Medicaid payor status was associated with decreased rates of MIM (OR 0.22, $p<0.001$). Surgery at an Academic center was independently associated with higher rates of MIM (OR 1.50, $p<0.001$).
Conclusion: The proportion of myomectomies performed via a minimally invasive approach is increasing. However, certain patient populations (racial minorities, those with Medicaid, and those undergoing care at non-academic facilities) were less likely to undergo MIM. This suggests that disparities in the care for women with fibroid disease exist, and that future efforts need to focus on reducing the lack of access to MIM for underserved populations.

6641

Novel Classification for Douglas Fossa Obliteration in Endometriosis Based on Surgical Anatomy

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Study Objective: The objective of this study was to develop a novel morphological classification for Douglas fossa obliteration in endometriosis.
Design: Retrospective study.
Setting: Nippon Medical School Hospital.
Patients or Participants: 29 patients with endometriosis.
Interventions: On the basis of the recently revealed clinical knowledge of the membrane structure of the Douglas fossa and the anatomical information derived from cadaveric dissection, a hypothetical model of the normal Douglas fossa was established. This was used to examine past surgical videos (n = 29 cases) to evaluate the patterns that exist in Douglas fossa obliteration in endometriosis.
Measurements and Main Results: The recto−vaginal fascia that constitutes the front of the Douglas fossa has a wing-shaped structure, with the upper edge of the wing corresponding to the uterosacral ligaments (USLs). The tip of the wing is bifurcated (a λ-type structure), and the inside is connected to the rectum to form the upper part of the rectal lateral ligament. The outer side comprises the fusion surface between the peritoneum and the underlying ureterohypogastric fascia.
Results: The patterns of the Douglas fossa obliteration could be classified into six types: 1: normal, 2: upper peripheral lesion type, 3: lateral displacement type (right or left), 4: forward displacement type, 5: median elevation type, and 6: diffuse median elevation type (frozen pelvis); furthermore, in terms of proportions, there were 2 (7%), 8 (28%), 6 (20%), 1 (3%), 7 (24%), and 6 (21%) cases of each type, respectively. In the median elevation type, the left and right USLs and lateral ligaments were extremely shortened, the uterus and rectum were completely attached, and the Douglas fossa was completely closed.
Conclusion: The cases that showed complete occlusion of the Douglas fossa were either the median elevation type or the diffuse median elevation type.

6457

Oophoropexy for Prevention of Recurrent Torsion of Normal Adnexa

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Study Objective: The conservative management of otherwise normal adnexal torsion by de-torsion may lead to recurrent torsion events. With the aim of reducing recurrent torsion events, various oophoropexy techniques have been suggested. We aimed to investigate the efficacy of oophoropexy in preventing recurrent torsion.
Design: Retrospective cohort study.
Setting: University affiliated department of Obstetrics and Gynecology.
Patients or Participants: Cases of oophoropexy operated between January 2010 and March 2021.
Interventions: Laparoscopic oophoropexy techniques (plication of the utero-ovarian ligament and/or fixation to the round ligament), using non-absorbable sutures.
Measurements and Main Results: 15 patients with recurrent torsion of otherwise normal adnexa who underwent oophoropexy were identified. At time of the first torsion event, the mean patients' age was 18.3 ± 7.4 years, and 4 (26.7%) were pre-menarchal. The recurrent torsion involved the right adnexa in 9 (60.0%) cases, the left adnexa in 4 (26.7%) cases, and both adnexa in 2 (13.3%) cases. The mean interval between the first and second torsion events was 17.8 ± 20.2 months. In 3 (20.0%) cases, no recurrence occurred following oophoropexy, while in the remaining 12 (80.0%) cases, up to 4 recurrences were diagnosed.
Conclusion: Laparoscopic oophoropexy procedures, although feasible and safe, may not prevent recurrent torsion of otherwise normal adnexa.

6247

Operative Planning for Pelvic Floor Disorders: Comparing Treatment Plans during a Telehealth Visit and an in-Person Visit

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Study Objective: To compare the treatment plan proposed at a new patient Telehealth consultation to a subsequent plan proposed after an in-person examination. Secondary objectives were to assess concordance of patient self-assessment of prolapse during Telehealth visit with provider assessment of prolapse via Pelvic Organ Prolapse-Quantification (POP-Q) examination during in-office visit and to calculate sensitivity and specificity of Pelvic Floor Distress Inventory-20 (PFDI-20) question number three responses with patient self-assessment of prolapse and POP-Q stage.
Design: Retrospective cohort analysis.
Setting: Telehealth new patient visits with in-person follow up.
Patients or Participants: Women presenting for new patient consultation via Telehealth visit who had in-person follow up with examination.
Interventions: N/A.
Measurements and Main Results: The primary outcome was concordance of treatment plans, either non-surgical or surgical, after Telehealth visit versus in-person follow-up examination. Secondary outcomes included patient demographics, comparison of patient self-assessment of prolapse stage to POP-Q stage noted on exam, and comparison of PFDI-20 question number three score to patient self-assessment of prolapse and provider assessment of prolapse.
Between April 01, 2020, through October 31, of 2020, 100 patients completed a new patient Telehealth consultation visit and an in-person follow up examination. After the Telehealth consultation, 43% of patients elected to have non-surgical treatment; 57% of patients elected to undergo surgical treatment. After in-person follow-up, 42% versus 58% of women elected to have non-surgical versus surgical treatment. Concordance rates were 79% for non-surgical plans and 86% for surgical plans; overall 83% ($p<0.001$). Ninety-three patients underwent POP-Q examination and self-assessment was accurate for 48/93 patients (51.7%, $p<0.01$). The sensitivity and specificity for an affirmative response to vaginal bulge symptoms with Stage II prolapse or higher on patient self-assessment was 90.5% and 65.4% and on POP-Q examination 88.9% and 61.9% respectively.
Conclusion: Telemedicine consultations offer a feasible modality for creation of non-surgical and surgical treatment plans for women with pelvic floor disorders.

6181

Optimizing Robotic Simulation Training Among Obstetrics and Gynecology (OBGYN) Residents: A Randomized Pilot Study

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Study Objective: To assess the efficacy of an accelerated robotic simulation protocol in reducing repetitions needed to achieve training proficiency among OBGYN residents.
Design: Randomized controlled trial.
Setting: University teaching hospital.
Patients or Participants: Fifteen robotic-naïve OBGYN residents from post-graduate years 1 to 4 were randomized to one of two pathways. Of those, thirteen completed the study.

Interventions: Residents were randomized into either the Express (accelerated) Pathway to Proficiency (EPP) or the Basic (conventional) Pathway to Proficiency (BPP) Protocols for training on the da Vinci Skills Simulator. As chosen by an expert robotic surgeon, the BPP training exercises consisted of Sea Spike (SS) 1 and 2, Energy Pedal (EnP) 1 and 2, and Ring Rollercoaster (RR) 1 and 3, while the EPP intervention group trained on the highest level of each exercise, specifically SS 2, EnP 2, and RR 3. The residents performed each exercise until they reached a proficiency level of 80%. The primary outcome was the number of repetitions required to achieve proficiency for each training exercise. Transfer of the acquired skills to one non-practiced exercise, Vessel Energy Dissection (VED), was assessed as the secondary outcome.
Measurements and Main Results: Participants in the EPP group acquired proficiency significantly faster (fewer repetitions required) in the EnP exercise (2.00±0.58 [EPP] vs 3.17±0.41 [BPP], p=0.002). The number of repetitions needed to acquire proficiency for SS (17.29±15.06 reps [EPP] vs 17.50±5.17 reps [BPP], p=0.97) and RR (19.14±15.22 reps [EPP] vs 21.00±13.83 reps [BPP], p=0.82) was similar between groups. There was no significant difference between the two groups with VED (p=0.98).
Conclusion: The EPP protocol, consisting of fewer training exercises, was not shown to be inferior to the BPP protocol. Our study suggests residents can train on the EPP Protocol without significant difference in acquisition and transfer of skills. Further research into this novel accelerated training protocol is warranted as an alternative to conventional training.

6062

Outcomes Using Hysteroscopic Morcellator for Evacuating Products of Conception after Missed Abortion

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Study Objective: To determine whether hysteroscopic morcellation is safe and effective in evacuating missed abortions.
Design: Retrospective review of Prospectively Maintained Database.
Setting: Office and operating room (OR).
Patients or Participants: Women undergoing hysteroscopic morcellation to treat missed abortion (<12 weeks) from May 2019 through February 2021.
Interventions: Hysteroscopic evacuation of products with chromosomal analysis. Post-operative evaluation of uterine cavity with saline-infused sonohysterogram (SIS).
Measurements and Main Results: Forty-five (45) patients underwent hysteroscopic morcellation. The mean age was 35.6 years (range 26- 48 years), mean gravida 2.09 (range 1- 8) and mean parity of 0.57 (range 0-6). Sixty two percent (28) were performed in the office under sedation, while thirty eight percent (17) were performed in OR. The mean gestational age was 8 1/7 days (range 5- 11 weeks) with a mean B-hcg of 31,311 (range 1100-149,983). Thirty-one (68.9%) had never undergone an intra-uterine procedure, 6 (13.3%) had a previous suction D&C, 6 (13.3%) had a previous diagnostic hysteroscopy, and 9% had a previous operative hysteroscopy (including 2 patients with more than 1 procedure). Only 3 (6.6%) patients experienced a complication during the procedure and none experienced a post-operative complication. All complications were due to excess fluid absorption (two were given intravenous diuretics and one recovered without intervention). In terms of chromosomal analysis, 21 (46.7%) had a normal karyotype, 18 (40%) had an abnormal karyotype, and 6 (13.3%) had no growth of chromosomes. Thirty-five (77%) patients had a normal SIS within 3 months. Two had abnormal findings on SIS. One underwent hysteroscopic polypectomy and the second underwent hysteroscopy for suspected retained products, but the hysteroscopy was normal. Eight (17.7%) did not undergo SIS, but three were subsequently pregnant.
Conclusion: Hysteroscopic morcellation is safe and effective for treating first trimester miscarriages with a low complication rate, strong ability to evaluate the tissue for chromosomal analysis, and no evidence of intrauterine adhesions post-operatively.

6713

Outcomes of Benign Hysterectomy for Patients with Severe Obesity

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Study Objective: To compare benign hysterectomy outcomes by approach in patients with body mass index (BMI) ≥ 40 kg/m ^{2}.
Design: Retrospective cohort (Canadian Task Force Classification II-2).
Setting: Data from the American College of Surgeons National Surgical Quality Improvement Program from 2015-2019.
Patients or Participants: Women with BMI ≥ 40 kg/m ^{2} undergoing laparoscopic (LH) or abdominal hysterectomy (AH) for benign conditions were identified by CPT code.
Interventions: Preoperative variables and surgical outcomes were evaluated.
Measurements and Main Results: 9610 women with BMI ≥ 40 kg/m ^{2} were identified, of which 78.4% underwent LH and 21.6% underwent AH. White women underwent LH more frequently than Black women (86.6% vs. 65.5%, p>.0001). Over the study period, LH increased (65.6% to 96.3%, p>.0001) and AH decreased (34.4% to 3.7%, p>.0001). The mean uterine weight for AH versus LH was 613.2 ± 808.8, and 212.1 ± 247.1. LH was performed for uterine weight <250g most frequently (86.6%), while for uteri 250-499g the rate decreased to 74.7% and for >500g the rate was 38.9% (p<.0001). The adjusted OR for LH >500g was 0.1 aOR (95% CI [0.1-0.2], p= <.0001). The adjusted odds of wound complications, bleeding/transfusion, and readmission was higher with AH. However, the odds of operative time > 90 minutes was higher with LH.
Conclusion: Women with BMI ≥ 40 kg/m ^{2} are at higher risk of complications with surgery. The rate of LH for these women is lower than women with lower BMI. Uterine weight is the strongest predictor of AH in these women. The odds of complications is lower with LH, even at high uterine weights. Black women with BMI ≥ 40 kg/m ^{2} have lower rates of LH compared to White women.

5988

Outcomes of Operations for Suspected Adnexal Torsion during the COVID-19 Pandemic

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Study Objective: To study the collateral effect of the actions taken to limit the spread of the COVID-19 pandemic by comparing the characteristics and outcomes of women who underwent laparoscopy for suspected adnexal torsion (AT) during the pandemic to pre-pandemic periods.
Design: A retrospective cohort study.
Setting: A tertiary, university affiliated medical center.
Patients or Participants: We included all women who underwent laparoscopy for suspected AT between March 2011 and February 2021. We compared the COVID-19 pandemic period, beginning at the first lockdown in Israel (March 15 2020, to February 8 2021, group 1) to a parallel period in 2019-2020 (group 2) and to a nine years period preceding the pandemic, between 3/2011-2/2020 (group 3).
Interventions: Diagnostic and operative laparoscopy.
Measurements and Main Results: Ninety-seven laparoscopies were performed in group 1, 82 in group 2, and 635 in group 3.
Groups 1 and 2 were comparable in age, obstetrical history, sonographic characteristics of adnexa and clinical presentation. The rate of women presenting following IVF treatment was lower in group 1 [OR 95% CI 0.22

(0.06-0.86), p<0.023]. Time from admission to decision to operate was shorter in group 1 (162 vs. 232 minutes, p=0.028).
In the comparison between groups 1 and 3, baseline characteristics were comparable. The rate of women presenting following IVF treatments was lower [OR 95% CI 0.15 (0.04-0.49), p<0.001], the time from admission to surgery was shorter (544 vs. 748 minutes, p=0.005), and the rate of surgically confirmed AT was lower [59 (60.8%) vs. 455 (71.7%), p=0.030, OR (95% CI) 0.61 (0.39-0.95)] in group 1.
Conclusion: Our data underline differences in the time from admission to surgery during the COVID-19 pandemic, and in the rate of women presenting with suspected AT following IVF treatments. These findings may reflect a change in medical resources during the pandemic.

6490
Outcomes of Robotic Surgery in Morbidly Obese Patients with Endometrial Cancer: A Retrospective Study

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Study Objective: The aim of our study was to evaluate safety and perioperative complications of robotic surgery in the morbidly obese and extremely morbidly obese patient population with endometrial cancer.
Design: Retrospective cohort study.
Setting: Geisinger Medical Center, a tertiary academic care center.
Patients or Participants: A total of 391 women with early-stage endometrial carcinoma undergoing robotic-assisted total laparoscopic hysterectomy between January 2011 to October 2019.
Interventions: Patients underwent robotic-assisted total laparoscopic hysterectomy for surgical staging.
Measurements and Main Results: .
Conclusion: Increasing body mass index (BMI) is associated with longer operative times despite lower yield of lymph node retrieval at the time of surgery. A higher rate of postoperative complications were noted among higher BMI classes, although it did not reach statistical significance.
Table 1: Postoperative complications among four BMI classes

Postoperative complications, n (%)	Total	Class I (n=76)	Class II (n=127)	Class III (n=146)	Class IV (n=42)	p-value
No	351 (89.8)	73 (96.1)	113 (89.0)	130 (89.0)	35 (83.3)	0.15[a]
Yes	40 (10.2)	3 (3.9)	14 (11.0)	16 (11.0)	7 (16.7)	
Port Site Infection	11	1	5	3	2	
Pelvic Abscess	9	0	3	2	0	
Postoperative Ileus	7	2	3	2	0	
Urinary Retention	7	0	2	4	1	
UTI	2	0	1	0	1	
Fever	2	0	0	2	0	
Nerve injury	1	0	0	1	0	
Cuff cellulitis	1	0	0	0	1	
Readmission within 6 weeks, n (%)	18 (4.6)	1 (1.3)	6 (4.7)	7 (4.8)	4 (9.5)	0.24[b]

UTI: Urinary Tract Infection
[a]Chi-Square Test
[b]Fisher's Exact Test

6340
Parametrial Endometriosis: Assessing the Efficacy of the Laparoscopic Nerve-Sparing Ultralateral Resection (LaNSURe) Technique

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Study Objective: Parametrial endometriosis (PE) is specific presentation of deeply infiltrating endometriosis (DIE) that infiltrates the parametria laterally toward the pelvic sidewall. It can affect the levator ani muscles, obturator internus, sacral nerve roots, pudendal and/or the sciatic nerve. These structures are innervated by somatic nerves; therefore, their infiltration produces somatic-type pain, as opposed to the viscaeral pain classically seen in DIE and demands a different surgical strategy. The objective of this study is to characterize the clinical presentation of patients with PE and assess the outcomes of the LaNSURe treatment strategy.
Design: Retrospective-prospective cohort study of patients undergoing a surgical intervention (Canadian Task Force II-3).
Setting: Tertiary Academic Referral Center.
Patients or Participants: Thirty-seven patients who underwent a LaNSURe for treatment of PE.
Interventions: Radical treatment of PE using the LaNSURe technique.
Measurements and Main Results: Visual Analog Scale (VAS) was used to assess minimum, average, and maximum pain. The primary outcome was pain level change from before surgery to the last follow up visit available. Mean follow-up time was 10.05±3.28 months.
Secondary outcomes were the scores of the four validated specific health-related quality of life questionnaires
Pain VAS scores significantly reduced (p<.001) from preoperative to postoperative follow up: average pain from 5.75±1.94 to 2.89±2.53; maximum pain from 7.93±2.16 to 4.50±3.34; and minimum pain from 3.79±2.66 to 1.54±1.79.
McGill Pain Questionnaire improved from 32.08±19.83 to 18.44±15.15 (p=0.01), Pain Catastrophizing Scale from 26.58±14.35 to 13.77±14.91 (p=0.0027), and Pelvic Floor Distress Inventory from 157.81±44.11 to 129.72±37.70 (p=0.017).
Twenty eight out of 37 (75.7%) patients had undergone one or more previous excision surgery, with 67.6% done by an endometriosis specialist, and experienced persistent PE symptoms.
Conclusion: The LaNSURe technique is effective at improving overall pain and quality of life while preserving nerve function in the pelvic floor.

5672
Parasitic Leiomyoma: A Rare Occurrence Following Robotic Hysterectomy

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Study Objective: To highlight the presentation and management of a symptomatic parasitic leiomyoma after a robotic assisted hysterectomy for a multi-fibroid uterus.
Design: Case report.
Setting: Lithotomy, Trendelenburg positioning.
Patients or Participants: C.B. is a 36-year-old G0.
Interventions: Index surgery – Robotic-assisted total laparoscopic hysterectomy and bilateral salpingectomy with mini-laparotomy
1. Robotic-assisted laparoscopic removal of pelvic mass
Measurements and Main Results: C.B. is a 36-year-old G0 who desired definitive management of a symptomatic multi-fibroid uterus. Preoperative ultrasound and MRI displayed an enlarged multi-fibroid 18-week uterus with a dominant 9cm fundal fibroid. Leuprolide acetate was administered for 6 months pre-operatively to reduce the myoma size and anticipated intra-operative blood loss. She underwent a robotic-assisted total laparoscopic hysterectomy and bilateral salpingectomy. A myomectomy was concurrently performed with diathermy to remove an obstructing fibroid for aid in visualization. A mini laparotomy was made to remove the surgical specimen, which was unable to be delivered through vagina. Pathology was benign. C.B. presented one year postoperatively with pelvic pain and bulk symptoms. Her exam was consistent with an adnexal mass and MRI revealed a 6cm pelvic mass. C.B. underwent a robotic-assisted laparoscopic removal of the mass, which was attached to the vaginal cuff. Pathology revealed an infarcted leiomyoma. She followed up postoperatively with complete resolution of her symptoms.

Conclusion: This case highlights a rare occurrence of a parasitic leiomyoma following a hysterectomy. There has been no publication to date describing the occurrence of parasitic myomas after concomitant myomectomy and hysterectomy without morcellation. The authors speculate that seeding of cells during the myomectomy may have been responsible for the development of a parasitic myoma; however, further investigation is needed. This case report also emphasizes the importance of being mindful of the occurrence of parasitic fibroids in a post-hysterectomy patient presenting with pain and pelvic mass.

5542

Patient Characteristics Associated with Access to Minimally Invasive Gynecologic Surgery: Changes during the COVID-19 Pandemic

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Study Objective: To evaluate patient characteristics that affect access to minimally invasive gynecologic surgery (MIGS) and identify changes during the COVID-19 pandemic.
Design: Retrospective cohort study of patients referred to MIGS in 2014-2016 compared to 2020. Demographic and appointment information was abstracted from the electronic medical record. Primary outcome was interval between referral and first appointment.
Setting: Academic, tertiary-care MIGS division.
Patients or Participants: Historical cohort referred to MIGS 2014-2016 (n=1082) and cohort referred during the pandemic (n=770).
Interventions: N/A.
Measurements and Main Results: Demographic characteristics (race, age, language, insurance, employment, socioeconomic factors by census tract) were evaluated for associations with a longer referral interval. Being unemployed and living in an area with lower income, less population density (rural), or less education were associated with referral interval >30 days in 2014-2016 ($p<0.05$). In 2020, only unemployment was associated with referral interval >30 days and new risk factors were: primary language Spanish versus English (OR 2.92, 95% CI: 1.45-5.88) and public insurance versus commercial (OR 1.48, 95% CI: 1.00-2.18). Average referral intervals were significantly shorter in 2020 versus 2014-2016 ($p<0.01$). The odds of waiting >30 days increased by 7% with the addition of one demographic risk factor (95% CI: 1.02-1.11) and 22% for three risk factors (95% CI:1.07-1.38) in 2014-2016 whereas there was no significant association identified in 2020 for one (OR 1.02, 95% CI: 0.97-1.07) or three risk factors (OR 1.05, 95% CI: 0.91-1.22). Telemedicine appointments had a shorter referral interval versus in-person appointments ($p<0.01$). Hispanic and unemployed patients were less likely to have telemedicine appointments ($p<0.01$).
Conclusion: Time from referral to first appointment at a tertiary-care MIGS practice during the COVID-19 pandemic was faster than in 2014-2016. Differences in the prevalence of socioeconomic and demographic factors suggest that telemedicine improved access to care for most patients and decreased access disparities for many vulnerable populations, but not for Spanish-speaking, publicly-insured, or unemployed patients.

6025

Patient Characteristics Associated with Delays to Benign Gynecologic Surgery: Impact of the COVID-19 Pandemic

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Study Objective: To examine how demographic and socioeconomic characteristics impact timing of minimally invasive gynecologic surgery (MIGS) before and during the COVID-19 pandemic.
Design: Retrospective cohort study using electronic medical record data. Primary outcome was interval between referral to MIGS and date of surgery.
Setting: Tertiary-level MIGS division in the southeast US.
Patients or Participants: Historical cohort undergoing surgery with MIGS 2014-2016 (n=377) and cohort in 2020 referred during the pandemic (n=191).
Interventions: Laparoscopic hysterectomy, myomectomy, adnexal surgery, or excision of endometriosis.
Measurements and Main Results: Patient demographics (race, age, marital status, language, insurance, and socioeconomic factors) were evaluated for significant associations with surgical delay. Patients with fibroids and abnormal uterine bleeding had a shorter interval to surgery (median 95 days, range 66-133) compared to patients with chronic pelvic pain (median 127 days, range 73-274). Our model adjusting for surgical indication revealed that single patients were 2.13 times as likely to wait >90 days (95% CI 1.35-3.36) compared to partnered patients prior to the pandemic. Additionally, those in the lowest quartile of median household income (<$42,572 vs > $75,020; OR 2.42, 95% CI 1.32, 4.46) and those from zip codes with the highest proportion of population in poverty (≥ 0.20 vs <0.07; OR 1.93, 95% CI 1.04, 3.6) were more likely to wait > 90 days. However, all of these differences disappeared during the pandemic. There were no differences in time to surgery by race, ethnicity, language, population density, markers of education by zip code, or insurance before or during the pandemic.
Conclusion: Historically, race and socioeconomic factors are associated with decreased access to MIGS and vulnerable populations were disproportionately affected by the COVID-19 pandemic. Despite this, we found decreased time to surgery at our institution, and previous socioeconomic disparities associated with scheduling delays were improved during the pandemic, suggesting improved equitable access to tertiary-level MIGS.

5874

Patient Preferences Regarding Surgical Treatment Methods for Symptomatic Uterine Fibroids

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Study Objective: The purpose of this study is to rank the benefit-risk factors that are most/least important to patients with symptomatic uterine fibroids.
Design: Using a best worst scaling (BWS) preference elicitation approach, eligible, consenting participants completed an online survey to rank factors associated with fibroid treatments. Survey content was based on a literature review and included the following factors: symptom relief; surgical complications; repeat treatment; recovery time; cosmetic effects; risk of cancer; sexual outcomes; maintenance of child-bearing continuation of menses; unpredictable menses; and location of procedure. Participants completed 11 BWS tasks. For each task, we presented participants with a subset of 5 factors from the possible 11, and participants chose the most important and least important factor.
Setting: N/A.
Patients or Participants: 285 women with symptomatic uterine fibroids (69 physician-confirmed and 216 self-reported) who had not undergone prior surgical treatment completed the survey. Participants were enrolled from two clinical sites and an online consumer panel.
Interventions: N/A.
Measurements and Main Results: Each cohort's responses were analyzed using conditional logistic regression to determine the relative importance of factors. Both cohorts identified symptom relief, cancer risk, repeat treatment and complications as the most important factors in selecting treatment options and cosmetic effects like presence of a scar after the treatment, location of treatment, and return to normal activities after surgery, as the least important factors. Of note, younger women (≤ 40) placed greater importance on the ability to have children after the procedure.
Conclusion: Information regarding the factors most and least important to patients with symptomatic uterine fibroids might inform shared-decision making efforts between women and their providers, as well as provide

insights to guide development and evaluation of new technologies and procedures.

5760

Perioperative Outcomes in a Nationwide Sample of Patients Undergoing Surgical Treatment of Ovarian Endometriomas

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Study Objective: Surgery for deep infiltrating and bowel endometriosis involves risks of organ injury, reoperation, and prolonged hospital stay. Surgical outcomes following surgery for ovarian endometriosis (endometrioma, OMA) are currently unknown. The objective of this study was to evaluate perioperative outcomes of premenopausal women undergoing cystectomy or oophorectomy for OMAs compared to other benign ovarian neoplasms.
Design: Retrospective cohort study.
Setting: Vizient Clinical Database, which contains information from 580 participating hospitals across the United States.
Patients or Participants: Patients ages 18-50 who underwent ovarian cystectomy or oophorectomy for benign indications 2010-2020 were identified. OMAs included ICD-9/10 codes for ovarian endometriosis. We excluded patients who received concomitant hysterectomy or obstetric or oncologic care.
Interventions: We abstracted clinical data, including surgical route, length of stay, and 30-day postoperative complication rates. Procedures performed for OMA were compared to other surgical indications.
Measurements and Main Results: We identified 58,874 patients who underwent oophorectomies (10,464 OMAs vs. 48,410 for other indications) and 125,911 ovarian cystectomies (30,058 OMAs vs. 95,853 other). During oophorectomy, patients with OMAs were less likely to undergo minimally invasive surgery (63% vs. 67%, p<0.001) and more likely to require conversion to laparotomy (4.3% vs. 3.4%, p<0.001) and extended hospitalization 2+ days (40% vs. 37%, p<0.001). Among women undergoing cystectomy, conversion to laparotomy (5.3% vs. 3.3%, p<0.001) and readmission (8.5% vs. 7.2%, p<0.001) were more common with OMAs. In multivariable logistic regression, OMA predicted conversion to laparotomy during oophorectomy (aOR 1.3, 95% CI=1.1-1.4) and cystectomy (aOR 1.6, 95% CI=1.5-1.7). Urinary tract injury was infrequent and occurred more often during surgery for indications other than endometriosis (oophorectomy 1.7% vs. 0.95%, cystectomy 0.74% vs. 1.3%, all p<0.001). Bowel injury was exceedingly rare (0.01% of all procedures).
Conclusion: We present population-level data demonstrating that patients undergoing ovarian cystectomy or oophorectomy for endometriomas had higher rates of perioperative adverse events, including conversion to laparotomy, extended hospital stay, and readmission.

5925

Perioperative Outcomes of the New Chopsticks Technique Single-Site Versus Traditional Laparoscopy in the Staging of Endometrial Cancer

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Study Objective: To describe the new"chopsticks technique"single-site laparoscopic surgery technique, and compare the Perioperative outcomes of "chopsticks technique" single-site laparoscopy versus traditional laparoscopy for endometrial cancer.
Design: A retrospective case-control study based on propensity score matching.
Setting: Department of gynecology at a tertiary medical center.
Patients or Participants: From August 2018 to August 2020, a total of 78 patients who accepted the laparoscopic staging of endometrial cancer were retrospectively analyzed. 26 cases conducted "chopsticks technique"single-site laparoscopic surgery(LESS) were matched with a cohort of 52 cases who underwent traditional multi-site laparoscopic surgery (CLS).
Interventions: A propensity score matching was performed to reduce the bias due to the imbalanced baseline features between the two groups and the perioperative outcomes were compared between matched cohorts.
Measurements and Main Results: A retrospective case−control study was conducted matched by age, BMI, history of surgery, FIGO staging. After matching, the variables were well balanced with no differences at baseline between groups. The operations in both groups were successfully completed without conversion to laparotomy. There were no statistically significant differences in the amount of intraoperative blood loss, pelvic lymph nodes, number of para-aortic lymph nodes removed, postoperative exhaust time, postoperative indwelling drainage time, postoperative hospital stay between the two groups (P>0.05). Meanwhile, Compared with the traditional multi-port laparoscopic group CLS, the "chopsticks technique" single-site laparoscopic group (LESS) has longer operation time (197.3± 55.7 vs. 164.7±62.7, p=0.043) , a pain score of 24-hour after surgery (3 (3,2) vs3 (4,2) , p=0.031) and a more satisfactory postoperative cosmetic effect (6.9±0.5 vs. 6.12±0.7, p=0.023) , of which the difference was statistically significant (P <0.05).
Conclusion: It is safe and feasible for staging endometrial cancer to employ the"chopsticks technique"single-site laparoscopic with minimum scars from abdominal incisions, which results in less pain and outstanding cosmetic effects. However, further prospective, randomized studies with larger samples are needed.

6561

Perioperative Use of Pain Medications in Vaginal Versus Laparoscopic Pelvic Organ Prolapse Surgery

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Study Objective: To determine if the use of perioperative pain medications differs between vaginal versus laparoscopic surgery in women with pelvic organ prolapse.
Design: We compared the consumption of various pain medications (opioids, intravenous and local anesthetics, non-steroidals, acetaminophen and gabapentin) between vaginal hysterectomy with uterosacral suspension and laparoscopic supracervical hysterectomy with sacrocolpopexy during intraoperative and immediate postoperative period.
Setting: Tertiary care hospital within the US.
Patients or Participants: Women undergoing surgery for pelvic organ prolapse.
Interventions: Retrospective chart review.
Measurements and Main Results: A total of 195 women who underwent pelvic organ reconstructive surgery were included in the study, with 98 in the vaginal and 97 in the laparoscopic group. Duration of surgery was significantly shorter in the laparoscopy (versus vaginal) group (98 vs. 190 minutes, p<0.001), with less blood loss (30 vs. 100ml, p<0.001), and shorter hospital stay (7.05 vs. 20.8 hours, p<0.001). Intraoperative opioid use was similar between the groups (25 MME, p = 0.34). However, women in the laparoscopy group received significantly more intravenous and local anesthesia than in the vaginal group (lidocaine: 60 vs 40mg; bupivacaine 49.6 vs. 20 ml, respectively, p<0.001). Postoperatively, women in the vaginal group required almost twice as many narcotics as those in the laparoscopy group (MME=28 vs. 15, p<0.001). Postoperatively, the groups did not vary in term of ketorolac, ibuprofen, or gabapentin use. After controlling for covariates, postoperative opioid and acetaminophen use were no longer significantly different between the vaginal and laparoscopic groups; however, recovery time was the most significant confounder accounting for the difference across all types of pain medications used, p<0.001.
Conclusion: Women undergoing prolapse repair regardless of route require similar amount of opioid intraoperatively, but differ in use in the postoperative period. Use of non-opioid pain medication were similar between the groups was comparable.

5824

Polyp Findings in Endometrial Biopsies: What Is the Clinical Significance?

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Study Objective: There are no published guidelines for the optimal management of endometrial biopsies (EMBs) with polyp findings such as "fragment of polyp," "polypoid endometrium," etc. Our objectives were to determine the frequency of EMBs reporting polyp findings and calculate the incidence of clinically identifiable polyps, hyperplasia and malignancy. Additionally, we sought to determine clinical characteristics associated with these findings.
Design: Retrospective cohort study.
Setting: Single academic institution.
Patients or Participants: A total of 719 patients with an EMB reporting polyp findings between January 2015 and December 2019.
Interventions: The prevalence of clinically identifiable polyps was determined by review of operative and pathology reports. Bivariate analysis and multivariate logistic regression models were used to identify clinical characteristics associated with clinically identifiable polyps, hyperplasia and malignancy.
Measurements and Main Results: Polyp findings were documented in 10.3% (719/7073) of EMB pathology reports during the study period. Of these patients, 33.2% (239/719) underwent follow-up hysteroscopy or hysterectomy. Operative and pathology findings confirmed a clinically identifiable polyp in 70.3% (168/239) of cases and 6.5% (11/168) were found to have hyperplasia or malignancy. Those who had "endometrial polyp" on EMB were more likely to have an identifiable polyp than EMBs with more nonspecific polyp findings such as "fragments of polyp," or "polypoid" (76.6% vs 61.8%, p= 0.013). Postmenopausal women were more likely to have a clinically identifiable polyp than pre or perimenopausal women (89.6% vs 46.2%, p<0.001). There were no significant findings with multivariate regression analysis. The only clinical characteristic that predicted the presence of hyperplasia or malignancy was current or prior tamoxifen use, OR = 1.156 (95% CI 1.0-1.33, p=0.047).
Conclusion: Only one third of patients with polyp findings on EMB underwent definitive workup with hysteroscopy or hysterectomy. The majority of these patients (70.3%) had a clinically identifiable polyp and 6.5% had hyperplasia or malignancy.

5985

Postural Differences between Expert Laparoscopic and Naÿve Surgeons: Implications for Ergonomic Assessment in Surgical Education

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Study Objective: Poor ergonomics can contribute to musculoskeletal disorders and chronic pain for many surgeons which threatens career longevity. This proof-of-concept study sought to quantify upper body postural differences in expert laparoscopic surgeons and naïve surgeons using 3D motion capture during a standardized simulated surgical task.
Design: Observational case-control.
Setting: Motion capture laboratory; Surgical simulation setting.
Patients or Participants: Expert laparoscopic surgeons (n=6) and naïve surgeons (n=9).
Interventions: All participants watched an instructional video prior to data collection and completed the Fundamentals of Laparoscopic Surgery (FLS) peg transfer task three times. The box trainer's height and distance were adjusted to the participants' preference. A 3D motion capture system recorded trajectories of retroreflective markers placed on the participants at various anatomical landmarks.
Measurements and Main Results: Outcome variables of neck, shoulder, elbow, wrist, and trunk angles were computed using a 3D kinematic model. The mean (X) and variance (2 standard deviations from the mean (2SD)) were extracted for each trial and then averaged across trials. Independent T-tests evaluated significant between group differences in body positions in all three planes of motion at the p<0.05 level.
Compared to experts, naïve surgeons exhibited significantly greater variation in lateral neck (2SD=5.43±2.35˚ vs. 3.91±1.72˚, p=0.029) and sagittal trunk motion (2SD=3.84±2.57˚ vs. 1.91±0.91˚, p=0.018). Naïve surgeons also performed the task with their elbows significantly more flexed than the expert surgeons (Dominant Arm=96.9±9.2˚ vs. 82.9±2.1˚, p=0.002; Non-Dominant Arm=94.7±8.9˚ vs. 86.2±8.4˚, p=0.043).
Conclusion: Musculoskeletal injury risk factors among laparoscopic surgeons include awkward body posture, static muscle loading, and long operating times. This study demonstrates postural differences of the neck, trunk, and arms between expert and naïve surgeons. Incorporating ergonomic awareness and knowledge into surgical education may help to reduce surgeons' risk of developing cumulative musculoskeletal disorders and enhance surgeon career longevity.

6328

Precise Resection of Rectal Endometriosis with Intra-Operative Trans-Anal Endoscopy

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Study Objective: The challenge of rectal endometriosis surgery is how to achieve the complete resection and preserve the bowel function to the greatest extent. This video demonstrates a laparoscopic surgery assisted by trans-analy hysteroscopy to precisely locate and resect the rectal lesion.
Design: Stepwise demonstration of the surgery.
Setting: In a tertiary university-based hospital.
Patients or Participants: A 34-year-old woman had secondary dysmenorrhea for more than 10 years and anal distension during menstruation for 1 year. Preoperative colonoscopy suggested that there was a 2*3cm hyperemia and edema lesions penetrating mucous membrane in rectal 10cm, which was considered as rectal endometriosis.
Interventions: During laparoscopic surgery, it was not easy to precisely locate the penetrating lesion involving rectum even after shaving the seromuscular lesions. Then we used trans-anal hysteroscopy to perform as colonoscopy to position the penetrating lesion and resect it. There was only a tear of 3cm on the rectum which we anastomosed with a lateral stapler.
Measurements and Main Results: The patient passed gas on Day 2 and restored bowel movement. Her symptom was relieved with satisfying quality of life.
Conclusion: In rectal endometriosis, we can use hysteroscopy as an alternative type of colonoscopy to locate the penetrating lesion accurately, and the precise resection can help retaining the bowel function and preserve the patients' quality of life.

6097

Predicting the Need for a Surgical Intervention in the Management of a Tubo-Ovarian Abscess

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Study Objective: To analyze the inpatient management of tubo-ovarian abscess (TOA) and identify factors associated with the need for a surgical intervention.
Design: Retrospective cohort study.
Setting: Community Hospitals with an Academic Affiliation.
Patients or Participants: Women who were managed inpatient with the diagnosis of a TOA between 2014-20 (N=77).
Interventions: TOA managed by intravenous (IV) antibiotics is effective in approximately 70% of patients. For those who fail IV antibiotics, drainage of the abscess is recommended, whether achieved by interventional radiologic means or surgery. We report on the management of TOA in patients who presented to our hospital system. Patients with TOA were identified by International Classification of Disease code N70.93. A confirmation of the diagnosis was made by chart review. Pertinent demographic, medical history, and clinical findings (i.e., abscess size, leukocytosis, fever and treatment) were abstracted from the medical record.
Measurements and Main Results: Descriptive statistics were used to characterize the cohort of patients. The mean age was 41.2 years (S.D. ± 11.12) and mean body mass index was 30.4 kg/m^2 (S.D. ±10.34). 43% of patients failed IV antibiotics and needed additional therapy. When analyzing data for factors associated with the need for additional therapy, we found that size (>5 cm) was a significant risk with odds ratio (95%CI) 9.423 (1.968- 45.116). When comparing findings amongst co-morbidities, race and ethnicity we found that there was a correlation between size and intervention but no statistical significance.
Conclusion: In our cohort, women with TOA greater than 5 cm were more likely to fail medical management. However, this association did not persist when controlling for other demographic and clinical factors. A larger recruited cohort may reveal a significance of size and the need for intervention. Consideration should be made for early consultation with a minimally invasive gynecologist or interventional radiologist to manage the TOA when there is an increased likelihood of failing medical management.

6505
Predictive Value of Patient Symptoms in the Pathologic Diagnosis of Endometriosis

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Study Objective: To evaluate the predictive value of individual symptoms in the pathologic diagnosis of endometriosis and to create a predictive model for the presence of endometriosis in symptomatic patients.
Design: Retrospective review of patients who underwent surgical evaluation for possible endometriosis between 10/2018 and 12/2020. Statistical association between symptoms and histopathologic diagnosis of endometriosis was calculated using Fisher's exact test. An Elastic-Net logistic regression model was created to predict presence of endometriosis based on preoperative symptoms.
Setting: Clinical sites within a multi-state U.S. academic hospital system.
Patients or Participants: Female patients, >18 years old, with symptoms concerning for endometriosis, who underwent laparoscopy and biopsy.
Interventions: None.
Measurements and Main Results: A total of 499 patients were reviewed and 325 patients were confirmed to have histopathologic presence of endometriosis. Symptoms of pelvic pain (82.2%, p<0.05), dysmenorrhea (71.0%, p<0.05), dyspareunia (38.5%, p<0.05), deep dyspareunia (54.4%, p<0.05), dyschezia (17.5%, p<0.05), diarrhea (12.6%, p<0.05), dysuria (11.7%, p<0.05), and heavy menstrual bleeding (46.8%, p<0.05) all demonstrated a significant association with a pathologic diagnosis of endometriosis. Normal and underweight BMI (51.2%, 3.3%) were also associated with endometriosis (p<0.05). Patient age, as well as symptoms of hematochezia, constipation, urinary frequency, urinary urgency, and hematuria did not demonstrate a significant association. Patients previously diagnosed with endometriosis (29.5%, p<0.05) or interstitial cystitis (5.2%, p<0.05) were associated with pathologic diagnosis of endometriosis. Previous diagnoses of adenomyosis or myofascial pain syndrome were not significantly associated with endometriosis. Out-of-sample bootstrapping using our predictive model resulted in an AUC = 0.765 (95% CI = 0.703 - 0.822), sensitivity = 0.888 (95% CI = 0.813 - 0.955), and specificity = 0.503 (95% CI = 0.339 - 0.631) to predict the presence of disease.
Conclusion: An effective model to accurately predict the presence of endometriosis in patients prior to surgery was created based on self-reported symptoms, age, and BMI. Future research is needed to validate this model.

5685
Pregnancy Outcomes after Transcervical Radiofrequency Ablation of Uterine Fibroids with the Sonata® System

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Study Objective: To describe pregnancy outcomes in women who conceived after undergoing transcervical fibroid ablation (TFA) as treatment for symptomatic uterine fibroids.
Design: Retrospective study.
Setting: Hospitals in Europe, the UK, Mexico and the US.
Patients or Participants: Women who reported pregnancies after undergoing TFA with the Sonata® System.
Interventions: TFA was used to ablate fibroids, both under clinical trial protocol and commercial usage.
Measurements and Main Results: To date, there have been 32 pregnancies representing 18 deliveries among 25 women who were treated with TFA. Four women conceived more than once post-ablation, and four conceived as a result of assisted reproductive technology (ART). Outcomes include 8 vaginal deliveries, 10 Cesarean sections, 3 therapeutic abortions, and 8 miscarriages (four occurring in a patient with a history of recurrent abortion and an immunologic disorder). Three women are either currently pregnant or have outcomes pending. There were no 5-minute Apgar scores <7, and all neonates weighed >2500 gms. All deliveries occurred at ≥37 weeks, except for one delivery at 35 6/7 weeks. There were no uterine ruptures or abnormal placentation and no reports of postpartum hemorrhage. One patient developed HELLP syndrome and had an emergent C/S after a trial of labor at term, while another underwent C/S for fetal macrosomia. Ablated fibroids included transmural, submucous and intramural myomata up to 6.6 cm in diameter.
Conclusion: Normal pregnancy outcomes at term have occurred after TFA with the Sonata System, including in women with recurrent abortion and in those undergoing ART.

6264
Presence of Pelvic Pain Does Not Influence Route of Benign Hysterectomy in Women Veterans

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Study Objective: To determine if compared with veterans with no pelvic pain, veterans with pelvic pain undergoing hysterectomy, are more likely to have a minimally invasive hysterectomy, and whether trends in receipt of minimally invasive hysterectomy differed between those with and without pelvic pain.
Design: Cross-sectional study of hysterectomies performed in veterans from 2007-2014.
Setting: Data was obtained from the Veterans Administration (VA) Corporate Data Warehouse and included hysterectomies performed within the VA (VA provided-healthcare) and in the community and paid for by the VA (VA paid-health care).

Patients or Participants: All women who had hysterectomy provided or paid for by VA for a benign indication were included. Veterans who had a hysterectomy for malignancy or cesarean hysterectomy were excluded. Indications for hysterectomy were identified using ICD-9 codes; pelvic pain codes included dyspareunia, dysmenorrhea, endometriosis, and pelvic congestion syndrome.
Interventions: Hysterectomy was categorized as abdominal or minimally invasive (laparoscopic, robotic, and vaginal).
Measurements and Main Results: A total of 6,830 veterans with hysterectomies were identified: 4,540 (66.5%) had a pelvic pain, of these, 2,643 (58.2%) were abdominal and 1,897 (41.8%) were minimally invasive. Abdominal hysterectomy was used in 58.2% (n=2,643) of veterans with pelvic pain and in 60.3% (n=1,381) of veterans without pelvic pain. After adjusting for age, race, BMI, and index year of hysterectomy, there was no statistical difference in receipt of minimally invasive hysterectomy between patients with and without pelvic pain (IRR 0.99, 95% CI 0.90, 1.08). Among those undergoing hysterectomy, similar increases in the percentage of those having a minimally invasive hysterectomy for those with and without pelvic were observed between 2007 to 2014 (pelvic pain: 71.4% to 49.6%, no pelvic pain 71.3% to 53.7%).
Conclusion: Similar to the general population, hysterectomy rates within the VA are declining, with minimally invasive hysterectomy rates increasing. Furthermore, among veterans, the presence of pelvic pain does not appear to contribute to hysterectomy type.

6314

Primary Umbilical Endometriosis: A Systematic Literature Review

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Study Objective: To determine the characteristics of primary umbilical endometriosis.
Design: Systematic literature review from 2007-2020.
Setting: N/A.
Patients or Participants: Literature was reviewed via PubMed, EMBASE, and Web of Science for case reports of primary umbilical endometriosis using search terms "umbilical" and "endometriosis: from 2007-2020. Results were limited to articles published in English.
Interventions: No intervention was performed.
Measurements and Main Results: Three hundred and fifty-two articles were returned. Ninety-three case reports met inclusion criteria and 104 individual patient cases of primary umbilical endometriosis were identified. The mean age of presentation was 36.8 (±7.8) and the majority were nulliparous (55% vs 45%). he time to presentation from first symptoms varied widely from 3 days to 240 months with an average of 12 months. There were 8 patient who presented from 120-240 months. Forty three percent of patients reported dysmenorrhea and 26% reported pelvic pain. Sixty one percent had previously used hormonal contraception. Mass characteristics are presented in table 2. Ninety seven percent presented with a mass, 86 percent with pain, and 64% with bleeding or discharge. Color was variable with 38% brown, 24% red, 13% blue, 10% normal skin tone, 8% black, and 7% purple. Discharge was present in 62% with 60% of the cohort having bleeding. On average, lesions were 1-1.5cm and 61% invaded the umbilical fascia. Correlations between age, time to presentation, mass size, and presence of bleeding were evaluated. Time to presentation and mass dimension 1 were positively correlated (N=96, Spearman correlation coefficient=0.16, p=0.128) as were age and mass dimension 2 (N=42, Spearman correlation coefficient=0.29, p=0.059).
Conclusion: Primary umbilical endometriosis is not uncommon. There are no significant correlations between age, time to presentation, mass size and bleeding. Primary umbilical endometriosis should be in the differential diagnosis of patients presenting with umbilical pain, mass, or bleeding.

5931

Publication Trends Among Fellows in Minimally Invasive Gynecologic Surgery.

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Study Objective: The goal of this investigation is to provide a baseline assessment of research practices among current and former fellows in Minimally Invasive Gynecologic Surgery training programs. Evaluating publication patterns among fellows may provide information as to whether publication efforts during fellowship are addressing research gaps within our subspecialty
Design: A retrospective analysis amongst fellows of Minimally Invasive Gynecology Surgery (MIGS) was studied over a 10-year period to observe trends in research publications.
Setting: University Health Network.
Patients or Participants: N/A.
Interventions: The total number of publications by institution, gender, region, study type, study topic and journal were calculated.
Measurements and Main Results: A total of 520 publications were produced by fellows between the years 2010-2020. Of the total, 381 were published by females and 139 by males. Overall, the total number of publications per year has risen, with a 179% growth from 2010 to 2020. The Journal of Minimally Invasive Gynecology was the most prevalent journal for publication with 160 publications representing 31% of publications over the 10-year span. Obstetrics and Gynecology, The American Journal of Obstetrics and Gynecology and The Journal of Laparoendoscopic Surgeons were the next 3 most common journals for publication with 48, 38, and 38 publications, respectively. The most common type of study published overall was a retrospective cohort (114/520). The most common study topic was gynecological surgery representing 48% of the total publications for all years.
Conclusion: Addressing differentiating research trends among geographical location, areas of research being covered, type of studies reaching publication, and journals accepting publication is important to ensure that fellows are continuing to expand and advance the research curriculum. The aim of this study was to assess the overall publication trends and how they have changed over time.

6658

Pudendal Nerve Blocks: An Introduction and How-to Guide

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Study Objective: To provide a stepwise description of the anatomy, evidence, and technique for performing pudendal nerve blocks for the treatment of pudendal neuralgia.
Design: Video demonstration with narrated description.
Setting: Academic tertiary care site.
Patients or Participants: Patients with pudendal neuralgia.
Interventions: Digital transvaginal pudendal nerve blocks and blocks of the terminal peripheral branches of the pudendal nerve, including the perineal and dorsal clitoral branches.
Measurements and Main Results: Pudendal neuralgia can be identified using the Nantes criteria, which includes pain in the distribution of the pudendal nerve, increased pain with sitting, not being awakened by pain, lack of sensory loss, and resolution of pain after pudendal nerve block. Pudendal nerve blocks have been shown to provide relief in over 75% of patients with pudendal neuralgia, with relief potentially lasting from days to months post-procedurally. This video presents both a transvaginal digital approach to pudendal nerve block as well as targeted blocks of the peripheral branches of

the pudendal nerve, including the perineal and dorsal clitoral branches. A review of the relevant clinical anatomy, benefits and risks of the procedures, type and toxicity of injectate medications, procedural set up, procedural techniques, and post-procedural follow up care is presented.
Conclusion: Pudendal nerve blocks, when performed through a safe and standardized approach, are a beneficial therapeutic tool for clinicians caring for patients with pudendal neuralgia.

6441
Racial Disparities in Access to Diagnostic Laparoscopy for Endometriosis: Diagnostic Delay, ED Visits, and Pre-Operative Indications

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Study Objective: To explore racial differences in diagnostic delay, rates of ED visits, and indications for laparoscopy in diagnosis of endometriosis.
Design: Retrospective chart review.
Setting: Academic tertiary hospital system.
Patients or Participants: Women ages 14-50 receiving a primary surgical diagnosis of endometriosis, 01/2017−12/2020.
Interventions: N/A.
Measurements and Main Results: Diagnostic delay was defined as months between initial presentation for pelvic pain and diagnostic laparoscopy. ED visits for pelvic pain within 5 years preceding laparoscopy were identified via chart review. Indications for laparoscopy were determined from operative and pre-operative notes. Perioperative risk was assessed using ASA physical status classification and need for pre-operative medical clearance.
124 patients met inclusion criteria: 65 (52%) White, 16 (13%) Black, 31 (25%) Latina, 10 (8%) Asian. 1 patient identified as multi-racial. 1 patient declined to identify race.
Median delay was 13.6 months (IQR 5.5-43.9) for White patients, 15.2 (IQR 7.2-7.6) for Black patients, 39.4 (IQR 13.7-58.1) for Latina patients, and 48.1 (IQR 2.8-75.6) for Asian patients. Latina patients had a significantly longer delay compared to their White counterparts (Mann-Whitney test, p=0.01).
Non-white patients were more likely to have at least 1 ED encounter for pelvic pain prior to laparoscopy: 75% of Black, 50% of Latina, and 50% of Asian patients, compared to 28% of White patients (Chi-squared test, p=0.003). Non-white patients were more likely to have an additional indication for laparoscopy (fibroids, sterilization, abnormal imaging, etc.): 69% of Black patients, 47% of Latina patients, and 70% of Asian patients, compared to 37% of White patients (p=0.05).
There was no significant association between race and ASA class (p=0.18) or pre-operative clearance (p=0.76).
Conclusion: Non-white patients may experience barriers to diagnostic laparoscopy for endometriosis, including a greater clinical threshold (e.g., acuity of pain symptoms, additional medical indications) for proceeding with laparoscopy.

6700
Readmission Rates in Robotic Gynecologic Surgery: A Comparison between Inpatient and Outpatient Surgery in a Large Health System

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Study Objective: Current literature suggests that same-day discharge (SDD) after minimally invasive gynecologic surgery (MIGS) is feasible and associated with better perioperative outcomes. This study aims to evaluate how rates and reasons for readmission after robotic gynecologic surgery evolved over a four-year period in a large hospital system following an increase in SDD.
Design: Retrospective cohort study.
Setting: Health system including 11 academic and community hospitals.
Patients or Participants: 6,170 patients undergoing robotic gynecologic surgery during 2017-2020.
Interventions: N/A.
Measurements and Main Results: In this study, 6,170 patients underwent robotic gynecologic surgery between 2017-2020. 3,316 patients were discharged the same day of surgery (outpatient, OP) and 2,854 were discharged on or after postoperative day 1 (inpatient, IP). 118 total patients were readmitted with a readmission rate of 3.2%. When stratified into IP and OP, the readmission rates were 4.8% and 2.3%, respectively. Over the 4-year period, the rate of SDD as a percentage of total robotic gynecologic surgeries increased by 28.3% with 59% SDD in 2020. We observed the lowest overall rate of readmission during 2020, which was also the year with the highest rate of SDD. When stratified for readmission indications, 2020 also accounted for the lowest incidence of readmission for venous thromboembolism and genitourinary complications compared to prior years. There were no readmissions for wound dehiscence or post-operative pain in this year. The rates of readmission for infection, hemorrhage, and gastrointestinal complications in 2020 were comparable to prior years in which SDD rates were lower.
Conclusion: As rates of SDD increased between 2017-2020, the readmission rate after robotic gynecologic surgery decreased. When stratified for specific indications, all rates for readmission in 2020 (the highest SDD year) were comparable or lower than previous years. Our study supports the current literature which demonstrates that SDD after MIGS is both safe and feasible.

6269
Realistic Animal Model for Endometrial Ablation

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Study Objective: Create a new model to train fellows in hysteroscopic surgery and avoid the human model for training.
Design: - Prepare the animal model.
- Install the resectoscope on the video hysteroscopy set.
Setting: In-house training solutions.
Patients or Participants: Surgeon and fellows.
Interventions:
1 - Necessary material:
- resectoscopy,
- suture material,
- cow tongue
- How do you prepare the animal model
2 Cut and throw away the proximal portion of the tongue
- Suture the distal portion of tongue laterally in follow fashion:
- allow the introduction of the resectoscopy outer sheath
- prevent the leakage of the fluid that will distend the created cavity
- Intrude the resectoscope assembly into the created cavity
- Connect the resectoscope to the image set
3 - With the resectoscope installed on the video hysteroscopy set
- train the fellow to perform endometrial ablation
- guiding the correct maneuvers to performance a safety procedure
Measurements and Main Results: With the presented model it was possible to perform the training of the fellows for endometrial ablation.
Conclusion: This model proved to be efficient in training fellows in hysteroscopic surgery and prevented human models from being used for this purpose.

5870

Remote Fundamentals of Laparoscopic Surgery (FLS) Training in Pre-Clinical Medical Students

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Study Objective: To pilot a remote learning Fundamentals of Laparoscopic Surgery (FLS) elective to pre-clinical medical students.
Design: Due to COVID-19 restrictions, pre-clinical medical students were required to strictly quarantine for two weeks upon arrival to their clinical rotation sites, during which they would engage in an elective of their choice. Medical students enrolled in the Remote Learning FLS Elective received a laparoscopic training box (Task It) with supplies prior to traveling around the continental United States for clinical rotations. Students also received instructions to access publicly available FLS modules and videos to introduce instruments and tasks. Each learner engaged in self-guided practice with coaching available via a live-streaming platform to assist with refining their skills during the course.
Setting: While quarantined in three different locations (Bethesda MD, San Antonio TX, and San Diego CA) learners utilized space in their living quarters to set up the Task II trainer and computer.
Patients or Participants: Three pre-clinical medical students enrolled in a 2-week distance learning FLS elective.
Interventions: Learners participated in a 2-week distance learning elective that utilized self-directed learning and practice, use of available FLS modules and videos, and individual coaching sessions with instructor.
Measurements and Main Results: All learners were true novices with no prior FLS or laparoscopic experience, and minimal to no experience with surgical skills. Learners practiced individually and timed themselves practicing each skill. Each was able to attain facility with object transfer, depth perception.
Conclusion: All learners improved from their baseline skills level. Remote coaching of FLS with true novices is a viable alternative to traditional face to face learning with motivated learners.

6650

Removal of Ovarian Vein Coil

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Study Objective: To review relevant anatomy and surgical technique for ovarian vein coil removal.
Design: Surgical video.
Setting: Mayo Clinic Arizona.
Patients or Participants: Chronic pelvic pain patient who underwent surgical intervention.
Interventions: Robotic assisted ovarian vein coil removal.
Measurements and Main Results: Establishment of a successful and safe technique for ovarian vein coil removal.
Conclusion: Minimally invasive surgical approaches can be an effective method for treatment of pain caused by protruding ovarian vein coils.

6636 Removal of a Fibroid Uterus through a Posterior Colpotomy

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Study Objective: To describe a contained tissue extraction technique through a posterior colpotomy during a laparoscopic supracervical hysterectomy.
Design: surgical video.
Setting: Operating Room.
Patients or Participants: Single patient undergoing a supracervical hysterectomy.
Interventions: Manual morcellation of a fibroid uterus through a posterior colpotomy.
Measurements and Main Results: Successful removal of the specimen.
Conclusion: Posterior colpotomy is a safe and efficient method of specimen retrieval for patients undergoing a supracervical hysterectomy. It allows for use of smaller skin incisions and removal of a specimen in a contained fashion.

6475

Reproductive Outcome after Hysteroscopic Lateral Metroplasty in Women with T-Shaped Uterus Not Exposed to Diethylstilbestrol

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Study Objective: To evaluate the reproductive outcome after hysteroscopic lateral metroplasty performed in women with T-shaped and unicornuate uterus not exposed to Diethylstilbestrol.
Design: Retrospective, observational study from 2017 to 2020.
Setting: Tertiary care center for reproductive medicine.
Patients or Participants: 604 patients of infertility were included in this series. 21 patients had T shaped uteri, diagnosed on USG and HSG with no exposure to Diethylstilbestrol in the womb, 2 patients had unicornuate uterus and a total of 23 patients were taken up for lateral metroplasty in OT setting.
Interventions: Specific history for exposure of the mother to Diethylstilbestrol was taken in every patient of T-shaped uterus. We performed the classical hysteroscopic technique by making the side wall incision on both the lateral uterine walls with Collins knife 3-4cm deep till we could see both the tubal ostia and a triangular uterine cavity from the internal OS.
Measurements and Main Results: We evaluated the reproductive outcome of lateral metroplasty done over 3 yrs with telephonic follow up for all the patients. 604 infertile patients were referred to our centre from 2017-2020. 23 patients were found to have a T-shaped tubular uterine cavity on HSG and Trans Vaginal Ultrasound examination. All underwent Lateral Metroplasty. 13 patients (56.5%) conceived within 12–24 months after surgery. Of these, 11patients had live births (9 carried to term and 2 had preterm deliveries at 34 weeks) and 2 had spontaneous abortions, 7 patients were delivered by cesarean section, 2 patients had full term normal delivery. 10 patients failed to conceive.
Conclusion: Hysteroscopic lateral metroplasty offers promising reproductive outcomes in T-shaped uteri and unicornuate uterus not exposed to Diethylstilbestrol.

5499

Risk Factors Associated with Adnexal Torsion after Hysterectomy

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Study Objective: To identify preoperative and intraoperative risk factors for adnexal torsion after hysterectomy, and to estimate the incidence of the disease in the modern-day era of laparoscopic surgery.
Design: Retrospective nested case-control study.
Setting: Large urban medical system.
Patients or Participants: Eighty-nine female patients ages 17-51.

Interventions: Patients underwent ovarian-sparing hysterectomy.
Measurements and Main Results: The estimated incidence of ovarian torsion after hysterectomy was 0.5% (46/8,538 ovarian-sparing hysterectomies). The following variables were found to be associated with adnexal torsion after hysterectomy in an adjusted logistic regression: laparoscopic approach to hysterectomy vs any other approach (OR 3.73 [95% CI: 0.95, 14.59]); younger age at the time of hysterectomy (17-40 years) vs older age (41-51 years) (OR 3.78 [95% CI: 1.39, 10.27]); and a gynecologic history significant for endometriosis (OR 4.46 [95% CI: 1.07, 18.67]).
Conclusion: There is an association between laparoscopic approach to hysterectomy and risk of subsequent adnexal torsion. Providers should have a heightened index of suspicion for adnexal torsion after hysterectomy in patients presenting with acute-onset abdominal pain who underwent laparoscopic hysterectomy at a younger age.

5797

Robot-Assisted Exploration of Somatic Nerves in the Pelvis and Transection of the Sacrospinous Ligament for Alcock Canal Syndrome

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Study Objective: To describe the anatomical and technical highlights of robotic exploration of the somatic nerves in the pelvis and transection of sacrospinous ligament (nerve decompression) for the patient with Alcock canal syndrome.
Design: Stepwise demonstration of a technique.
Setting: An urban general hospital.
Patients or Participants: A 48-year-old woman was referred for severe sitting pain, cyclic pelvic pain, gluteal and perineal pain, all of which were resistant to medication therapy. MRI revealed adenomyosis with neither deep endometriosis nor vascular entrapment. Based on neuropelveological evaluation, the patient was suspected to be suffering from Alcock canal syndrome due to compression of the pudendal nerve (and posterior cutaneous nerve of the thigh) by the sacrospinous ligament.
Interventions: Excluding the step for hysterectomy, the procedure was performed using the following 9 steps with the da Vinci Xi: Step 1, opening the peritoneum along external iliac artery; Step 2, exposure of the external iliac artery; Step 3, development of the lumbosacral space; Step 4, identification of the lumbosacral trunk; Step 5, identification of the superior gluteal nerve; Step 6, identification of the sciatic nerve; Step 7, identification of the inferior gluteal nerve; Step 8, identification of the pudendal nerve; and Step 9, transection of the sacrospinous ligament.
Measurements and Main Results: The surgery was successfully completed without any complications and the postoperative course was uneventful. On follow-up visits, the patient reported a gradual decreased in pain in postoperative 1st and 3rd months, and the neuralgia was finally completely resolved in the 6th month. Neuropelveologic evaluation still continues every 6 months.
Conclusion: When needed, minimally invasive techniques are applied for exploration and treatment with neuropelveological assessment. Robot-assisted transection of the sacrospinous ligament is a feasible, safe technique for selected patients with Alcock canal syndrome. Laparoscopic exploration of the pelvic nerves should be performed for further diagnosis and therapy before prematurely labeling the patient as refractory to the treatment.

6225

Robotic Assisted Pudendal Neurolysis for Severe Pudendal Neuralgia

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Study Objective: To demonstrate robotic assisted pudendal neurolysis surgery in a patient with severe pudendal neuralgia.
Design: Patient followed until 6-month postoperative visit.
Setting: Video collected while patient in dorsal lithotomy position with steep Trendelenburg under general anesthesia in the operating room.
Patients or Participants: 60-year-old female with long history of chronic pelvic pain and pudendal neuralgia after multiple pelvic floor reconstructive surgeries at an outside facility.
Interventions: Robotic assisted pudendal neurolysis in a patient desiring additional treatment for her pudendal neuralgia after multiple other therapies.
Measurements and Main Results: Improvement in pain assessed via patient reported pain at both pre- and postoperative visits. Patient reported improved pain at both her 4-week and 6-month postoperative visits.
Conclusion: This video demonstrates robotic assisted pudendal neurolysis surgery in a patient desiring further treatment for her severe pudendal neuralgia. The patient reported improved pain at her postoperative visits. Robotic assisted pudendal neurolysis is a viable option for patients suffering from severe and refractory pudendal neuralgia.

6442

Robotic Assisted Resection of 16 Week Uterine Horn Pregnancy: A Minimally Invasive Approach to the Second Trimester Ectopic Pregnancy

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Study Objective: To demonstrate by video our surgical approach of the resection of a second trimester rudimentary horn ectopic pregnancy.
Design: Case Report
Setting: University hospital. Patient in dorsal lithotomy position.
Patients or Participants: A 22-year-old primigravida presented at 16 weeks gestation following two failed elective terminations, in the setting of a spontaneous pregnancy with a known uterine anomaly. The patient reported a prior diagnostic laparoscopy revealing a left unicornuate uterus. Outside ultrasounds reported an intrauterine pregnancy however MRI upon admission revealed a fetus located within a thin-walled structure separate from the main uterine cavity, consistent with a rudimentary horn pregnancy.
Interventions: A fetal intracardiac potassium chloride injection was completed by maternal fetal medicine to halt the growth of the pregnancy during pre-operative planning. Tranexamic acid was administered preoperatively to minimize blood loss. Ureteral stents were placed to safely identify the ureters with the knowledge that Mullerian anomalies are often associated with concomitant renal abnormalities. Robotic assisted laparoscopy was used to resect the rudimentary uterine horn containing the 16-week gestation with ipsilateral ureterolysis and uterine artery ligation.
Measurements and Main Results: Exam under anesthesia and diagnostic laparoscopy revealed a unicornuate uterus with a communicating rudimentary horn. The procedure was uncomplicated with an estimated blood loss of 100cc. The patient's hemoglobin remained stable from 11.7 preoperatively to 10.8 postoperatively. She was meeting all milestones and discharged home on postoperative day one.
Conclusion: Rudimentary uterine horn pregnancies are rare and best managed by a multidisciplinary team. Robotic-assisted surgery may decrease blood loss, length of stay and comorbidities from surgery in the setting of a rudimentary horn ectopic pregnancy. Rather than assuming infertility, long-acting reversible contraceptives should be offered to women to prevent recurrence.

6664

Robotic Cystotomy Repair and Ureteral Dissection Techniques

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Study Objective: The objective of this video is two-fold. First, to demonstrate the steps of cystotomy repair and highlight tips for post-operative management of cystotomies. Second, to review the anatomy and vascular supply of the ureter in order to describe safe ureteral dissection techniques.
Design: N/A.
Setting: The video presents clips of robotic-assisted cystotomy repair and ureteral dissection.
Patients or Participants: N/A.
Interventions: N/A.
Measurements and Main Results: N/A.
Conclusion: Understanding the steps of both repair and post-operative management of cystotomies is important for minimally invasive surgeons. Additionally, knowledge of the anatomy of the ureter in the pelvis can both aid in ureteral dissection and avoid ureteral damage at the common sites of injury.

6252

Robotic Gynecologic Surgery: A Beginner's Guide to Becoming an Effective Bedside Assistant

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Study Objective: Learning to become an effective bedside assistant during robotic gynecologic surgery is a difficult task with many real-world nuances. The authors aim to create a video to be a guide for those individuals beginning to fill the role of the bedside assistant in robotic gynecologic surgery, such as residents, physician assistants, and operating room staff.
Design: Instructional video footage was filmed to demonstrate appropriate handling of the robotic system at the bedside. Additional footage was selected that illustrates concepts of best practices in robotic gynecologic surgery.
Setting: This video takes place within a Minimally Invasive Gynecology operating room using a standard robotic system.
Patients or Participants: This video is intended for those beginning to fill the role of bedside assistant in robotic gynecologic surgery (i.e., residents, physician assistants, and surgical scrub technicians/nurses).
Interventions: This video reviews components of the patient cart, cannulas, and instruments in a common robotic system. The video also distills the key points of docking the patient cart, mounting cannulas, and handling of robotic instruments. It highlights safe techniques with use of standard laparoscopic instruments through the assistant port. Additionally, it helps identify ways to be a helpful bedside assistant, including multiple ways to improve the surgeon's visualization of the operative field and anticipate the needs of the primary surgeon.
Measurements and Main Results: N/A.
Conclusion: The skills of being able to efficiently handle robotic equipment, optimize the surgeon's visualization, and be prepared for next steps in the surgery are illusive to the novice bedside assistant. Review of high yield concepts can help prepare those beginning to fill the role of the bedside assist in robotic gynecologic surgery. This video illustrates many of these concepts and techniques with the intention of guiding those who are new to this role.

5845

Robotic Single-Port Hysterectomy Versus Robotic Multi-Site Hysterectomy in Benign Gynecologic Diseases: A Retrospective Comparison

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Study Objective: The aim of this study is to compare clinical and surgical outcomes of robotic single-port hysterectomy (RSPH) using the da Vinci SP® surgical system and robotic multi-site hysterectomy (RMSH) using the da Vinci Xi® surgical system in benign disease.
Design: Multicenter retrospective case-controlled study.
Setting: A university tertiary care hospital. (Ewha Womans University, Seoul Hospital and MokDong Hospital, Seoul, Republic of Korea)
Patients or Participants: It is enrolled robotic single-port hysterectomy cases (RSPH, n=67) and robotic multi-site hysterectomy cases (RMSH, n=67) from Nov. 2018 to Jun 2020.Nov. 2015 in benign gynecologic diseases.
Interventions: All patients underwent RSPH or RMSH. Basic information such as age, BMI, previous surgery history, delivery history and postoperative results such as intraoperative blood loss and postoperative complications were collected and compared.
Measurements and Main Results: There were no statistical differences of clinical characteristics such as age, BMI and parity. The weight of specimen was higher in RMSH group than that in RSPH group (302.64± 190.56 vs 369.24±181.70, p-value 0.04). The estimated blood loss (EBL) and the change in hemoglobin after surgery in RSPH group were less than those in RMSH group (97.39±113.79ml vs 224.93±152.29ml, p-value <0.01, 1.51±1.08 vs 2.54±1.08, p- value <0.01). Even when the weight difference between the two groups was corrected and analyzed, the EBL was significantly less in RSPH group (p-value <0.01). There was no significant difference between the two groups of total operative time, hospital stays and postoperative complications between the two groups.
Conclusion: In this study, robotic single-port hysterectomy using da Vinci SP® surgical system is reliable procedures as like robotic multi-site hysterectomy except huge cases. Rather than, surgeons can reduce perioperative bleeding during RSPH by performing the sophisticated surgery. However further studies are required to clarify the feasibility and safety of the new robotic surgical system.

6022

Robotic Surgery for Ureteral Endometriosis with End-to-End Anastomosis

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Study Objective: To demonstrate the technique, landmarks and surgical steps of a robot-assisted end-to-end ureteral anastomosis
Design: Sequential demonstration of clinical history and surgical approach with narrated video footage.
Setting: Urinary tract endometriosis occurs in 1–5.5% of women with endometriosis; it involves the bladder in 70–85% of cases and the ureter in 9–23% of the cases. In 90% of patients, ureteral endometriosis (UE) is associated with other sites affected by endometriosis. The diagnosis of UE is difficult since the disease may be clinically silent in 30% of patients, or it may be associated with non- specific symptoms, such as dysmenorrhea, dyspareunia and non- menstrual pelvic pain. Sometimes progressive upper urinary tract obstruction leads lost the kidney function. Patients may temporally benefit from medical therapy, but surgery is needed when ureteral obstruction is present. Surgical options are conservative ureterolysis or radical approaches, such as ureterectomy with end-to-end anastomosis or ureteroneo- cystostomy performed in relation to the type, site and length of ureteral involvement.
Patients or Participants: A 60-year-old woman with pelvic pain refractory to medical therapy, with a previous MRI showing signs of left pyelocaliceal dilation.
Interventions: Diagnosis of an endometriotic lesion involving the left ureter with the use of pelvic MRI. Surgical approach with robot-assisted

laparoscopy, performing the ureterolysis and an end-to-end ureteral anastomosis.
Measurements and Main Results: Patient was good after the surgery, showing an important improvement in the pelvic pain. The double J stent was maintained for 30 days and after this period was removed, without complications. The urination remained normal after the removal.
Conclusion: Ureteral endometriotic lesion cases are challenging due to its requirement of a high skilled surgical treatment. The imaging exams as RMI are extremely important for the surgical planning. The robot-assisted laparoscopy is a great option for the treatment of these cases, but it requires an arduous and specific training and an experienced team, due to its complexity.

5543
Robotic Uterosacral Ligament Suspension: Tips and Tricks to a Successful Suspension
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Study Objective: The objectives of this film are to review pelvic anatomy and levels of pelvic support, present a technique for uterosacral ligament suspension done robotically at the time of hysterectomy, and discuss suture choices for long-lasting support. We discuss important points to consider when performing the procedure, and suggest a technique that results in a reliable outcome.
Design: N/A.
Setting: Operating room with patient in reverse Trendelenburg and Da Vinci Xi robot docked.
Patients or Participants: N/A.
Interventions: Uterosacral Ligament Suspension with barbed delayed absorbable suture and serpentine stitches.
Measurements and Main Results: The correction of an apical defect can be accomplished with uterosacral ligament suspension, which can also decrease the severity of cystocele and rectocele. Starting with a peritoneal releasing incision can mobilize the ureter and avoids kinking of the ureter when tugging on the ligament. Suture choices include barbed delayed absorbable sutures and permanent sutures. Barbed delayed absorbable suture dissolves in 180 days, which is enough time to form scar tissue that will continue to support the suspension. Serpentine stitches along the ligaments are made and tightened to shorten the ligament, which fixes it to the vagina allowing for elevation of the apex. A McCall's culdoplasty can be done with the same suture, reducing enterocele. Finally, plicating the uterosacral ligaments at the end brings them to the midline and strengthens the suspension.
Conclusion: In conclusion, uterosacral ligament suspension at the time of robotic hysterectomy can correct uterovaginal prolapse. Barbed delayed absorbable suture is a viable alternative to permanent sutures due to scar formation. Peritoneal releasing incisions between the ureter and uterosacral ligament protect the ureter from kinking. Serpentine bites around the uterosacral ligaments result in secure cinching of the tissue, which contributes to a reliable suspension.

6313
Robotic-Assisted Laparoscopic Fertility Sparing Surgery for Treatment of Early-Stage Cervical Cancer
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Study Objective: To explore the safety, feasibility and pregnancy outcome of da Vinci robotic-assisted laparoscopic fertility-sparing surgery for early-stage cervical cancer.
Design: Retrospectively review clinical data of 10 patients who underwent robotic-assisted radical trachelectomy with bilateral lymphadenectomy between January 2018 and February 2020 in our center.
Setting: N/A.
Patients or Participants: The mean age of the 10 patients was 29.6± 3.0 years old and the mean BMI was 23.9±3.7 kg/m^2. Among them, 1 patient was in stage IA1 with lymph-vascular space invasion, 2 patients in stage IA2 and 7 patients in stage IB1.
Interventions: N/A.
Measurements and Main Results: The average operative time was 295± 21 min. The average estimated amount of intraoperative blood loss was 65±18 ml, and the average number of lymph nodes removed was 28.6± 3.5. The length of parametrial tissue removed on the left side was 34.3± 1.6 mm and 33.9±1.5 mm on the right side. No intraoperative complications occurred. Postoperatively, the length of cervix (measured by transvaginal ultrasound) was 7.1±1.7 mm. The average length of hospital stay was 7.7±2.0 days. The median follow-up was 23.9 months. One patient had lymphocele 2 months after the operation. No recurrence happened during the follow-up period. Three patients achieved pregnancy, including 2 natural pregnancy and 1 assisted-reproductive pregnancy. One woman with natural pregnancy 11 months postoperatively delivered a healthy female infant at 38^{+1} weeks.
Conclusion: Robotic-assisted radical trachelectomy is a safe and feasible alternative for cervical cancer patients who desire fertility preservation. Its long-term oncologic outcome and pregnancy outcome require further investigation.

6423
Robotic-Assisted Laparoscopic Sacrocolpopexy in the Extreme Elderly: Safety and Feasibility
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Study Objective: Robotic-assisted laparoscopic sacrocolpopexy (RA-SCP) has evolved to be the standard of care for advanced stage pelvic organ prolapse (POP) repair in many women. Due to the variety of patients that undergo pelvic reconstructive surgery (PRS), it is important to identify risk stratification tools in the aging population in order to ensure positive outcomes in those undergoing RA-SCP for POP repair based on demographic risk factors.
Design: Retrospective cohort study.
Setting: University-affiliated community hospital.
Patients or Participants: All women undergoing a RA-SCP by one surgeon (n=1078) between March 2017 and March 2020 were included.
Interventions: Four groups were compared based on age: <40 years of age (n=23), ≥40 but <60 (n=304), ≥60 but <80 (n=723), and ≥80 years of age (n=28).
Measurements and Main Results: Intraoperative complications including bladder, ureteral, or bowel injury, and blood transfusions were not statistically different between groups, as were rates of presentation within 90 days to the emergency department or for readmission to the hospital. Postoperatively, greater age groups presented with greater incidence of incontinence (0%, 5.3%, 9.1%, 14.3%, $p<0.05$). There were no statistically significant differences in acute urinary retention ($p=0.90$) or need for home catheterization ($p=0.80$) between groups.

Greater age groups underwent less operative time (231, 229, 221, and 204 mins respectively, p<0.05), and required less morphine milligram equivalents (MME) during their hospital stay (30.3, 25.6, 18.1, and 15.6 MME respectively, p<0.05).
Conclusion: RA-SCP is a highly tolerable procedure. Surgeons should counsel patients that advancing age does not appear to increase the rate of complications or readmissions both during and after surgery. Decreased operative time for advancing age groups due to concern for anesthesia, prolonged Trendelenburg positioning, and patient frailty may help to decrease pain medication needs postoperatively.

5530

Robotic-Assisted Laparoscopy for Abdominal Cerclage and Correction of Amniotic Fistula

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Study Objective: To demostrate the surgical technique used for a robotic-assisted abdominal cerclage in a 13-week gravida and the closure of an amniotic fistula 4 weeks later with cyanoacrylate glue.
Design: Case report illustrated with video.
Setting: Under general anesthesia, the patient was placed in dorsolithotomy position, arms alongside the body and legs 80°abducted in adjustable stirrups. Legs were dressed under anti-embolism stockings and pneumatic compression.
Patients or Participants: We present the case of a 37-year-old primigravida with past medical history of adenocarcinoma of the cervix (FIGO 2018 IB2) diagnosed and treated with robotic-assisted radical trachelectomy and sentinel lymph node biopsy two years earlier. She refused hysterectomy and opted to preserve her uterus mantaining a strict follow-up due to her desire to gestate. She spontaneously got pregnant and was elegible for a robotic-assisted abdominal cerclage.
Interventions: The patient was scheduled for a robotic-assisted abdominal cerclage at 13 weeks. Neddled mesilane tape was placed aroud the uterine isthmus. Four weeks later, in control ultrassond, severe oligoamnium was identified and free fluid was seen in the abdominal cavity. She then underwent robotic amniotic fistula correction with cyanoacrylate glue.
Measurements and Main Results: Obstetric ultrasound was done before and after both surgical procedures to assess fetal vitality. The patient was discharged in the 4th day post cerclage and maintained weekly medical appointment. After the reintervention at 17 weeks, amniotic fluid was monitored and she mantains prenatal appointments.
Conclusion: Radical trachelectomy alone is an indication for abdominal cerclage. This patient was able to have her fertility and pregnancy preserved after an oncologycal treatment. The robotic approach in this case was useful once the extra robotic arm helped in uterus mobilization and precision of movements. The use of cyanoacrylate glue was experimental, and showed good results is restoring amniotic fluid.

5686

Robotic-Assisted Ovarian Transposition

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Study Objective: To identify indications and proper patient selection for ovarian transposition and to demonstrate surgical techniques of the procedure.
Design: Video demonstration of the ovarian transposition procedure with narrated discussion.
Setting: Tertiary academic teaching hospital.
Patients or Participants: N/A.
Interventions: This video demonstrates the steps and techniques for performing safe and efficient ovarian transposition. The goal of ovarian transposition is to fix the ovaries to a location that is outside of the field of radiation; this should be at least 1.5 centimeters above the iliac crest. Higher trocar placement is important for successful transposition of the ovaries out of the pelvis.
Measurements and Main Results: N/A.
Conclusion: Ovarian transposition allows for ovarian function preservation for reproductive-aged women undergoing pelvic radiation for cancer treatment. This procedure may be performed minimally invasively and requires thorough knowledge of pelvic anatomy with comfort entering the retroperitoneal space.

5879

Robotic-Assisted Resection of Left Rudimentary Uterine Horn Ectopic Pregnancy with Left Salpingectomy

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Study Objective: Surgical steps to remove a left rudimentary uterine horn using robotic-assistance.
Design: Video presentation.
Setting: OR, dorsal lithotomy position.
Patients or Participants: 18yr old G1P0 at 6+5wks gestation with left rudimentary horn ectopic pregnancy.
Interventions: Explain surgical steps for removal of uterine rudimentary horn, illustrate surgical techniques and key anatomy.
Measurements and Main Results: Robotic-assisted resection of rudimentary horn with salpingectomy.
Conclusion: Surgical techniques and steps described in video. It is essential to delineate anatomical structures given the risk of urological abnormalities in patients with Mullerian anomalies.

6140

Rpoc Removal Hysteroscopy: See-and-Treat without Anesthesia Vs. Operating Room Under Anesthesia

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Study Objective: To evaluate the efficacy, safety and complication rate of see-and-treat hysteroscopy for less than 2-cm RPOC (Retained Product of Conception) removal in comparison with traditional O.R. (operating room) hysteroscopy.
Design: A retrospective cohort study reviewing patient files. Years 2015-2019. 119 patients with less than 2-cm RPOC requiring hysteroscopy were divided into two groups:
1. See-and-treat hysteroscopic RPOC removal without anesthesia.
2. O.R. hysteroscopic RPOC removal under general anesthesia.

Procedure and complication-related information were compared.
Setting: Hysteroscopy was preformed in lithotomy position. In the See and treat group, a 4.3 mm diameter hysteroscope, scissors and graspers was used, with no anesthesia. In the O.R. group, a 10 mm hysteroscope with cold resectoscope was used, under anesthesia.
Patients or Participants: A total of 119 women undergoing hysteroscopic RPOC removal were included: 53 underwent see-and-treat hysteroscopy

and 66 underwent O.R. hysteroscopy. Study population comprised of patients referred to our hospital due to a less than 2cm RPOC ultrasound diagnosis.

Interventions: In the see-and-treat procedure RPOC was resected without anesthesia, using hysteroscopic scissors and graspers. In the O.R. group, dilatation followed by cold resectoscope removal was done under general anesthesia.

Measurements and Main Results: Procedure-related data

Conclusion: See-and-treat hysteroscopy without anesthesia is a safe, time-saving and effective treatment option for the removal of less than 2-cm RPOC. Further study, with larger population, is required.

Procedure-related data

Procedure	operating room N=66	see-and-treat N=53	P-value
Average duration (minutes)	20.2±11	19.1±11.3	0.61
Average residual size as seen in hysteroscopy (cm)	12.8±6.9	11.6±8.02	0.42

Complications

Complication	operating room N=66	see-and-treat N=53	P-Value
Total complications	8 (12.1%)	2 (3.8%)	0.18
Failure to complete procedure	1 (1.6%)	2 (3.8%)	0.58
Excessive bleeding	1 (1.6%)	0	1.00
Cervical tear	1 (1.6%)	0	1.00
Uterine cervix or uterine perforation	3 (4.5%)	0	0.26
Laparoscopy due to hysteroscopy complication	1 (1.6%)	0	1.00
Post-hysteroscopy admission for observation only	1 (1.6%)	0	0.50

numbers/mean ± SD and/or percentages.

5594

Ruptured Ectopic Pregnancy with Negative Urine Pregnancy Test

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Study Objective: To report a case of a ruptured ectopic pregnancy in a patient with a negative urine pregnancy test.

Design: Case report.

Setting: Academic center.

Patients or Participants: The patient is a 23yo sexually active G1P0 at approximately 7 weeks gestational age who presented to the Emergency Department (ED) with abdominal pain and vaginal bleeding. She reported having a positive urine pregnancy test at home 6 days prior to presenting to the ED. However, in the ED her urine pregnancy test was negative. Transvaginal ultrasound demonstrated no intrauterine pregnancy and a complex mass with heterogeneous echotexture in the left adnexa measuring 1.7 × 2.3 × 2.6 cm with surrounding hyperemia. No clear gestational sac seen in the left adnexa. There was also noted to be a moderate amount of free fluid in the posterior cul-de-sac.

Interventions: Diagnostic laparoscopy with left salpingectomy.

Measurements and Main Results: The patient's urine pregnancy test was negative and serum b-hCG level was 19.8. Her hemoglobin dropped from 15.3 to 13.5 over the course of two hours. Diagnostic laparoscopy revealed approximately 200cc of clotted blood in the pelvis, but no evidence of active bleeding. Her left fallopian tube was minimally adherent to the pelvic sidewall and an ectopic pregnancy was noted within the left fallopian tube. Right fallopian tube bilateral ovaries appeared normal. Final pathology was consistent with chorionic villi.

Conclusion: The diagnosis of an ectopic pregnancy can be challenging. It is important to maintain a high clinical index of suspicion for an ectopic pregnancy even in the case of a negative urine pregnancy test.

6321

Should Expectant Management of Heterotopic Pregnancy be Considered?

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Study Objective: To compare expectant versus interventional management of Heterotopic pregnancies.

Design: A retrospective cohort study, from January 2011 to December 2020.

Setting: Single tertiary care center.

Patients or Participants: All women diagnosed with heterotopic pregnancy on ultrasound examination during the study period.

Interventions: Data were collected from women's' medical files including demographic, laboratory and ultrasound findings, management of heterotopic pregnancy, intrauterine pregnancy, follow up and delivery characteristics. Expectant and interventional management outcomes were compared. Data are presented as median and interquartile range.

Measurements and Main Results: Forty-one women were diagnosed with heterotopic pregnancy during the study period, of them 73.2% (n=30) following IVF treatment. Abdominal pain was the most frequent presenting symptom (n=25.6%). Ectopic pregnancy was diagnosed in the fallopian tubes in 36 (87.8%) of the women. Management was expectant in 10 (24.4%) and interventional in 31(75.6%) of the women. Expectant management was considered when patient was stable, and ectopic pregnancy did not continue to develop. Interventions included laparoscopic salpingectomy (n=26), laparoscopic cornual resection (n=2), laparotomic cornual resection (n=1) and gestational sac aspiration (n=2). Ongoing intra-uterine pregnancy was achieved in 6 (60%) and 77%(n=17) of the women in the expectant and interventional groups, respectively. All of the women managed expectantly reached term delivery, as opposed to 22 (71.0%) in the intervention management group (p=0.60). Multivariate analysis including: Age, vaginal bleeding, BHCG and management treatment, found BHCG as the only independent parameter associated with ongoing pregnancy rate (p=0.04).

Conclusion: Both expectant and interventional management were found to be acceptable when heterotopic pregnancy is diagnosed with high ongoing intra-uterine pregnancy rate and term deliveries. BHCG was found as the only independent parameter associated with the ongoing rate.

6326

Six-Step-Strategy for Ureterolysis and Adhesiolysis for an Obliterated Cul-De-Sac -Double Bipolar Method in Robotic Assisted Surgery

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Study Objective: To show a procedure of ureterolysis and adhesiolysis for Obliterated Cul-de-sac as a result of endometriosis.
Design: Step-by-step video demonstration of the surgical procedure.
Setting: Urban general hospital. Da Vinci Xi, Cutting device is Maryland bipolar forceps and connected with a specific energy platform at macro-mode 60W.
Patients or Participants: N/A.
Interventions: We have the following Six-Step-Strategy.
1. Mobilize the uterus to the anterior side with the uterine manipulator and mobilize the rectum to the cranial side to make clear the dissecting line in the adhesion between the uterus and rectum. This step is performed by the patient-side surgeon or the robotic arm.
2. Dissect the median area of the adhesion with Maryland forceps
3. Confirm the point where the ureters cross over the common iliac artery and perform ureterolysis near the adhered area. With our Double-Bipolar method, Maryland forceps can make this procedure much easier because we can grasp tissue and dissect adhesion with both blunt and sharp dissection.
4. Dissect the pararectal space and confirm the contour of the rectum.
5. Perform adhesiolysis extending to the Cul-de-sac and open the rectovaginal space.
6. Confirm whether or not rectal injuries have occurred with the air leak test.
Measurements and Main Results: N/A.
Conclusion: With this Six-Step-Strategy and Double Bipolar method, adhesiolysis and ureterolysis an Obliterated Cul-de-sac as a result of endometriosis can be performed safely and precisely in a Robotic-Assisted surgery session.

5683

Skeletal Muscle Relaxants for the Treatment of Myofascial Pelvic Pain and High Tone Pelvic Floor Disorders in Women: A Scoping Review

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Study Objective: To review the evidence of muscle relaxants and non-injectable drugs with muscle relaxant properties for the treatment of chronic pelvic pain. This includes investigation of whether the concept of skeletal muscle relaxant use for lower back striated muscle strain is a valid construct to apply to the context and treatment of women with chronic pelvic pain due to myofascial and hypertonic muscular dysfunction. The clinical effectiveness, side effects, and toxicology risk of the investigated drugs were characterized.
Design: A scoping review was conducted in accordance with PRISMA-ScR guidelines and protocols. Online databases were searched using MeSH and subject terms. Articles reporting evidence on skeletal muscle relaxant use were reviewed by two independent reviewers with a third reviewer for any discrepancies.
Setting: Scoping review.
Patients or Participants: N/A.
Interventions: N/A.
Measurements and Main Results: Comparison studies have not shown any skeletal muscle relaxant to be superior. Skeletal muscle relaxants are divided into two categories: antispastic and antispasmodic agents. Antispastic agents reduce muscle hypertonicity and involuntary jerks associated with neurological disorders. Antispasmodic agents aim to treat striated muscle spasms from musculoskeletal conditions such as low back pain and myofascial pain. Cyclobenzaprine is heavily studied, with demonstrated effectiveness for isolated conditions. Intravaginal diazepam may be beneficial, while other drugs have limited investigation. Considerable knowledge gaps remain regarding appropriate use of these medications in the context of pelvic pain.
Conclusion: Scant high-quality data exist to support the use of skeletal muscle relaxants for chronic pelvic pain secondary to myofascial and hypertonic muscular dysfunction. Antispastic agents have limited evidence. Antispasmodic agent usage should be based on side-effect profile, patient preference, abuse potential, and possible drug interactions. Future prospective research on antispasmodic agents in women with myofascial dysfunction is necessary to define medication safety, route, dosage, and clinical outcomes.

6626

Sliding Versus Shifting during Pelvic Laparoscopic Procedures

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Study Objective: To introduce the concept of body shifting as encountered during laparoscopic procedures in Trendelenburg position. To explain how to differentiate between sliding and shifting. To discuss potential consequences of body position changes in Trendelenburg position and to propose risk mitigating strategies.
Design: Surgical case video. Body position changes during entering and recovering from Trendelenburg position are demonstrated. Presentation is enhanced with diagrams.
Setting: Robotic pelvic surgery in morbidly obese patient.
Patients or Participants: The concept is presented on the example of single case.
Interventions: Visual assessment and marking of the position of patient's head during entering and leaving Trendelenburg position.
Measurements and Main Results: Obese patients in Trendelenburg position act as multilayer object. Observed changes in position are result of both sliding and shifting. In demonstrated case, the effect of shifting (10 cm) was twice more prominent than effect of sliding (5 cm).
Conclusion: Not all changes in patients' relationship to operating table in Trendelenburg position are result of sliding. Recognition and documentation of body shifting is important, as it results from patient's body intrinsic characteristics and is largely not preventable, which is in sharp contrast to sliding. Both sliding and shifting may result in displacement of patient's anatomy. In circumstances of legs being locked in stirrups, cephalad body displacement may result in nerves' stretch injuries.
In circumstances of sliding or shifting, after settling in Trendelenburg position, confirmation of absence of cephalad tension on legs, may be considered.
More research is needed on patient's positioning during laparoscopic cases, as most current recommendations are based on level III evidence.

6327

Sophisticated Dissection without Monopolar Scissors

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Study Objective: To demonstrate how the bipolar method allows for pinpoint dissection with minimal thermal spread in a variety of challenging operative scenarios in gynecology.
Design: Case presentations.
Setting: Urban general hospital in Japan.
Patients or Participants: From December 2018 to April 2021, we performed 485 robotic surgeries using the double bipolar method in a variety of procedures such as hysterectomy for benign pathology, robotic sacrocolpopexy and para-aortic and pelvic lymphadenectomy for cervical and endometrial cancer.

Interventions: Pinpoint dissection in the case of severe Douglas Pouch adhesion or bladder adhesion, transperitoneal lymphadenectomy and extraperitoneal para-aortic and pelvic lymphadenectomy and nerve-sparing radical trachelectomy is a great advantage. These challenging procedures require the elucidation of fine structures and well as accurate separation of adhered organs. The double bipolar method is accurate, powerful and efficient with minimal thermal spread.
Measurements and Main Results: Only one patient who had extensive adhesion due to previous surgery required surgery from postoperative peritonitis. All other patients recovered quickly and without complications.
Conclusion: Monopolar scissors are a standard robotic equipment, used by the majority of surgeons. Although monopolar scissors allow for good quality dissection, thermal spread is always a concern. The thermal spread is known to be source of intraoperative complications and reducing this problem is an important concern. As a result, we implemented the double bipolar method. Not only because of its pinpoint accuracy, but also because the cutting mechanism has minimal thermal spread which is desirable especially when dissection ultra-fine structures.

5669

Space Oriented Approach for Total Laparoscopic Hysterectomy: A New Concept to Prevent Ureteral Heat Damage Based on Clinical Pelvic Anatomy

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Study Objective: Ureteral thermal damage is an important complication of hysterectomy. Blind electrocautery or electrocautery against hemorrhage from periureteral vessels is supposed as a major cause of this complication. New concept of a rearranged approach to retroperitoneal space based on clinical anatomy of pelvis is introduced as 'space oriented approach' to prevent thermal damage of ureter in total laparoscopic hysterectomy. This approach is introduced in video and effect on peri-ureteral hemorrhage is verified.
Design: Retrospective case series.
Setting: Single hospital in Japan.
Patients or Participants: Randomly selected 16 patients, 8 patients in each category, undergone total laparoscopic hysterectomy in Osaka Rosai Hospital between 2018-2020.
Interventions: Total laparoscopic hysterectomy was done by 'space-oriented approach' and 'organ-oriented approach'. In 'space-oriented approach', ureter is kept wrapped in subperitoneal fascia with its feeding vessels. Pararectal space of Latzko is the primary target to be developed. A space in lateral side of sacrouterine ligament is the other target to be developed. Ureter is dislocated from uterine cervix as a consequence. In 'organ-oriented approach', ureter is directly approached to dislocated from uterine cervix.
Measurements and Main Results: Randomly selected surgical video of 8 cases of total laparoscopic hysterectomy done by 'space-oriented approach' was compared to 8 cases done by 'organ-oriented approach on periureteral electrocauterization before and after colpotomy. Fisher's exact test is used for statistical analysis. Total sides of electrocautery attempted in 8 cases are decreased significantly in 'space-oriented approach' before colpotomy (15/16 vs. 0/16, p=0.0000000566) and after colpotomy (10/16 vs. 0/16, p=0.000248) compared to historical control.
Conclusion: 'Space oriented approach' is an effective method to prevent ureteral thermal damage theoretically and clinically in total laparoscopic hysterectomy.

6389

Success of Serial Office Resection in Severe Asherman's Syndrome

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Study Objective: Demonstrate the feasibility and effectiveness of serial office hysteroscopic lysis of adhesions for a severe case of Asherman's Syndrome.
Design: Video.
Setting: Outpatient gynecologic clinic.
Patients or Participants: 38-year-old G1P1001 diagnosed with Asherman's Syndrome after a vaginal delivery followed by a postpartum hemorrhage requiring a D&C and Bakri balloon placement. She is amenorrheic and desires future fertility.
Interventions: The patient had three office visits for lysis of adhesions with a rigid hysteroscope and semi-rigid scissors. The first office hysteroscopy had a duration of 21 minutes, the second office hysteroscopy had a duration of 4 minutes, and on the third visit, no recurrent intrauterine adhesions were seen and no further resection was necessary. She was pretreated with ibuprofen prior to the procedure and tolerated the intervention well. The patient took 1mg estradiol PO BID during the treatment course.
Measurements and Main Results: The patient's intrauterine adhesions were completely resolved by the end of the hysteroscopy series. She tolerated all the office procedures well with minimal medication for pain control. We believe our vaginoscopy technique for office hysteroscopy procedures leads to minimal pain. Additionally, we demonstrate the necessary components and benefits of a sustainable office hysteroscopy practice.
Conclusion: Serial hysteroscopic resection in the office for severe Asherman's Syndrome is safe, effective, and well-tolerated by patients.

5862

Surgeon Gender and Performance Outcomes for Hysterectomies: Retrospective Cohort Study

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Study Objective: 1. To determine whether there are differences in patient and case characteristics among male versus female surgeons.
2. To determine whether there are differences in performance among male versus female surgeons with respect to several quality metrics for hysterectomies.
Design: Multi-center retrospective cohort study.
Primary outcome: composite of any complication or return to emergency room (ER) within 30 days of hysterectomy
Secondary outcomes: Grade II or greater complications (based on the Clavien-Dindo classification), return to ER, and operative time.
Covariates included patient, case, and surgeon characteristics.
Setting: Eight hospitals (4 academic and 4 community) in Ontario, Canada.
Patients or Participants: Consecutive hysterectomies performed between July 1, 2016, and December 30, 2019. Hysterectomies performed by gynecologic oncologists and those completed for invasive placentation were excluded. We included 2664 hysterectomies performed by 77 surgeons (54 females, 23 males).
Interventions: N/A.
Measurements and Main Results: We matched surgeries performed by female surgeons to those by male surgeons using a propensity score and compared outcomes by gender after adjusting for years in practice and additional post-residency surgical fellowship training. After matching, 963 surgeries performed by females were compared with 963 by males. There were no differences between hysterectomies performed by male and female surgeons for the primary outcome of any complication or return to emergency room within 30 days (RR 0.92, 95% CI 0.71-1.20, p=0.56), and no differences for the secondary outcomes of Grade II or greater complication (RR 1.01, 95% CI 0.71-1.45, p=0.96) or return to emergency room within 30 days (RR 0.81, 95% CI 0.55-1.20, p=0.30). Surgeries performed by males, however, were 24.72 minutes shorter compared to those performed by female surgeons (95% CI 18.09 − 31.34 minutes, p <0.001).

Conclusion: Complication and readmission rates following elective hysterectomy are similar for male and female surgeons, however male surgeons have a shorter operating time. Further research is required to elucidate contributing factors.

5992

Surgical Approach in a Giant Ovarian Endometrioma

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Study Objective: Report surgical approach in a difficult case of Giant Ovarian Endometrioma.
Design: Case report with imaging exams and description of the surgical approach, with narrated surgical video.
Setting: The prevalence of endometrioma is unknown, but it is expected to affect around 17-44% of women with endometriosis. The surgical management is recommended in cases as the large endometriomas. Usually, the endometrioma is adhered to the surrounding structure, therefore it is fundamental the surgeon's anatomic landmark knowledge and their experience in deep endometriosis surgery.
Patients or Participants: Female, 40 years old with previous nephrectomy and a giant ovarian endometrioma associated with deep endometriosis.
Interventions: Patient was submitted to laparoscopic surgery. A giant ovarian endometrioma occupied all the pelvis. The first step was to drain it, to make it possible to view the pelvis. Adhesiolysis was performed followed by left oophorectomy. It was primordial to dissect and visualize her only ureter. Her ureter was enlarged due to its adherence with a paracervical endometriosis nodule. After the ureterolysis and endometriosis nodule removal, there was no sign of ureter dilatation anymore. To perform a complete treatment for deep endometriosis, segmental rectosigmoidectomy and appendicectomy were done.
Measurements and Main Results: The patient was stable after the procedure, with hospital discharge on the 5th day after surgery. In the follow-up, the diet was slowly re-introduced, with good response. The pathology reports showed endometriosis in all specimens. The renal labs remained normal.
Conclusion: Giant ovarian endometrioma cases are challenging due to its requirement of surgical treatment. The imaging exams as magnetic resonance and ultrasound would give the surgeon a clue, but the final aspect of the pelvis is only known during the surgery. Therefore, it is very relevant to start the procedure with a strategy in mind.

6588

Surgical Excision of Endometriosis in the Setting of a Congenital Pelvic Kidney

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Study Objective: To demonstrate the surgical technique and anatomic consideration for excision of endometriosis in the setting of congenital pelvic kidney and demonstrate surgical technique for excision of appendiceal endometriosis.
Design: Video of case-presentation.
Setting: Academic hospital.
Patients or Participants: Single surgical patient.
Interventions: Surgical technique used for excision of endometriosis, requiring bilateral ureterolysis and appendectomy.
Measurements and Main Results: A 37-year-old G2P1012 woman presented with a history of chronic right lower quadrant pelvic pain, dysmenorrhea, and abnormal uterine bleeding. Her history was notable for recurrent urinary tract infections, nephrolithiasis, and known congenital malrotation of bilateral kidneys and a left congenital pelvic kidney. Prior surgical history significant for diagnostic laparoscopy with ablation of suspected endometriosis. Patient had trialed and failed multiple medical therapies. Congenital pelvic kidney was noted to be in close proximity to left adnexa on transvaginal ultrasound. Give her history of a pelvic kidney, a preoperative CT urogram was ordered to evaluate location of kidneys and ureters, as well as associated vasculature. Given completion of childbearing and desire for surgical management, she was consented for total laparoscopic hysterectomy, bilateral salpingectomy, and excision of endometriosis. Intraoperatively she was found to have extensive endometriosis with multiple lesions noted throughout the pelvis, including the perinephric peritoneum overlying the left pelvic kidney and left ureter, requiring bilateral ureterolysis. An appendectomy was also performed due to endometriosis overlying the appendix, cecum and surrounding pericolic adipose tissue. The entire procedure was performed laparoscopically and without complication. Histopathology confirmed final diagnosis of endometriosis of all submitted specimens, including the appendix. Patient with routine postoperative course, but notable for significant improvement of pelvic pain and a restored quality of life.
Conclusion: A congenital pelvic kidney is uncommon and requires knowledge of aberrant pelvic anatomy prior to surgical dissection of retroperitoneal spaces. Excision of endometriosis reduces symptom recurrence and an appendectomy should be performed when there is appendiceal involvement.

5564

Surgical Management of Tubo-Ovarian Abscesses That Failed Percutaneous Drainage

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Study Objective: Report outcomes in the management of tubo-ovarian abscesses (TOA) initially managed with percutaneous drainage.
Design: Retrospective chart review.
Setting: Tertiary University-affiliated Medical Center.
Patients or Participants: Patients who underwent percutaneous drain placement for TOA from 2003 to 2020 were included. Percutaneous drainage CPT codes were used to retrieve patient cases. Charts were subsequently reviewed manually. Cases with retrospective diagnoses of: Endometriosis or non-genital etiology of TOA were excluded.
Interventions: percutaneous drainage.
Measurements and Main Results: Sixty-six patients were identified, nine met exclusion criteria, and 57 were analyzed. Percutaneous drainage was successful in 42 patients, while surgery was ultimately required in 15 cases. Of 15 surgical cases only 4 occurred during the initial admission, whereas 11 were delayed and performed due to recurrence of TOA (5), persistence of symptomatic mass (3), or development of chronic pelvic pain (3). Three patients underwent salpingo-oophorectomy. Eight underwent hysterectomy with unilateral or bilateral salpingo-oophorectomy. All but one patient who underwent delayed intervention had it within 1 year of initial presentation.
Conclusion: Percutaneous drainage of TOA is initially successful in 93% of patients, however ultimately 26% of patients ultimately require surgical intervention.

5927

Surgical Steps of Total Laparoscopic Hysterectomy and Distinct Types of Energy

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Study Objective: Show different types of energy that can be used to perform laparoscopic hysterectomy and their particularities.
Design: Sequential demonstration of hysterectomy steps, using different types of energy (monopolar, bipolar, advanced bipolar and ultrasonic technology) through narrated footage.
Setting: The use of new generation energy sources in gynecological laparoscopy is steadily increasing. In addition to conventional monopolar and bipolar electrosurgery, many surgeons use advanced bipolar or devices that use ultrasonic technology to seal vessels and tissues. The choice of instrumentation may vary according to the complexity of the surgery, in addition to previous training or experience, in addition to the availability and cost of instrumentation, as well as the appeal of the pharmaceutical industry.
Patients or Participants: three different cases.
Interventions: The first surgery focus on the use of bipolar energy with cold scissors, we show how bipolar energy allows greater security in sealing the vessels, despite greater energy dispersion with moderate area of carbonized tissue. in sequence, the use of advanced bipolar energy, where there is less energy dispersion and carbonization of the tissue, either by reading the tissue's bioimpedance and subsequently cutting through the blade of the instrument itself. Finally on the last video we can see sealing and simultaneous cutting we the use of ultrasonic energy, with gain in agility but a reduction in the sealing depth. During colpotomy the use of monopolar energy coupled to the Hulk, presents a great dispersion of energy in the dome section, but guarantees agility and good cutting power.
Measurements and Main Results: With the technological expansion, new types of energy appeared to improve the surgical technique.
Conclusion: There is still difficulty in establishing a comparative plan between the new technologies. New clinical trials with adequate power with direct comparison of the various energy sources are needed to guide surgeons in choosing the most appropriate energy source for laparoscopic hysterectomy.

5923

Surgical Technique of a Laparoscopic Pericervical Tourniquet Placement during Laparoscopic Myomectomy

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Study Objective: To provide a brief overview of the utility of pericervical tourniquet placement during laparoscopic myomectomy to minimize blood loss, and to demonstrate the surgical placement technique of a laparoscopic pericervical tourniquet during laparoscopic.
Design: Surgical education video.
Setting: Operating room and simulation lab.
Patients or Participants: 38-year-old G1P1 with heavy menstrual bleeding and bulky enlarged fibroid uterus (12 cm intramural posterior fibroid conglomerate).
Interventions: Pericervical tourniquet.
Measurements and Main Results: Growing evidence suggests that mechanical tourniquets are useful adjunct tools for minimizing blood loss and transfusion risk during laparoscopic myomectomy. Our port configuration includes a right, left, suprapubic and umbilical ports. We commonly use a heavy gage (0 or 1), long (36-inch) monofilament.
Avascular windows are opened in the broad ligament bilaterally. The suprapubic port is used to pass the suture through the avascular windows and loop it around the uterus. Before the tourniquet is secured, careful inspection of the posterior aspect of the uterus is made to ensure that no important structures are looped within the tourniquet, as well as to ensure that the tourniquet is caudad to all the fibroids. A modified Roeder's knot is tied. The knot is tightened by pulling both ends of the suture. The post is pulled gently and by doing so, the knot starts to synch down to the uterus.
At this point the needle drivers are used to alternate and tighten sequentially the knot. Care is taken to not close the needle driver completely while synching down the knot. This ensures that the knot continues to slide until the tourniquet is tight around the uterus, compressing the uterine arteries bilaterally.
At the end of the myomectomy one end of the suture is cut, releasing the tourniquet and restoring normal blood flow to the uterus.
Conclusion: A laparoscopic pericervical tourniquet can be used as an adjunct to minimize blood loss during laparoscopic myomectomy.

6619

Surgical Techniques for Mini-Laparotomy Myomectomy

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Study Objective: Demonstrate techniques for optimizing the use of mini-laparotomy as a complement or alternative to laparoscopic myomectomy.
Design: Surgical technique video.
Setting: Operating room. The patient is positioned in low lithotomy, a uterine manipulator is placed and 10mL of dilute methylene blue is injected into the endometrial cavity. A traditional laparoscopic setup is utilized in addition to a mini-laparotomy tray. A medium-size wound protector is needed.
Patients or Participants: Single case of a patient with symptomatic uterine myomas requiring surgical management.
Interventions: Minimally invasive myomectomy.
Measurements and Main Results: For this video demonstration, the patient is lying supine in low lithotomy. A 3.5cm transverse mini-laparotomy incision has been created three finger breaths above the pubic symphysis. Measures to decrease blood loss during the procedure are taken. These include injection of dilute vasopressin 20u in 100cc of saline at the hysterotomy site, 600mcg of misoprostol administered per rectum at the time of prep in addition to infusing 1g of tranexamic acid before skin incision. The potential benefits of this modality include the ability to palpate myomas, in situ debulking and morcellation, use of a single hysterotomy for multiple myomectomies, and the conversion of the mini-laparotomy to a port site. Surgical techniques for tissue extraction, endometrial cavity defect repair, fibroid enucleation, and hysterotomy closure are also described.
Conclusion: Mini-laparotomy myomectomy may be an alternative or complement to laparoscopic myomectomy, allowing the surgeon the ability to palpate leiomyomas, morcellate in situ and minimize hysterotomy size that can potentially lead to decreased operating time and blood loss.

6596

Suture Hemostasis - Conservative Management of Ectopic Pregnancy

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Study Objective: The conservation of fertility in spite of recurrent ectopic pregnancy in women who want to continue to have children. This procedure will allow for the regeneration of the tubal structure which will make future pregnancies possible and affordable when compared to other methods such as in vitro fertilization.
Design: Case Study, early first trimester diagnosis of ectopic pregnancy which includes ultrasound and serial serum B-hCG levels will lead to medical or surgical management of the ectopic pregnancy.
Setting: Hospital, operating room.
Patients or Participants: Case Study 28-yo Gravida 4 Para 2 with a previous salpingectomy for and ectopic gestation presents with a recurrent ectopic in her remaining fallopian tube and had failed medical management with methotrexate. She was offered conservative surgical management with suture hemostasis.
Interventions: At laparotomy (in this case) or laparoscopy the ectopic site was identified in the fallopian tube. Overlapping vicryl rapide sutures were

placed proximal to the ectopic site and distal to it. An anterolateral incision was made in the ectopic site with removal of the products of conception. The site remained blood less, hemostasis of the surgical site was noted, peritoneal lavage performed and the abdomen closed in layers.
Measurements and Main Results: 1. Hemostatic suture placement. 2. Removal of the products of conception and confirmation of same on histopathology. 3. Hemostasis of the surgical site. 4. Confirmation of a tubal patency by a successful intrauterine pregnancy.
Conclusion: Suture hemostasis must be an option in ectopic pregnancy whether primary or recurrent since the method is cost effective and tubal patency can be confirmed in the post operative recovery phase. It allows for an additional conservative surgical option when hemostasis may be difficult using linear salpingostomy for larger ectopics leading to an unfortunate salpingectomy. A more extensive case series is recommended to further advance the technique and to note its potential benefits and drawbacks.

6358

Systematization of Laparoscopic Surgery for Deep Endometriosis

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Study Objective: The objective of the study is to show that a qualified team and the systematization of the surgical technique help to decrease the number of complications in laparoscopic surgery for deep endometriosis.
Design: Retrospective cohort during the period between 2017 to 2020.
Setting: Laparoscopic operating room with patient in semi-gynecological position.
Patients or Participants: 355 women with deep endometriosis.
Interventions: Surgeries were performed by the same team, with the same systematization. In all cases were performed cavity review, oophoroplasty and ovarian fixation, ureterolysis, hypogastric nerves identification and bowel disease treatment, and endometrial nodules exeresis. Postoperative complications, hospitalization time, fistulas, etc. were evaluated.
Measurements and Main Results: Of all the 355 surgery patients of the group, 86,98% had bowel disease, 40,82% had urinary tract disease, 24,85% ovary disease, 1,77% diaphragmatic disease, 3,55% parametrium injuries, concurrent or not. A percentage of 15,97% hysterectomies were performed, out of the total of 355 patients. The techniques used to treat bowel disease were rectosigmoidectomy in 15,38% of the cases, shaving in 39,05% of the cases, circular stapling in 14,79% of the cases, appendectomy in 17,15% of the cases, and right colectomy in 0,59% of the cases. Only one protective colostomy was performed in one of the cases (0,59%) due to the height of the wound when compared to the anal verge, and no drains were used in any of the cases. The average hospitalization time was 3 days (2 to 10), and no blood transfusions were required. On postoperative, there were 0,59% of cases with rectovaginal fistulas and 0,59% of cases with intestinal perforation.
Conclusion: The data showcased in our group review showed that deep endometriosis surgery is a high complexity procedure and should be performed by surgeons with a comprehensive experience in anatomy, together with multidisciplinary surgeons and systematizing the surgery technique, to achieve better results.

6678

Teaching Techniques in Retroperitoneal Dissection

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Study Objective: Teach surgical techniques in retroperitoneal dissection.
Design: Surgical video presentation.
Setting: University Hospital, Operating room.
Patients or Participants: Video for the presentation was selected based on extent of retroperitoneal dissection.
Interventions: Retroperitoneal dissection.
Measurements and Main Results: N/A.
Conclusion: An excellent knowledge of pelvic anatomy and use of the surgical techniques demonstrated will assist residents and fellows as they learn retroperitoneal dissection.

6630

Techniques of Laparoscopic Needle Entry

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Study Objective: Demonstrate techniques of laparoscopic large needle entry when using 5mm port-sites.
Design: 10 randomly assigned patients undergoing laparoscopic hysterectomy were selected in the past 3 months. 5 of the patient's surgery were recorded using the backloading needle technique and the other 5 patient's surgery were recorded using the vaginal approach. The techniques performed were based on surgeon's preference. The videos were only recorded during the introduction of a CT-1 needle into the abdomen when only 5mm trocars were present.
Setting: Academic Private Hospital in South Florida in the Main Operating Room in lithotomy position.
Patients or Participants: 10 randomly assigned patients undergoing laparoscopic hysterectomy. 5 of the patient's surgery were recorded using the backloading needle technique and the other 5 patient's surgery were recorded using the vaginal approach.
Interventions: None.
Measurements and Main Results: one video from each technique from each technique was selected for this educational. presentation based on quality of the image and demonstration of the technique. These demonstrate good alternative techniques of introduction of large needle into the abdomen without the need to extend the skin or fascial incision. These techniques are easy to incorporate in the gynecologic surgical practice.
Conclusion: There are two main techniques for introducing a large suture needle through the abdomen when using 5mm port-site while decreasing the risk of port-site incisional hernias and further extending surgery time for fascial closure at the end of the case.

6055

The Effect of Post-Operative Suppressive Treatment in Women with Endometriosis-Related Infertility

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Study Objective: To evaluate the effect of suppressive therapy on fertility and recurrence when administered after a conservative surgical treatment in women with endometriosis seeking pregnancy and to compare it with an inactive control.
Design: We performed a systematic review with meta-analysis. A search of MEDLINE, Embase and CENTRAL was performed by two independent reviewers from databases' inception until December 6, 2020.Two reviewers extracted data and assessed the risk of bias of the included trials (Cochrane risk-of-bias tool for randomized trials 2). Risk ratios (RR) were pooled by quantitative random effect meta-analysis. Overall strength of evidence was assessed using the GRADE method.
Setting: Included studies were randomized controlled trials.
Patients or Participants: Studies populations included reproductive-age women with endometriosis seeking pregnancy.

Interventions: Post-operative suppressive treatment was compared to an inactive control.
Measurements and Main Results: From 3138 citations, 19 trials (2028 participants) were included. No difference was observed between the treatment and the control group for pregnancy rates (RR 1.15; 95%CI 1.00, 1.32; GRADE moderate), live birth rates (RR 1.05; 95% CI 0.84, 1.32; GRADE low) and anatomical recurrence (RR 0.70; 95% CI 0.46, 1.07; GRADE low). However, when administered for three months or more, suppressive therapy significantly increased pregnancy rates (RR 1.22, 95%CI 1.04, 1.43). Post-operative suppressive therapy was also associated with reduced pain recurrence compared to control (RR 0.65; 95%CI 0.50, 0.84; GRADE moderate).
Conclusion: The effect of suppressive therapy administered after surgical treatment of endometriosis on fertility remains unclear but seems to increase chance of pregnancy when administered for three months or more and to effectively reduce pain recurrence after surgery.

5996
The Impact of the Covid-19 Surgical Pause on Operative Timings Elective Benign Gynaecological Surgery
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Study Objective: To assess the impact of Covid-19 global pandemic and surgical pause on operative timings in gynaecology.
Design: Retrospective cohort study of all laparoscopies and laparotomies undertaken in our gynaecological department (01/01/2019 - 31/12/2020). Cases and timings were identified using computerised theatre records and analysed using Excel.
Setting: Large National Health Service (NHS) University hospital in the United Kingdom
Patients or Participants: All gynaecological laparoscopies and laparotomies over 2-year period.
Interventions: The monthly median timings (anaesthetic, surgical, operative) were compared for 15 months (January 2019 - March 2020) preceding the Covid-19 measures being implemented with the subsequent 9 months (April - December 2020). The gynae-onccology, emergency and elective gynaecology groups were analysed separately to allow secondary assessment of the impact of surgical pause on surgical timings.
Measurements and Main Results: 1565 cases were performed (886 benign elective, 158 emergencies, 522 gynae-oncology) averaging 77 cases/month pre-Covid-19, 27 cases/month in the initial 3 months and 59 cases/month for the subsequent 6 months. The monthly median anaesthetic time increased from 25-31 minutes pre-Covid-19 to 50-53 minutes in the initial 3 months, with a slow return towards baseline over the subsequent 6 months (33-47 minutes). Surgical timings stayed within average monthly fluctuations in gynae-oncology and emergencies, however a clinically significant peak (245 minutes) was observed in benign elective operating times in the first full month of return compared to pre-Covid-19 (46-102 minutes).
Conclusion: There was a clinically significant increase in operative times following implementation of Covid-19 measures. The widest clinical impact was near doubling of anaesthetic time over the initial 3 months. The 6-week pause in operating also appeared to impact elective benign gynaecological surgical timings, however continued operating in gynae-oncology and emergencies appeared to have a protective effect on timings. These findings can aid effective surgical list planning to allow sufficient time for the additional measures on the return after the larger second wave.

5786
The Influence of Uterine Abnormalities on Uterine Peristalsis in the Non-Pregnant Uterus: A Systematic Review
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Study Objective: The aim of this systematic review is to explain the effect of uterine abnormalities, categorized in leiomyomas, adenomyosis and congenital uterine anomalies, on uterine peristalsis in the non-pregnant uterus.
Design: Systematic review.
Setting: N/A.
Patients or Participants: Non-pregnant women with uterine abnormalities such as adenomyosis, leiomyomas or congenital uterine anomalies.
Interventions: Measurement of uterine peristalsis.
Measurements and Main Results: Fourteen eligible studies were included; eight case-control studies and six controlled prospective studies. The sample sizes ranged from twelve to 205 participants. Various methods of analyzing uterine contractions were used, including transvaginal ultrasound, hysterosalpingo-radionuclide scintigraphy, cine MR and intrauterine pressure measurement. The researched types of uterine abnormalities seem to have an influence on uterine peristalsis, majorly reflected in the presence and frequency of uterine contractions. The included studies suggest that the presence of uterine abnormalities leads to a decreased presence of uterine peristalsis. An increment of frequency of uterine contractions was noted in presence of uterine abnormalities as well. Furthermore, dysperistalsis was observed in patients with leiomyomas, endometriosis and adenomyosis.
The included studies were difficult to compare due to heterogeneity, a result of differences in e.g., used methods, analysis and definition of uterine peristalsis and the report of the phases of the menstrual cycle.
Conclusion: It can be concluded that uterine abnormalities have a clear adverse effect on uterine peristalsis. Further research is needed on objective measurement tools, treatment and clinical consequences of abnormal uterine peristalsis in patients with uterine abnormalities.

6646
The Intrauterine Bigatti Shaver: Our Experience and Modifications
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Study Objective: We report our experience and modifications regarding the surgeries conducted with the hysteroscopy called Integrated Bigatti Shaver (IBS).
Design: We present the surgical cases successfully treated with IBS.
Setting: Tokoname City Hospital.
Patients or Participants: The surgical cases successfully treated with IBS.
Interventions: Resectoscopy.
Measurements and Main Results: Unlike the conventional resectoscopy, the main advantage of the IBS® is that the tissue chips or adhesions were removed without any thermal damage occurring on the endometrium.
Conclusion: The thermal damage of healthy endometrium should be avoided in view of reproduction.
Further investigations are needed to determine the effectiveness of IBS for patients whose fertility preservation is requested.

6106
The Power of Proximity: Effects of a Multidisciplinary Fibroid Clinic on Inter-Specialty Perceptions and Practice Patterns
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Study Objective: To assess the effects of a multidisciplinary fibroid clinic on practice patterns and clinician perceptions.
Design: Annual rates of hysterectomies, myomectomies, and uterine fibroid embolizations (UFEs) were collected from 2012-2019. Rates of each procedure were compared over time before and after launching a multidisciplinary fibroid clinic at the academic medical center. Referral rates were also compared. The minimally invasive gynecologic surgeons (MIGSs)

and interventional radiologists (IRs) involved in the clinic were interviewed 2 years prior to and after the clinic launch about their approaches to fibroids and perceptions of others who treat this condition. A phenomenological approach was used to identify and compare themes within the interviews by two researchers with excellent inter-rater agreement (k = 0.80).
Setting: Urban healthcare system with an academic medical center (894 beds) as well as community affiliate hospitals.
Patients or Participants: 6361 procedures performed for symptomatic uterine fibroids from 2012-2019 for 5747 patients (average age 49±9 years).
Interventions: Creation of a multidisciplinary fibroid treatment clinic staffed by MIGSs and IRs.
Measurements and Main Results: Annual rates of fibroid procedures increased over time (p<0.01) but the relative number of UFEs decreased (p=0.01). UFE referrals by the clinic MIGSs significantly increased as did the number of combined fibroid procedures (p<0.01). However, the rates of one fibroid procedure relative to others were not different between the clinic and rest of the healthcare system (p=0.55). Specialty-specific perceptions of fibroid treatments and inter-specialty dynamics did not change. Despite this, clinicians unanimously perceived the clinic and post-clinic practice patterns as positive and distinct from their previous work and relationships between gynecology and IR elsewhere.
Conclusion: Creating the right practice environment may be more important for fostering inter-specialty collaboration and work satisfaction than shared mental models or procedural volumes in certain practice settings.

5853

The Professional Instagram Influencer: Residency Recruitment in the Age of COVID

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Study Objective: Does a residency-specific instagram account help recruit medical students to apply to our program?
Design: A 10 question survey was sent electronically to the medical students who applied to our residency program. The survey was sent post-match to avoid any NRMP violations.
Setting: Electronic survey.
Patients or Participants: 4th year medical students who applied to our OB/GYN residency program.
Interventions: N/A.
Measurements and Main Results: We found that 85% of people applying to our residency program utilized our instagram account to learn more about the program, with 55% applicants stating it had an influence on where they ranked us on their match list, and 95% of applicants answering that residency-specific instagram pages are useful in the match process. One shortcoming of our study is our low response rate, which is likely secondary to the survey being sent out post-match to avoid any NRMP violations.
Conclusion: A residency-specific instagram account is a useful recruiting tool for OB/GYN residency programs.

6213

The Relationship between Increasing Patient Body Mass Index and Operating Room Scheduling Inaccuracies at the Time of Hysterectomy

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Study Objective: To assess the relationship between patient body mass index (BMI) and operating room (OR) scheduling inaccuracies at the time of hysterectomy.
Design: Retrospective cohort study.
Setting: Academic medical center.
Patients or Participants: Scheduled hysterectomies (n=951) performed from 11/2017 through 02/2020 for any gynecologic indication.
Interventions: Hysterectomy by any route.
Measurements and Main Results: The primary outcome was operating room time scheduling inaccuracy in minutes, defined as the difference between the scheduled and the actual operating room time.
The mean scheduling inaccuracy for women with normal weight, overweight, and class I, II, and III obesity was 22.2, 28.4, 33.5, 38.3, and 48.2 minutes, respectively (p<0.001).
Multivariable linear regression analysis adjusted for patient age, the presence of major cardiopulmonary comorbidities, ASA category, anesthetic type, abdominal surgical history, number of procedures performed, procedure route, and uterine weight. Normal and overweight women were similarly under-scheduled. Compared with normal-weight women, those with class 1 and 3 obesity were, on average, 12.7 (95% CI 2.1-23.3, p=0.019) and 18.9 (95% CI 4.4-33.3, p=0.010), respectively, more minutes under-scheduled. (The average scheduling inaccuracy of women with class 2 obesity did not differ significantly from women with normal weight.)
Obese women whose surgeries were under-scheduled, compared to those who were not, spent a significantly greater proportion of their operating room time in operative time (82.6% vs. 74.6%, p<0.001) as compared to pre-operative positioning time (12.1% vs. 18.3%, p<0.001) or non-operative anesthetic time (15.6% vs. 21.0%, p<0.001).
Conclusion: When adjusted for key factors that may affect operating room time, obese women were significantly more under-scheduled than women of normal weight. Obese women with under-scheduled cases spent proportionally more OR time in operative as opposed to non-operative time. Future studies can assess whether awareness of this tendency helps surgeons more accurately predict operating room time required for hysterectomy for obese women.

6702

The Relationship between Ovarian Endometrioma Ultrasonographic Size and Treatment with Dienogest: A Retrospective Cohort Study

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Study Objective: To examine the change in ultrasonographic size of ovarian endometrioma during treatment with dienogest
Design: Retrospective single cohort chart review from 2011-2021.
Setting: Academic university-affiliated hospital ambulatory clinics
Patients or Participants: Patients from the study authors' practices were included who had ultrasound findings consistent with ovarian endometriomas. Those who were prescribed dienogest with at least one follow-up ultrasound 3 months or more after treatment initiation were included. Patients also had to be non-pregnant, premenopausal and over the age of 18. Patients were excluded if they underwent surgical management between ultrasonographic assessments of their endometrioma. Sample size was calculated to require 21 patients to detect a mean of the differences in endometrioma size of 1cm, with a power of 80% and a 5% level of significance, assuming the standard deviation of 1.5.
Interventions: Dienogest 2 mg orally daily for at least 3 months.
Measurements and Main Results: The primary outcome assessed was change in ultrasound measurement of endometrioma maximum diameter over the study period and secondary outcome was change in total volume. Demographic information was tabulated and described in means and

measures of variance. The outcomes were assessed with a paired t-test. A sensitivity analysis was performed for those patients with a surgical diagnosis of endometriosis. A total of 53 patients met inclusion criteria. The average age of participants was 37.72 +/- 6.35, and they were followed for an average of 14.19 +/- 14.17 months. The average change in endometrioma greatest maximum diameter was 0.77 +/- 1.59 (p=0.002) and change in volume was 3.84 +/- 59.00 cm^3 (p=0.67). Sensitivity analysis demonstrated a decrease in endometrioma maximum diameter and volume but was not significant.

Conclusion: Dienogest has the potential to reduce the size of ovarian endometrioma. Future prospective studies are warranted to determine if medical treatment can shrink endometriomas which may ultimately prevent the need for surgery and protect fertility.

6627

The Risk of Endometrial Hyperplasia and Malignancy May be Increased in Patients with Endometriosis

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Study Objective: The objective of our study is to further investigate the role of endometriosis on subsequent diagnosis of endometrial hyperplasia and malignancy (EHM).
Design: Retrospective cohort study
Setting: Single academic institution
Patients or Participants: All cases of histologically diagnosed endometriosis were evaluated between 2005 and 2020. Women over 18 years of age were included. All endometrial malignancies were included for analysis. Patients with a history of hysterectomy were excluded.
Interventions: No interventions were performed
Measurements and Main Results: Demographic information and past medical and surgical history were assessed. For the EHM cohort, oncologic data, endometriosis stage, patient age and body mass index (BMI) at time of diagnosis were collected. A total of 2,122 women with endometriosis were included. Of these, 198 (9.3%) were found to have co-existing eutopic endometrial hyperplasia (n=56) or malignancy (n=142). At the time of oncologic diagnosis, the mean age was 55.6 years and mean BMI was 33.1. Within the EHM group, 82.3% of endometriosis diagnoses were made at the time of their surgical management and the majority were stage 1 by ASRM criteria (70.0%). When comparing characteristics between those with and without a diagnosis of EHM, there was no significant difference in race, ethnicity, tobacco use, prior diagnosis of PCOS or diagnosis of breast or colon cancer. Significant differences were seen in type 2 diabetes (p<0.0001), hypertension (p<0.0001), prior use of tamoxifen (p=0.0021), gravidity (p=0.0331) and parity (p<0.0001). Statistical analysis was performed using chi-square and Mann-Whitney tests. A p-value of <0.05 was considered significant.
Conclusion: Compared to the population prevalence of less than 1% of both endometrial hyperplasia and malignancy, our study suggests that endometriosis may be a predictor of subsequent diagnosis of endometrial cancer and malignancy. Further research is needed to control for known confounders of endometrial hyperplasia and malignancy.

5852

The Use of Laparoscopy for Suspected Postpartum Uterine Rupture: Changing the Paradigm.

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Study Objective: To investigate the feasibility of laparoscopy as both diagnostic and operative tool in patients with suspected postpartum uterine rupture.
Design: Case series.
Setting: Tertiary university-affiliated hospital.
Patients or Participants: Sixteen women who were diagnosed with postpartum uterine rupture Between November 2012 and April 2021.
Interventions: Emergent laparoscopy or laparotomy in women with suspected post-partum uterine rupture.
Measurements and Main Results: Clinical and demographic data were retrospectively collected and analyzed. During the study period 7 women (43.7%) underwent laparoscopy and 9 women (56.2%) laparotomy for suspected postpartum uterine rupture. There where five cases of uterine rupture in the laparoscopy group and 9 cases in the laparotomy group all of which had the uterine defect sutured. There was no difference in hemodynamic parameters between the two groups. The median time interval from delivery to surgery was 66(IQR 39.5-187.5) minutes in the laparotomy group and 202(IQR 70-485) minutes in the laparoscopy group. The median operative time for laparoscopic surgery was 80(IQR 60-114) minutes and 73(IQR 58-101.5) minutes for the laparotomy group. Three women who underwent laparotomy (33.3%) and one who underwent laparoscopy (14.2%) were admitted to the intensive care unit following surgery. Blood transfusion was required in five women who had laparotomy (55.5%) and one who had laparoscopy (14.2%). Hospitalization period was longer in women who had laparotomy (median (IQR) of 5(4-5) days vs. 3(3-4)). There were no conversions to laparotomy in the laparoscopy group.
Conclusion: In careful patient selection and surgical expertise laparoscopic surgery for suspected postpartum uterine rupture is feasible and safe. It has the benefit of shorter recovery and early mobilization which is paramount important in women following delivery.

6005

The Use of Uterine Tourniquet to Decrease Blood Loss and Transfusion Rate during Myomectomy: A Systematic Review and Meta-Analysis.

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Study Objective: To determine the impact of uterine tourniquet on blood loss and transfusion rates during myomectomy.
Design: This study is a systematic review and meta-analysis. Electronic databases were searched from inception until October 3, 2020, for relevant articles.
Setting: Two reviewers independently screened all studies and extracted the data for the meta-analysis.
Patients or Participants: Studies involving pre-menopausal patients with benign, symptomatic uterine fibroids undergoing open, laparoscopic, or robotic myomectomy were included. Studies with pregnant or postmenopausal patients were excluded.
Interventions: Use of a tourniquet around the uterine isthmus and/or the infundibulopelvic ligament compared to control group which received no blood conservation intervention.
Measurements and Main Results: Five studies published between 2005 to 2020 were included, involving a total of 369 patients. 198 patients had a tourniquet used intra-operatively. All patients underwent open myomectomy. Three studies were randomized control trials and two were retrospective cohort studies. Estimated blood loss was significantly lower in the tourniquet group, with an effect size of 330 mL, $z = 4.35$, $p < 0.001$. 7% (14 out of 198) of patients received transfusion in the tourniquet group and 21% (36 out of 171) of patients received transfusion in the control group, the decrease in post op transfusion is at the border of statistical significance, $z = 1.95$, $p = 0.05$. Operative time and complications were not

significantly different between the two groups. Overall, the included studies had a high risk of bias and large heterogeneity.
Conclusion: The use of uterine tourniquet at the time of abdominal myomectomy decreases blood loss and may decrease post operative transfusion. The intervention is inexpensive, simple and does not increase operative time or complications. Further high-quality research is needed.

5629

The Utility of Postoperative Hemoglobin Testing for Benign Hysterectomy and Myomectomy

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Study Objective: To evaluate the incidence of a significant decrease in hemoglobin (Hgb), defined as ≥ 2g/dL, on routine labs postoperative day 1 (POD1) after benign hysterectomy and myomectomy and compare subsequent interventions in those with and without a significant decrease.
Design: This is a retrospective cohort study. Operative notes and clinical encounters up to six weeks after surgery were reviewed.
Setting: N/A.
Patients or Participants: Those undergoing laparoscopic, robotic-assisted, abdominal, or vaginal hysterectomy or myomectomy from 1/2014- 1/2019 at a tertiary referral center. Patients with known malignancy, hysteroscopic or concomitant cesarean surgeries were excluded.
Interventions: N/A.
Measurements and Main Results: Table 1 includes patient characteristics. Descriptive statistics compared outcomes between those with and without Hgb decrease ≥ 2 g/dL on POD1. 1120 patients were included. 984 had pre- and post-operative Hgb, 41% with a significant decrease. A decrease was least common with the laparoscopic route.
Postoperative interventions were not significantly different between groups. (Table 2) However, those with a significant Hgb decrease more frequently had an additional CBC drawn.
When comparing those with routine postoperative labs drawn (n=1017) vs. without (n=103) there were no differences in interventions other than additional lab draws and length of stay.
Conclusion: There is limited utility in measuring postoperative hemoglobin routinely after benign hysterectomy and myomectomy given no difference in interventions performed between groups.

Table 1: Patient demographics and peri-operative characteristics.

	Hgb drop ≥ 2 (n=400)	Hgb drop < 2 (n=584)	p-value
Age (years)	47.6	45.4	0.0014
BMI	30.9	32.9	<0.0001
Pre-operative hemoglobin	12.8	11.5	<0.0001
Operating Time (minutes)	180.4	176.3	0.35
EBL (ml)	358	234	<0.0001

Table 2: Postoperative interventions.

	Hgb drop ≥ 2 (n=400)	Hgb drop < 2 (n=584)	p-value
Transfusion	28 (7%)	25 (4%)	0.06
Imaging	10 (2.5%)	15 (2.6%)	0.94
Additional CBC	76 (19%)	78 (13%)	0.017
Length of stay	1.9	1.8	0.2
Re-operation	3 (0.75%)*	0 (0%)	0.04

* 1 for ureteral obstruction.

5630

The Valero Tip and Attachment for Cooper Surgical Rumi Uterine Manipulator

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Study Objective: To produce a Stainless-Steel surgical degree tip and attachment that works with uterine manipulator and allows the use of cervical cup for different types of surgeries.
- Plastic pollution continue to be a serious problem for human health and environment, it's estimate that for 2030, 53 million tonnes of plastic could end up in rivers, lakes and oceans. One example of how changing consumption patterns can improve the environment is the use and disposal of plastics. The global theme of World Environment Day is "Beat Plastic Pollution". It aims to change consumer behaviour with the challenge, "If you can't reuse it, refuse it."
In OR we don't have exception, for reducing Medical Waste and optimizing our ORs for the future, we design a stainless-steel surgical degree tip and attachment for the uterine manipulator.
Design: We produce a 3-D Model plastic tip as a prototype, subsequently a stainless-steel tip and attachment
Setting: Like it adapts to a uterine manipulator, patient position is lithotomy, the Tip attaches by a "ring" then allows the use of a cervical cup that adapts to the ring.
Patients or Participants: N/A.
Interventions: N/A.
Measurements and Main Results: The design patent pending through the School of Medicine and Engineer, attach to the three types of uterine manipulator also it allows to use the cervical cup and provides the ability to use it in hysterectomy or other procedures without the cervical cup.
Base on this we present the prototype guide and assemble.
Conclusion: The reestirilization of the tip allows us not promote the use of plastic waste.

6528

Three Original Methods of Colpopoiesis from the Peritoneum of Pelvis with Laparoscopic Ascension. Choice of Tactics and Treatment Result.

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Study Objective: To compare results of 3 original techniques of laparoscopically assisted colpopoiesis from the pelvic peritoneum.
Design: Prospective Level II study.
Setting: Department of Operative Gynecology, National Medical Research Center for Obstetrics, Gynecology and Perinatology of the Ministry of Healthcare of Russia.
Patients or Participants: We recruited 226 patients with utero-vaginal aplasia (MRKH).
Interventions: We used colpopoiesis from the peritoneum of the pelvis, developed by Adamyan, as a treatment method for patients with uterine and vaginal aplasia (MRKH).

Since 2012, neovagina creation has been undertaken utilizing three different methods: laparoscopic-perineal technique, total laparoscopic technique, and combined laparoscopic-perineal technique with ligatures used to lower the peritoneum.

Measurements and Main Results: A total of 81 patients underwent colpopoiesis using the laparoscopic-perineal technique, employing in 105 cases a total laparoscopic colpopoiesis technique and in employing in 40 case a laparoscopic-perineal technique with ligatures. Rudimentary uterine horns were found in 37 patients. 18 percent had kidney dystopia, of which 12% had a pelvic kidney, and 10% had kidney aplasia.

There were no significant differences between the three types of colpopoiesis in terms of blood loss, the duration of surgery, the length of stay in the postoperative hospital, and the use of painkillers in the postoperative period.

In terms of complications, there was 1 case of bladder injury, and 1 case of rectal injury in patients with prior fibrosis was diagnosed and repaired during surgery. Postoperative neovaginal stricture was observed in 5 cases, and dyspareunia in 11 cases, which improved with the expansion of the vagina within 1 month.

Conclusion: Laparoscopy Involving neovagina creation is an effective and safe operation, even in patients with unsuccessful previous neovagina attempts and radiation-induced fibrosis, which provides sufficient length of neovagina of 10-12 *c*m, functional aspects such as lubrication, epithelialization, extensibility, and sensitivity. However, such interventions, especially in complex cases, should be provided only in specialized medical centers.

6277

Time to Diagnosis for Endometriosis by Race

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Study Objective: To determine if there is a difference in time to surgical diagnosis of endometriosis amongst patients of different racial backgrounds.

Design: Retrospective cohort study of all surgical treatment of endometriosis between 2015 – 2020.

Setting: Two Boston-area teaching hospitals.

Patients or Participants: All female patients, 18 years and older, who underwent surgical treatment for endometriosis via excision and/or ablation of the disease were identified using CPT code 58662. Patients are excluded if they had a prior surgical diagnosis of endometriosis or no treatment for endometriosis was described at time of surgery based on review of operative report.

Interventions: N/A.

Measurements and Main Results: Our primary outcome of interest is time to diagnosis of endometriosis, which is defined as date of onset of symptoms per patient report ascertained through chart review to date of surgery for endometriosis. Our primary exposure of interest is patient race. During our preliminary review, a total of 198 patients were included, 184 white patients (92.9%) and 14 black patients (7.1%). The average time to diagnosis for our patient cohort was 40.6 ± 56.9 months. Average time to diagnosis was 40.3 ± 56.8 for white patients and 43.7 ± 60.9 for black patients. Most patients presented with complains of pelvic pain (87.3%) and dysmenorrhea (72.5%). Within our cohort, 41.7% of black patients were given a diagnosis of fibroids prior to their surgical diagnosis of endometriosis, compared to 18.5% of white patients.

Conclusion: In our small cohort of preliminary results, we do not observe a statistically significant difference in time to surgical diagnosis of endometriosis from onset of patient reported symptom between black and white patients. A larger sample size and prospective studies are needed to more accurately assess for the true difference in time to diagnosis of endometriosis among patients of different races and ethnicities.

5875

Tips and Tricks When Performing an Adenomyomectomy

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Study Objective: To present principles and techniques for safe and efficient laparoscopic surgery during excision of an adenomyoma.

Design: Stepwise educational demonstration of techniques with narrated video footage.

Setting: Adenomyomas are not always easily excised and often a surgical plane cannot be easily identified. Similar to myomectomies, an adenomyomectomy may be associated with increased blood loss. In this video, we review key principles and techniques to safely perform a laparoscopic adenomyomectomy.

Patients or Participants: 33-year-old female with a 9cm uterine mass experiencing menorrhagia and dysmenorrhea.

Interventions: The key principles for safe and effective laparoscopic adenomyomectomy include:
- Preoperative administration of Misoprostol
- Instillation of Vasopressin in planned incision line
- Intraoperative use of tranexamic acid
- Performing a uterine artery ligation
- Knowledge of anatomical landmarks
- Performing a careful dissection
- Uterine instillation of methylene blue
- Appropriate instrument use

Measurements and Main Results: The patient recovered well without any postoperative complications.

Conclusion: Adenomyoma excision can be safely performed if one understands appropriate surgical techniques and solutions to improve surgical outcomes.

6035

Tips and Tricks for Deep Endometriosis in the Frozen Pelvis

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Study Objective: The objective of this study was to describe an approach to deep endometriosis in the frozen pelvis. Given it's high complexity, these cases must be thoroughly studied by every pelvic surgeon.

Design: Video description of tips and tricks to navigate through the frozen pelvis.

Setting: N/A.

Patients or Participants: The surgery was performed in a 20 years old woman who suffered from extensive retrocervical endometriotic lesions with obliteration of the pouch of Douglas. She presented with dysmenorrhea, dyspareunia, dyschezia and tenesmus. Her diagnosis was made through physical examination, ultrasound and MRI. She had an endometrioma in her left ovary and a lesion on the intestinal wall with 1.6 cm of infiltration and 3.5cm of extension, totaling 32% of the intestinal loop diameter.

Interventions: We start the surgery through the development of the avascular anatomical spaces. To loosen the intestinal lesion of the uterine wall, we traction the rectum centrally and posteriorly, and dissect towards the rectovaginal septum, passing the lesion area. In cases of endometriosis

with extension to the ovarian pit, we like to remove the posterior leaflet of the broad ligament in conjunction with the uterosacral ligament while the assistant surgeon keeps the ureter and hypogastric nerve apart. Finally, after circumventing all the lesion and preserving the pelvic innervation, the excess fibrotic process must be resected by shaving the intestinal wall to reduce the lesion size and allow the discoid resection.

Measurements and Main Results: We conclude that the surgical technique in complex frozen pelvis cases must be flawless. Usually, the anatomy is very distorted and is more demanding to the surgeon. Thus, the correct use of energy devices and the help of the surgical assistant is key for successful outcome.

Conclusion: In summary, describe useful tips and tricks that equip the surgeon to navigate through the complex anatomy of a frozen pelvis.

6662

Tips and Tricks: Laparoscopic Hysterectomy with Large Cervical Fibroid

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Study Objective: This video describes various techniques to successfully perform a hysterectomy with a large cervical fibroid in a minimally invasive fashion.

Design: Case studies of two patients with large cervical fibroids who underwent definitive surgical management with total laparoscopic hysterectomy (TLH).

Setting: The video clips were taken in the operating room during planned procedures for two separate cases of patients undergoing TLH with cervical fibroids. Both patients were positioned in dorsal lithotomy with arms tucked.

Patients or Participants: The two patients each had 8-9 cm symptomatic cervical fibroids for which they desired definitive surgical management with hysterectomy. Their exams differed in length and accessibility of the cervix and in BMIs, as one patient had a shortened cervix with BMI of 28 and the other had an effaced and deviated cervix and BMI of 32.

Interventions: A set of techniques were employed to mitigate the challenge of TLH with a large cervical fibroid. This included pretreatment with Lupron, ureteral stent placement, ligation of uterine arteries at their origin, and different methods for completing colpotomy.

Measurements and Main Results: The cases exemplified how these techniques can be successful and how to use alternate approaches when unsuccessful. Both hysterectomies were successfully completed laparoscopically.

Conclusion: Cervical fibroids can present a challenge to accomplishing hysterectomy in a minimally invasive fashion. Successful laparoscopic hysterectomy can be performed with use of various techniques to reduce risk of bleeding and injury to nearby structures. More research is needed to help determine predictors for successful and unsuccessful applications of such techniques.

5804

Total Laparoscopic Hysterectomy without Mini-Laparotomy for a 7060g Myomatous Uterus with Cystic Degeneration.

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Study Objective: Uterine leiomyomas are the most common benign gynecological soft tissue tumors in women. Although the laparoscopic approach is a standard treatment option, it is more difficult to achieve minimally invasive hysterectomy in cases with giant myomatous uteri. The laparoscopic removal of a myomatous uterus over 7000g without mini-laparotomy has not been reported in literature. Here we report the surgical challenges in the case of a patient with a 7060g myomatous uterus with cystic degeneration.

Design: Stepwise demonstration of the technique with narrated video footage.

Setting: An urban general hospital.

Patients or Participants: A 54-year-old woman was referred to our department for treatment for a huge fibromatous uterus. She suffered pelvic pressure and abdominal distension for several months. A magnetic resonance imaging scan showed a cystic-degenerated fibromatous uterus measuring 27.5cm × 21.3cm × 29.5cm with no suggestion of malignancy.

Interventions: We performed a laparoscopic hysterectomy and bilateral salpingo-oophorectomy. Intraoperatively, we aspirated the contents of the degenerative cyst of the uterus for mass reduction, and then closed the cyst hole by suturing to prevent leakage of the contents. This was followed by our usual surgical steps. We removed the specimen transvaginally. The total weight of the uterus removed was 7060g, including 5300g of cyst contents. The operation lasted for 79 minutes, and the intraoperative blood loss was 50g. No intraoperative complications occurred.

Measurements and Main Results: The histology confirmed the diagnosis of leiomyoma. The patient's postoperative course was unremarkable with no complications.

Conclusion: Uterus size has been considered a barrier to the use of laparoscopy for hysterectomy. We believe this is the first reported laparoscopic hysterectomy without mini-laparotomy in a patient with a giant uterus, over 7000g. Though appropriate case selection is necessary, this case demonstrates the efficiency and safety of laparoscopic hysterectomy for giant myomatous uterus cases.

6251

Total Laparoscopic Hysterectomy – Analysis of Learning Points & Complications over a Span of Two Decades.

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Study Objective: 1. Analysis of learning curve for Total laparoscopic hysterectomy (TLH); 2. Comparison of complication rates of 773 TLH between 1st & 2nd decade.

Design: Retrospective comparative analysis of prospectively collected data (Canadian Task force II – 2).

Setting: Centre for Endoscopic Surgery.

Patients or Participants: Total 773 patients posted for TLH over 20-years (2000-2019) for benign pathology excluding malignancy, anesthetic unfit and pelvic organ prolapse cases.

Interventions: Total Laparoscopic Hysterectomy with or without Bilateral Salpingo-oophorectomy.

Measurements and Main Results: All cases were divided into initial 10-years (group-I) of 386 cases and later 10-years (group-II) of 387 cases. No difference found in patient's demographic characteristic between first and second group. Analysis was done from prospectively collected data from outpatient and inpatient records elucidated in a structure pre-set protocol. Intra-operative variants were reviewed from real time video graphic records. Statistical method used, mean and standard deviation for operating time. P value for statistical significance. Chi-square test & Student t-test for continuous and categorical variables. Odd Ratio, univariate & multivariate logistic regression analysis for association. Significant reduction in mean operative-time was observed in first 125 to 250th case of TLH (p=0.001) which reflects the impact of learning. Comparison between group-I and group-II revealed significant reduction in major and minor complication rate from 3.35% to 1.03% (p=0.0277) and 1.81% to 0.25% (p = 0.033) respectively. The bladder complication in group-I and II were 8 & 2 respectively and only group-I had 4 ureteric and 1 bowel injury. Conversion rate was 7.3% throughout where endometriosis, 2 previous LSCS & bowel adhesions emerged as the strongest predictors of conversion with OR=6.72, 4.71 & 2.57 respectively.

Conclusion: Appropriate supervised training and increased experience after learning curve leads to marked reduction in operative time and complication rates of TLH. Conversion rate is independent of experience.

5733

Total Vaginal Hysterectomy Using a Vessel Sealer Device Vs. Conventional Suture Ligation Technique: A Retrospective Cohort Analysis

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Study Objective: The aim of this study is to evaluate the duration of surgery, blood loss, and complications when performing a total vaginal hysterectomy (TVH) using a blood vessel sealer (BVS) device compared to standard technique.
Design: retrospective cohort analysis.
Setting: Tertiary care center serving a rural population.
Patients or Participants: 146 women undergoing TVH at the West Virginia University Hospitals system. The indications for the vaginal hysterectomy were recorded as either abnormal uterine bleeding (AUB), pelvic organ prolapse (POP), or other. Patient characteristics were recorded. The primary endpoint was the comparison of surgical times between the BVS and standard technique groups. Secondary endpoints were the amount of blood loss and complications after surgery between both groups. Complications were defined by blood loss >500 ml, conversion to laparotomy/laparoscopy, blood transfusion, urinary or bowel injury, readmission within 30 days, postoperative fever, and vaginal wall or labial burning.
Interventions: Use of a vessel sealer vs conventional technique.
Measurements and Main Results: Out of 142 surgeries, 102 patients had hysterectomies using standard technique and 40 used the BVS device. The two most common hysterectomy indications were AUB (32 with the vessel sealer and 45 with conventional technique) and POP repair (8 with the vessel sealer and 57 with conventional technique). Although the BVS group had faster surgical times than the standard technique group, the difference was not statistically significant (99.4 vs 112.1 minutes; p=0.0777). There was a significant difference in surgical blood loss in the vessel sealer group compared to the group of traditional surgery (240.5 vs 169.1 mL; p = 0.0343). There were no significant differences in complications following a TVH with a vessel sealer compared to the standard technique (OR=0.61; 95% CI 0.24 - 1.52).
Conclusion: The use of the vessel sealer device was not associated with decreased surgical times or complications and instead showed an increase in surgical blood loss.

6498

Training Inadequacies Among Accreditation Council for Graduate Medical Education (ACGME) Surgical Specialties

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Study Objective: To compare general trends in residency training operative experience between Obstetrics & Gynecology (OBGYN), Urology, and General Surgery as determined by ACGME, the governing body that sets the standards for US graduate medical education training programs.
Design: All available ACGME residency case log data was collected. OBGYN data was available from 2002-2019, Urology from 2015-2019, and General Surgery from 1999-2019. Operative experience was assessed, with particular attention to retroperitoneal dissection/ureterolysis and small bowel repair. The mean case numbers reported per resident were compared between the 2 groups using unpaired 2-tailed t tests, with P values < .05 considered significant.
Setting: N/A.
Patients or Participants: We reviewed data from approximately 865 ACGME-accredited institutions. Case log data was self-reported by residents as cases were performed each year of their training program.
Interventions: N/A.
Measurements and Main Results: The mean number of total gynecologic cases logged by OBGYN residents was 315.48 (SD 46.09). The mean number of cases logged by urology residents was as follows: intestinal diversion 5.25 (SD 1.02); ureteral exposure 207.23 (SD 3.44); gynecologic cases 35.9 (SD 1.22). The mean number of cases logged by general surgery residents was as follows: small bowel repair 14.13 (2.78); ureteral exposure 11.08 (2.54); gynecologic cases 4.19 (1.33).
Conclusion: Notably, both urology and general surgery training programs require cross-specialty exposure and familiarity with retroperitoneal dissection, ureterolysis, bladder and bowel repairs, whereas OBGYN training does not.
We propose multiple potential solutions for addressing these inadequacies in surgical training among OBGYN residents, including amending the base ACGME requirements for graduation to include some exposure to retroperitoneal dissection and bowel surgery in order to increase comfort level with operating in these spaces frequently encountered by gynecologic surgeons.

5687

Transcervical Fibroid Ablation with the Sonata® System for Treatment of Submucous and Large Uterine Fibroids

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Study Objective: To examine the role and benefits of transcervical fibroid ablation (TFA) in the treatment of submucous and large uterine fibroids.
Design: Subgroup analysis of two multicenter, prospective, controlled trials.
Setting: Academic and community hospitals in the UK, the Netherlands, the US and Mexico.
Patients or Participants: 197 women who underwent TFA with the Sonata® System within the FAST-EU and SONATA clinical trials.
Interventions: TFA was used to ablate fibroids under clinical trial protocol.
Measurements and Main Results: Key outcomes were changes in menstrual blood loss, symptom severity and health-related quality of life on the Uterine Fibroid Symptom and Quality-of-Life Questionnaire, health-related quality of life on the EQ-5D questionnaire, and surgical reinterventions for heavy menstrual bleeding. Among 197 women (with 534 treated fibroids), 86% of women with only submucous fibroids and 81% of women with large fibroids (>5 cm) experienced bleeding reduction within 3 months post-ablation. Overall symptom severity and health-related quality of life showed sustained, significant improvements over 12 months. Additional fibroid mapping of large fibroids with magnetic resonance imaging in the FAST-EU trial showed an average volume reduction of 68%. Among women with only submucous fibroids, the rate of surgical reintervention through 1 year of follow up was 3.7% in FAST-EU and 0.0% in SONATA.
Conclusion: With the Sonata System, TFA is an effective single-stage treatment option for non-pedunculated submucous myomata, and larger or deeper uterine fibroids (including fibroid clusters) for which hysteroscopic treatment is not suitable.

6169

Transcervical Radiofrequency Ablation for Symptomatic Adenomyosis: A Case Report

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Study Objective: To demonstrate the use of a transcervical radiofrequency ablation (RFA) device approved for symptomatic uterine fibroids as a possible treatment for adenomyosis.

Design: A case report.
Setting: Community hospital affiliate of a large university hospital.
Patients or Participants: 35-year-old gravida-2 para-0 female with uterine fibroids and infertility, presenting with heavy menstrual bleeding, dysmenorrhea, and recent 1st trimester miscarriage. Pelvic MRI showed a 12 cm uterus with a 2 cm endometrial polyp, 4.5 cm pedunculated fundal fibroid, and diffusely thickened posterior and fundal myometrium consistent with adenomyosis.
Interventions: The patient desired uterine-sparing surgical management and underwent a laparoscopy, hysteroscopy and transcervical RFA.
Measurements and Main Results: Laparoscopically, extensive posterior adenomyosis, a 4.5 cm pedunculated fibroid, and sub-centimeter exophytic fibroid were noted. Endometriosis and small left ovarian fibromas were incidentally diagnosed. Hysteroscopically, there was a 2 cm endometrial lesion with an otherwise normal endometrial cavity. The patient underwent laparoscopic myomectomy of 2 fibroids (without myometrial incision), excision of left ovarian fibromas, and excision of endometriosis in 2 areas, as well as hysteroscopic resection of the endometrial lesion. Ultrasound-guided transcervical RFA then targeted the thickened posterior myometrium with ablation of two adenomyotic regions (measuring 3.4 × 2.6 cm and 3.8 × 2.6 cm). Outgassing was visualized on intrauterine ultrasound images in these regions similar to ablated uterine fibroids and suggestive of successful adenomyosis ablation. Concomitant laparoscopy confirmed no thermal spread beyond uterine serosa.
The patient was discharged home the same day. Final pathology revealed fibroids, endometriosis, ovarian spindle cell tumor, and products of conception. On follow-up evaluation, she had no postoperative complaints and no pain medication requirements beyond the immediate postoperative period. Assessment of long-term symptomatic improvement and fertility outcomes are ongoing.
Conclusion: Transcervical radiofrequency ablation is a promising uterine-sparing treatment for patients with adenomyosis. Additional research is warranted to assess long-term symptom improvement and pregnancy outcomes.

6614
Transcriptomic Analysis of Endometrium in Patients with Adenomyosis and Endometriosis

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Study Objective: to analyze specific gene expression patterns and signaling pathways activation level in endometrial samples of patients with adenomyosis and endometriosis.
Design: Retrospective cohort study.
Setting: University Clinic.
Patients or Participants: 50 women with endometriosis, 20 women with adenomyosis, 35 women with tubal factor infertility (control group).
Interventions: Laparoscopic excision of endometriotic foci and adenomyomas, hysteroscopy with endometrial sampling. RNA was isolated from all samples and stored in RNA Later. Following histologic analysis of all samples, RNA sequencing was performed using Illumina HiSeq 3000 equipment for single-end sequencing.
We normalized all gene expression and pathway activation profiles of studied samples on endometrial samples of women from the control group, and then proceeded with identification of strongly differentially expressed genes and activated signaling pathways.
Measurements and Main Results: We performed transcriptomic analysis of 50 endometrial samples of patients with endometriosis, 20 endometrial samples of patients with adenomyosis, and 35 endometrial samples from patients of control group. Statistically significant difference in transcriptomic profiles of endometrium of women with endometriosis and adenomyosis was found. Top-10 most strongly similarly and differentially expressed genes and up- and down-activated signaling pathways were identified.
Conclusion: Our findings suggest that both adenomyosis and endometriosis are associated with specific molecular changes in endometrium. Such data could be potentially used for early diagnosis of adenomyosis, even when it is missed on ultrasonography. Moreover, identification of molecular differences between endometrium in adenomyosis and endometriosis can have important implications on understanding of the etiological aspects and can help in identifying novel drug targets.

5799
Transobturator Versus Single-Incision Sling for Predominant Stress Urinary Incontinent (SUI) Women: A Randomized Controlled Trial

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Study Objective: To assess whether single-incision sling (SIS) is non-inferior to transobturator (TOT) sling regarding efficacy for treating women with confirmed stress-predominant urinary incontinence (SUI).
Design: Prospective, parallel, non-blinded, multicenter, randomized controlled study.
Setting: Two tertiary, academic hospitals.
Patients or Participants: Ninety-nine patients were followed 6 and 12 months after surgery.
Interventions: Mid-urethral TOT sling (Obtryx II® – Halo; n=50) with regional anesthesia or SIS (Solyx®; n=49) with local anesthesia. Intention-to-treat analysis was performed.
Measurements and Main Results: The primary outcome was improvement in the Patient Global Improvement (PGI-I) and Kings Health Questionnaire (KHQ) instruments after treatment. Secondary outcomes were subjective improvement (improved/cured), number of reoperations, estimated blood loss (EBL), operative room (OR) time, post-op complications. Both groups were homogeneous (p=NS) regarding age (p=0.728), race(p=0.112), body mass index(p=0.082), menopausal status(p=0.359), vaginal deliveries(p=0.839), tobacco use(p=0.385) and sexual activity(p=0.605). There was no difference in the PGI after 6 (p=0.067) and 12 months(p=0.128) of treatment between the groups. KHQ scores were better improved in the TOT group for the following domains: role limitations(p=0.049), physical limitations(p=0.0105) and severity measures(p=0.0416). The other domains (general health, incontinence impact, personal relationships, emotions, sleep/energy) were not different between the groups. After 12 months, TOT group was only superior to SIS in the general health domain(p=0.0189). However, the TOT group presented higher subjective improvement after 6 months (93.62 vs 75%; p=0.013) than SIS group, with no significant difference after 12 months. Six patients from the SIS group were reoperated versus three from the TOT group(p=0.309). The SIS group presented a smaller EBL (17.95 vs 33.9 ml; p=<0.005) and shorter OR time (16 vs 40.3 min; p<0.005) than the TOT group. Erosion rate was higher in the SIS group(p=0.059). No major complications occurred in both groups.
Conclusion: TOT and SIS groups were equally effective after 6 and 12 months after treatment according to the PGI-I and KHQ instruments. Subjective improvement was higher in the TOT group after 6 months, with no difference after 12 months.

5664

Transvaginal Aspiration for Management of Huge Ovarian Endometrioma in Pregnancy

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Study Objective: To demonstrate a minimally invasive approach of a huge ovarian cyst during pregnancy.
Design: A step-by-step explanation of the patient's condition, diagnosis, surgical technique, and post-operative results.
Setting: The patient underwent transvaginal procedure in the lithotomy position and under intravenous sedation and ventilation by face mask.
Patients or Participants: A 34-year-old woman, gravida 1 at 12 weeks 5 days' gestation, presented with huge ovarian cyst. A transvaginal ultrasound demonstrated ovarian cyst measuring 10.4 × 8.2 cm with no evidence of malignancy, no free fluid, and a normal-appearing contralateral ovary. The crown-rump length measured 5.92 cm. On non-enhanced magnetic resonance imaging (MRI), 11 × 7 cm sized cystic lesion with high signal intensity in T1-weighted image (WI) and T1-weighted fat suppressed image, low signal intensity in T2 WI suggesting endometrioma, located in cul-de-sac was noted. Because the cyst was huge and deeply located in cul-de-sac, and the uterus was enlarged to 13 weeks size, approach through laparoscopy or even laparotomy was thought to be difficult and the risk of manipulation for uterus was high. So, we decided to aspirate the ovarian cyst through the vaginal route.
Interventions: Ultrasound-guided transvaginal aspiration was performed using an 18-G needle.
Measurements and Main Results: The operation time was 4 hours and 35 minutes with 305 mL dark brownish fluid drained. The patient recovered well and was discharged 2days after the procedure. There was no intraoperative or postoperative complication. Postoperative ultrasound revealed neither recurrence nor fetal abnormality. Until delivery, the patient was free of symptom and ultrasound revealed neither recurrence nor fetal abnormality.
Conclusion: In select pregnant woman with endometrioma requiring intervention, the risks of surgery may be minimized with aspiration. Transvaginal ultrasound-guided aspiration is a safe, feasible, and effective minimally invasive procedure for huge ovarian endometrioma in pregnancy.

6624

Transvaginal Natural Orifice Transluminal Endoscopic Surgery (vNOTES) for Anterior Entry in Patients with Prior Cesarean Section

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Study Objective: The objective of this video is to demonstrate the use of vNOTES technique for performing vesicouterine dissection to obtain entry into the anterior peritoneal space in patients with prior Cesarean section and resultant vesicouterine scarring
Design: Case report.
Setting: Case was performed at an academic medical center with patient placed in the dorsal lithotomy position. Screen was positioned near the patient's head and facing towards the feet with surgeons positioned between the legs to operate within the vaginal orifice.
Patients or Participants: Patient undergoing vNOTES hysterectomy for the indication of abnormal uterine bleeding and pelvic pain. Patient had undergone prior cesarean section.
Interventions: vNOTES technique was used to facilitate visualization and access for development of the vesicouterine space and allow anterior peritoneal entry in the setting of scarring secondary to prior cesarean section.
Measurements and Main Results: Patient underwent total hysterectomy and bilateral salpingectomy with minimal blood loss and without intraoperative or postoperative complications.
Conclusion: vNOTES allows use of the natural vaginal orifice with improved visualization and access for dissection of vesicouterine adhesions allowing safe entry into the anterior peritoneal cavity and offers an alternative to abdominal laparoscopy in situations where a traditional transvaginal approach may not be feasible.

6072

Transvaginal Retrieval of a Large Ovarian Cyst

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Study Objective: To demonstrate the use of a posterior colpotomy for transvaginal retrieval of intrabdominal specimens.
Design: Video case-report presentation.
Setting: Tertiary, academic hospital.
Patients or Participants: 55-yo nulligravid with a 12 cm left side adnexal mass and abdominal pain. She had a Ca 125 of 15.8 U/mL and her ultrasound showed no signs of malignancy with no internal Dopplers, no papillae, just a small solitary septation and thin walls. Finding suggestive of a cystoadenoma.
Interventions: Posterior colpotomy for the retrieval of a large ovarian cystoadenoma using a 15mm specimen retrieval pouch
Measurements and Main Results: a large cystoadenoma 12 cm size was removed through a colpotomy. The cyst was drained inside of a large laparoscopic specimen bag and then retrieved without difficulties.
Conclusion: The use of a posterior colpotomy for the transvaginal approach for retrieving specimens appears to be a safe approach. It minimizes the size of the abdominal incisions improving pain scores and cosmesis

6086

Treatment Failure Rates of Second-Generation Endometrial Ablation Devices in Premenopausal Women with BMI≥35 Kg/m^2

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Study Objective: To investigate the treatment failure rates of second-generation endometrial ablation (EA) devices in obese women with BMI≥35 kg/m^2 in a multi-site single health care system.
Design: Retrospective cohort study.
Setting: Academic community health care system.
Patients or Participants: Premenopausal women aged 18-51 years old who underwent second-generation endometrial ablation for benign indications.
Interventions: Women underwent Radiofrequency Ablation (RFA), Hydrothermal Ablation, Uterine Balloon Ablation, or Combined Argon/RFA Ablation between January 2010 to December 2020.
Measurements and Main Results: 1328 women were identified who underwent second-generation EA of which 1198 patients met criteria. Failure was defined as re-intervention via repeat EA or hysterectomy for persistent uterine bleeding. The overall EA failure rate was 13.9%, with a total of 167 women who required a re-intervention. The proportion of women with BMI<35 kg/m^2 vs BMI≥35 kg/m^2 who had a re-intervention was 12.3% vs 17.6% (p=0.019), with an odds ratio of 1.520 (95% CI: 1.083-2.132). Common preoperative diagnoses for re-intervention were abnormal uterine bleeding (73.7%), pelvic pain (50.3%), and fibroid (29.9%). Significant findings on pathology reports after re-intervention showed adenomyosis (44.9%) and fibroids (40.7%). The median time lapse between initial EA and re-intervention was 477 days.

Conclusion: Obesity (BMI≥35 kg/m^2) is a risk factor for failure of an endometrial ablation procedure. These findings may be helpful in determining appropriate candidates for this treatment option, as well as improving counseling on possible failure and subsequent risk of re-intervention after an endometrial ablation.

6337

Trends in Robotic Port Closure and Hernia Risk by Surgical Specialty

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Study Objective: Determine if the rate of robotic fascial port closure differs by surgical specialty and assess the relationship between fascial closure and port-site hernias after a robotic-assisted surgery.
Design: Retrospective chart review of patients undergoing robotic surgery by gynecologists, urologists and general surgeons in which a 10 mm assistant port was used.
Setting: Urban Teaching Hospital with dual-console robotic teaching program.
Patients or Participants: Patients on the Gynecology, Urology, and General Surgery services at the University of Colorado between in 2019 who underwent a robot-assisted surgical procedure with or without fascial closure.
Interventions: Fascial closure or non-closure of the 10 mm laparoscopic port sites.
Measurements and Main Results: A total of 361 patients underwent robotic-assisted laparoscopy for gynecologic, urologic and general surgery procedures during the study period. Gynecologists were most likely to suture close the 10 mm fascial ports with 99% closure rate. General Surgeons closed the fascial port 87% of the time. Urologists were significantly less likely to close the 10 mm fascial port site with a 26% closure rate (P<0.001). The overall hernia rate was low for all cases at 0.6%. The fascial hernia rate was 0% for Gynecological procedures, 0.8% for Urological procedures, and 0% for General Surgery procedures. There was no difference in the hernia rates between the surgical specialties (P=0.89). There also no difference between the hernia rates whether the fascial port was closed or not (0% vs 1.1%, P=0.64).
Conclusion: There are differences between surgical specialties in the decision to close a 10 mm laparoscopic port with Gynecologists and General Surgeons suturing the fascia closed more commonly than Urologists. Despite this difference in practice, the hernia risk is very low in robotic surgery.

6207

Two Laparoscopic Appendectomy Techniques in Benign Gynecologic Surgery

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Study Objective: To demonstrate two laparoscopic appendectomy techniques used during gynecologic surgery for benign indications.
Design: Not applicable.
Setting: In both videos, patients were placed in the standard dorsal lithotomy position with moderate Trendelenburg tilt throughout the duration of the surgery.
Patients or Participants: Patients in both videos presented with chronic pelvic pain thought to be secondary to endometriosis. Their symptoms were refractory to medical management. After appropriate counseling, patients opted for diagnostic laparoscopy with possible endometriosis excision. Both patients were counseled on the risks and benefits of concurrent appendectomy at the time of surgery, and both have given their written consent.
Interventions: With the first technique, an ENDOLOOP ligature was used to double ligate the base of the appendix followed by excision using the laparoscopic scissors. The specimen was removed by using an Endo Catch specimen retrieval device. With the second technique, a 35 mm vascular stapler was used to seal and transect the appendix at the base. The specimen was removed directly from laparoscopic port.
Measurements and Main Results: We demonstrated two techniques for laparoscopic appendectomy. Both patients tolerated the procedures well, and their postoperative recovery was uneventful. The patient who underwent appendectomy with the stapler, pathology revealed evidence of acute appendicitis.
Conclusion: Appendiceal endometriosis is observed in 2.6% of patient who underwent surgery for endometriosis. ENDOLOOP ligature and vascular stapler are both well tolerated and effective method used in laparoscopic appendectomy. Gynecologists should attempt to incorporate routine assessment of the appendix during benign gynecologic surgeries and be able to perform concurrent appendectomy should the need arise.

6104

Two-Port Robotic Laparoscopic Hysterectomy

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Study Objective: To demonstrate a surgical video wherein a technique for port-reducing robot-assisted laparoscopic hysterectomy was performed with the use of a gel-capped multi-trocar port that accommodates necessary instruments to safely complete the procedure.
Design: Case report, step-by-step video describing a port-reducing robot-assisted laparoscopic hysterectomy with the gel-capped multi-trocar port. Institutional Review Board (IRB) approval was not required.
Setting: Tertiary referral medical center in New Haven, Connecticut. A 40-year-old female with symptomatic uterine leiomyoma who underwent failed medical management. She has completed her childbearing. Her body mass index was 41 kg/m^2. A pelvic sonogram showed a 10-centimeter uterus with a 10-centimeter fibroid. On examination, her uterus was mobile.
Patients or Participants: Singular patient who consented for this demonstration video.
Interventions: The patient underwent an uncomplicated robotically assisted total laparoscopic hysterectomy and bilateral salpingectomy. This was accomplished using a two-port technique. A multi-channel port system and a second robotic trocar were used.
Measurements and Main Results: Effective dissection of the adnexal structures and ligaments of the uterus was accomplished. Isolation, coagulation, and transection of blood vessels was optimally done with the vessel sealer. Despite the size of the uterus and leiomyoma, the specimen was completely removed transvaginally, without morcellation. Vaginal cuff closure was done with delayed absorbable barbed suture with ease. The three-centimeter fascial incision was re-approximated. There were no intra-operative complications. Estimated blood loss was 150 ml. She was discharged home on the same day. Her final histopathology was benign.
Conclusion: The two-port robotic hysterectomy with the gel-capped multi-channel laparoscopic port afforded the use of additional necessary laparoscopic instruments to safely complete the procedure while avoiding the usual three to five port incisions most gynecological surgeons use. This approach utilized the advantages of robotic laparoscopy: superior operative visualization, improved instrument mechanics and stabilization, and upgraded ergonomics for the surgeon. Our robotic hysterectomy technique is a feasible alternative for the appropriately selected patients.

6197

Ultrasound-Guided Hysteroscopic Metroplasty

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Study Objective: This video abstract will demonstrate simultaneous use of pelvic ultrasound and hysteroscopic metroplasty.
Design: N/A.
Setting: The procedure was performed in the operating room under general anesthetic with the patient positioned in the dorsal lithotomy position. Bedside pelvic ultrasound was performed by a skilled assistant. A 2.9mm operative hysteroscope with a 30-degree lens and a bipolar electrosurgery device were selected. Normal saline was used as distention media.
Patients or Participants: The patient was selected based on her history of septate uterus and desire to undergo metroplasty and insertion of levonorgestrel-containing intrauterine system.
Interventions: The procedure performed was ultrasound-guided hysteroscopic resection of uterine septum.
Measurements and Main Results: Ultrasound-guided hysteroscopic resection of uterine septum was demonstrated.
Conclusion: This video demonstrated that simultaneous use of pelvic ultrasound and hysteroscopic metroplasty improves visualization during resection of uterine septum and has been demonstrated to increase the rates of complete resection. It is a useful tool that can be added to hysteroscopic resection of uterine septum.

5842

Use of Triton Quantitative Blood Loss (QBL) System in Gynecologic Surgery

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Study Objective: To determine the utility of the Triton quantitative blood loss (QBL) system (Gauss Surgical, Inc, Los Altos, CA) in more accurately measuring blood loss during gynecologic surgery.
Design: Gynecologic surgery was performed with no changes in standard practice. Estimated blood loss (EBL) was determined by the surgeon, and the Triton system was then used to measure QBL. Surgeon was blinded to QBL values.
Setting: All cases were performed by the minimally invasive gynecologic surgery division at a tertiary care facility.
Patients or Participants: All cases were eligible. 59 cases were assessed as part of this study. 38 cases were laparoscopic, 20 cases were laparotomies, and 1 case was vaginal.
Interventions: QBL was recorded in addition to the surgeon's EBL with no other changes in standard care. Surgeon, procedure, operative time, pre-operative hemoglobin, post-operative hemoglobin, and blood transfusions were also recorded.
Measurements and Main Results: QBL was on average 204 mL higher for all cases, with 218 mL for laparoscopic cases, and 190 mL for open cases. Coefficient for EBL vs QBL was 1.47 ($p<0.05$) with a R^2 of 0.663. Coefficient for operative time vs EBL was 2.74 ($p<0.05$) with a R^2 of 0.344, while time vs QBL was 4.18 ($p<0.05$) with a R^2 of 0.244. Coefficient of QBL vs. the difference between QBL and EBL was 0.55 ($p<0.05$) with a R^2 of 0.746. Among those cases with post-operative hemoglobin (n=25), coefficient for EBL vs. hemoglobin extrapolated blood loss was 0.688 ($p<0.05$) with a R^2 of 0.374, while QBL vs. hemoglobin extrapolated blood loss was 0.407 ($p<0.05$) with a R^2 of 0.463. The difference between these two R^2 values was not statistically significant ($p=0.33$).
Conclusion: QBL showed higher blood loss measurement than EBL, suggesting that EBL is underestimating blood loss. Size of difference between EBL and QBL was strongly associated with QBL values suggesting EBL is more inaccurate with higher blood loss.

6392

Use of a Biologic Allograft to Treat Vesicovaginal Fistula in a Patient with Cervical Cancer.

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Study Objective: To demonstrate the robotic treatment of a vesicovaginal fistula that occurred after chemotherapy and radiation for cervical cancer with the help of a biologic allograft.
Design: Video demonstration.
Setting: Tertiary care center.
Patients or Participants: Forty-five-year-old post-menopausal female para three with a history of stage 3b squamous cell carcinoma of the cervix diagnosed in 2020 status-post treatment with cisplatin, pelvic external beam radiotherapy, and left nephrostomy tube placement for hydronephrosis. She subsequently developed a vesicovaginal fistula in early 2021, which was treated with total abdominal hysterectomy, bilateral salpingectomy, vesicovaginal fistula repair and bilateral ureteral stent placement. She was discharged with a foley catheter and the left nephrostomy tube still in place. She was subsequently seen at the Urogynecology office for leakage of urine. On exam, a two-three-centimeter persistent vesicovaginal fistula was noted.
Interventions: She underwent re-operation with robotic lysis of adhesions, vesicovaginal fistula repair, and placement of a biologic allograft.
Measurements and Main Results: Her post-operative course was uncomplicated. She was seen at three weeks post-operatively, and had intermittent leakage of urine, but was otherwise healing well.
Conclusion: Vesicovaginal fistula in the setting of gynecologic malignancy, especially following radiation, can be more complicated to treat and more prone to failure than other etiologies. Biologic allografts may be a viable alternative to autografts in these complicated cases given their favorable biochemical properties. Controlled trials should be performed to assess the benefit of using biologic allografts to enhance complicated vesicovaginal fistula repair, and possibly reduce the need for re-operation.

6259

Using Indocyanine Green to Analyse Ovarian Vascularization after Ovarian Laparoscopic Cystectomy, Diagnostic Study of Feasibility.

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Study Objective: To evaluate the feasibility of using Indocyanine Green in the laparoscopic surgical treatment of benign organic ovarian cysts (dermoid, serous, mucinous and endometriotic) in patients with a short-term desire for pregnancy.
Design: Study Type: Interventional: based on a protocol - Follow up by a cohort. Study Model: Single Group: all participants receive the same intervention. Longitudinal cohort follow-up after surgery at 6 months and 12 months.
Setting: N/A.
Patients or Participants: Open to any patient meeting the inclusion / exclusion criteria. Number of subjects: 45.
Interventions: During intraperitoneal cystectomy or Plasmajet destruction of the cyst, as a benign organic cyst requiring surgical treatment, peroperatively, at the end of the cystectomy procedure, injection on a peripheral venous route of a bolus of Indocyanine green diluted 0.2mg / kg. Installation of infrared camera system. Evaluation of the degree of fluorescence at

the location of cystectomy or destruction of the cyst. Evaluation of the ovarian reserve preoperatively (ultrasound for evaluation AFC and blood work with AMH). Analysis by a new imaging technique.
Measurements and Main Results: A fluorescence score between 0 and 4 (on the model of a Likert scale) will be used for the evaluation of fluorescence. A second reading of the Likert scale results will be carried out by a second inspector so that the score is as objective as possible. Then, second evaluation technique realized by the METAMORPH software, which will assign a raw and objective score according to the fluorescence visualized. Preliminary Results: Feasibility: 100%, Likert's Average: 3,2/4, Metamorph: In progress.
Conclusion: The use of Indocyanine Green during this surgery could allow early evaluation of the absence of alteration of the underlying ovary by the cystectomy. Reassure them about their reproductive potential immediately after the intervention.

5762
Uterine Artery Clipping at the Level of the Ureteric Tunnel for Reduction of Blood Flow
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Study Objective: Though cervical myomas comprise only 5% of total uterine myomas, they present unique surgical challenge due to proximity to the uterine vessels and ureters. We aim to highlight an approach to robotic-assisted hysterectomy with a large cervical fibroid, with minimal blood loss and clear visualization of the displaced anatomy.
Design: Video Case Presentation.
Setting: A robotic-assisted hysterectomy (RAH) was performed under general anesthesia in dorsal lithotomy position at a university-affiliated hospital.
Patients or Participants: 41-year-old G0 with abnormal uterine bleeding in the setting of 5 × 4 × 5 cm subserosal fibroid of the left posterior cervix. The patient was pretreated with leuprolide acetate injections then letrozole to reduce the fibroid volume, however, no change in size was observed. The patient desired definitive management of the fibroid.
Interventions: Once in the operating room, a uterine manipulator could not be placed due to displacement of the cervix by the fibroid. Careful retroperitoneal dissection was performed to identify the uterine artery coursing over the ureter at the ureteric tunnel of Wertheim. Laparoscopic clips were applied to the uterine artery to decrease blood supply to the fibroid. After completion of the hysterectomy, the fibroid capsule was entered and myomectomy was completed, resulting in separation of the fibroid from the vagina.
Measurements and Main Results: Estimated blood loss was 50 cc. Final specimen were uterus, fallopian tubes, and cervix weighing 54 g and cervical fibroid weighing 99 g. The patient had an uncomplicated postoperative course and was discharged home on postoperative day 1.
Conclusion: This case demonstrates the use of minimally-invasive surgical approach to safely complete a hysterectomy in the context of a large, cervical myoma. Our video demonstrates improved hemostasis and visualization of the ureters throughout the case due to placement of vessel clips at the level of the ureteric tunnel.

5887
Uterine Leiomyomatosis: A Case Study and Literature Review
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Study Objective: The objective of this study is to examine techniques for management of diffuse uterine leiomyomatosis that preserve the patient's uterus and/or fertility.
Design: A literature search was performed and revealed seven papers, largely case series and case reports.
Setting: Academic medical center.
Patients or Participants: A 38-year-old G2P0020 with known history of fibroids and multiple transfusions, now presenting with worsening abnormal uterine bleeding unresponsive to oral progestin.
Interventions: Operative hysteroscopy, myomectomy, and dilation and curettage. Samples of several fibroids were taken along with an endometrial sample.
Measurements and Main Results: The patient was found to have diffuse uterine leiomyomatosis discovered via hysteroscopy. Literature search revealed a few different conservative methodologies for treatment of DUL, including medical management with GnRH agonists, partial myomectomy with and without GnRH agonist adjunct therapy, and uterine artery embolism.
Conclusion: While hysterectomy is the only definitive treatment for DUL, there exist many options for DUL treatment for the patient who wishes to preserve her uterus and/or her fertility.

6014
Uterine Sparing Laparoscopic Ablation of Uterine Fibroids: A Survey of Patient's Satisfaction and Treatment Outcomes
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Study Objective: The primary purpose of this study was to assess the patient's satisfaction with laparoscopic radiofrequency fibroid ablation (Lap-RFA) for the treatment of symptomatic uterine fibroids. We inquired about their quality of life, health state, and overall treatment effects.
Design: Survey study.
Setting: Community-based tertiary care medical center.
Patients or Participants: All patients who underwent a Lap-RFA by a single surgeon between the years of 2012 and 2020.
Interventions: laparoscopic radiofrequency fibroid ablation (Lap-RFA).
Measurements and Main Results: 48 patients underwent Lap-RFA procedure by the same provider and were mailed surveys for postoperative evaluation. Twenty patients responded, yeilding a 42% response rate. The mean age of the patients was 46 (34-60) years. The average time interval from surgery to survey response was 23 months (1-50).
The Uterine fibroid Symptom and Health-Related Quality of Life (UFS-QOL) and the Health State Questionnaire scores are inversely related to outcomes. The UFS-QOL score can range from 37 to 185 with 37 being the optimal outcome. The average UFS-QOL score was found to be 72 (range 37-146). In addition, the Health state questionnaire can range from 5 to 15, and the average score was 6 (range 5-9). On a scale of 1 to 10, 10 representing optimal outcome, the average health rating was 8 (range 5-10).
Using the Menorrhagia Impact Questionnaire, seven patients reported improved menses, ten had no change in symptoms, one had worsening symptoms, and two were postmenopausal. Sixteen patients reported some degree of satisfaction with the procedure, while three were dissatisfied with their overall treatment outcomes. Ninety percent of patients would recommend Lap-RFA to a friend.
Conclusion: Lap-RFA procedure is an effective uterine-sparing treatment for symptomatic fibroids with good patient satisfaction. The Lap-RFA procedure should be considered when counseling patients about fibroid management options.

5894
Utilization of the Endoloop in Laparoscopic Removal of an Interstitial Ectopic Pregnancy
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Study Objective: To demonstrate the use of the Endoloop in the laparoscopic removal of an interstitial ectopic pregnancy.
Design: A surgical video case report.
Setting: An academic hospital in the United States.
Patients or Participants: 32yo G3P1011 diagnosed with an unruptured right interstitial ectopic pregnancy after presenting to an obstetric emergency room with right lower quadrant pain. Ultrasound evaluation showed an approximately 2cm right adnexal pregnancy measuring 6 weeks with fetal heart rate of 144.
Interventions: Laparoscopic removal of right interstitial ectopic pregnancy with assistance of the Endoloop.
Measurements and Main Results: The patient was taken to the operating room for a laparoscopic right salpingectomy using bipolar sealing electrocautery. The interstitial location of the ectopic pregnancy made electrocautery ligation of the right fallopian tube at the cornua difficult given the tissue thickness. The Endoloop was introduced and secured at the right cornua, proximal to the ectopic pregnancy to create a pedicle for ligation. This allowed for removal of the right fallopian tube and the ectopic pregnancy at the right cornua with sharp dissection and unipolar electrocautery while maintaining hemostasis and limiting disruption of the myometrium.
Conclusion: The Endoloop can be utilized for laparoscopic surgical management of an interstitial ectopic pregnancy.

5569
Vaginal Actinomycosis in a Female without a History of Intrauterine Contraception: A Case Report
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Study Objective: describe a relationship between actinomycosis and persistent foreign bodies in the female genital tract; emphasize the importance of pre-therapeutic biopsy in genital tract disease.
Design: Actinomycoses are opportunistic bacteria that can cause invasive, suppurative infections when mucosal barriers are compromised. Most cases are seen in patients with long-term use of intrauterine devices (IUDs). Infections are slow-growing and produce non-specific symptomatology, making initial misdiagnosis of malignancy or other pathologies common. This may lead to avoidable surgery, as most actinomycosis resolves with antibiotics alone.
We present a case of isolated vaginal actinomycosis in a 66-year-old female without a history of IUD use, presenting with post-menopausal bleeding. She had a remote history of colpoperineorrhaphy with inorganic mesh placement, and a total abdominal hysterectomy and bilateral salpingectomy. Preoperative biopsy guided a less invasive surgical approach than that considered for malignancy.
Setting: The patient presented at her outpatient gynecologist. Biopsy revealed actinomycosis. Surgical excision occurred via a posterior approach with the patient in lithotomy position.
Patients or Participants: 66-year-old post-menopausal female without a history of IUD use, presenting with post-menopausal bleeding.
Interventions: The rectovaginal septum was dissected and 3.25cm x 1.5cm of tissue/mesh were excised. The healthy vaginal epithelium was reapproximated. The patient was treated with 6 weeks of ceftriaxone followed by 30 days of amoxicillin-clavulanate.
Measurements and Main Results: Histopathological report demonstrated acute and chronic inflammation, granulation tissue and no evidence of malignancy. The patient recovered well after surgery.
Conclusion: This case is notable for actinomycosis isolated to the vagina and in a female without concomitant IUD-use, suggesting a relationship between actinomycosis and *any* foreign body in the lower female genital tract. Actinomycosis should be considered for any slow-growing mass with foreign body presence. Preoperative biopsy or, at a minimum, intraoperative frozen section should be obtained to prevent unnecessary surgery.

6408
Validating an Innovative Augmented Reality Uterine Manipulation Simulator
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Study Objective: Validate an innovative augmented reality uterine manipulation simulator.
Design: Observational.
Setting: Academic center.
Patients or Participants: Medical students, residents, faculty.
Interventions: Subjects were invited to participate through email. They were given a survey regarding level of training. A 1.5- minute instruction video on uterine manipulation was shown. Participants were prompted to start the simulator, which was comprised of a uterus suspended by springs, a fixed camera, and augmented reality software to standardize tasks. Participants were to complete 8 tasks: Move the uterus to: middle of screen, antevert, retrovert, top-left, bottom-right, bottom-left, top-right, middle). Software determined if uterus was in the correct position, and once maintained for 2 seconds would reveal the next target. Timer started after completing the first task and stopped after the last. A second anonymous survey was then given that included questions regarding if they thought the simulator would improve performance, impression on similarity to an actual surgery, and if they would want the simulator before a case. Results were compared using T-Student and Chi-square.
Measurements and Main Results: 24 subjects were enrolled and grouped based on experience (Novice: MS3-PGY2, n=14; Expert: PGY3-Attending, n=10). Mean times to complete exercise were 76.7s v 43.71s p=<.01. Completion in less than 60 seconds was defined as "success" and compared (14.3% v 100% p<.01). Regarding survey, 100% of subjects answered the simulator would help them improve and would like to have this available before a case. Subjects reporting 1-20 cases (n=10) answered that the simulator was somewhat similar (70%) and very similar (30%) to reality. Subjects with >20 cases (n=11) answered it was somewhat similar (27.2%) and very similar (72.8%). No subjects answered that it was not similar. Subjects with 0 cases (n=3) selected "NA".
Conclusion: Previous real-life experience with uterine manipulation correlates with improved performance on this simulator. Having a simulator available to practice before a case is widely desired.

6338
Validation of a Low-Fidelity Model for Office-Based Hysteroscopy with a Vaginoscopic Approach
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Study Objective: Hysteroscopy is an established method for the diagnosis and treatment of intrauterine pathology. A vaginoscopic approach for office-based hysteroscopy confers less pain; however, trainees report lack of confidence with this procedure. We sought to create a low-fidelity simulation model for office-based hysteroscopy with a vaginoscopic approach and to evaluate the validity and reliability of this model.
Design: Prospective cohort study.
Setting: A single site academic medical center.

Patients or Participants: Eligible participants included obstetrics and gynecology residents and attendings who regularly perform hysteroscopy.
Interventions: The vaginoscopy model was created with a female pelvis simulator and an exam glove placed within the vagina. Following two instructional videos, participants performed a hysteroscopy simulation with a vaginoscopic approach. The primary outcome was total score on a modified Global Rating Scale (GRS) and Objective Structured Assessment of Technical Skills (OSATS). The OSATS describes key procedural steps and was created with experts in hysteroscopy for content validity. Time to complete each task was recorded and summed. A post-procedure survey assessed the model and physician experience.
Measurements and Main Results: Ten attending and 20 resident physicians (9 junior and 11 senior) participated. Attending physicians completed the simulation significantly faster than junior residents (197(±31) vs. 290 (±107) seconds, Cohen's d=1.2, p=0.022). On the GRS, both attending physicians (26.1(±2.4), d=2.5, p=0.001) and senior residents (22.5(±3.7), d=1.3, p=0.010) scored significantly higher than junior residents (17.4 (±4.3)). Ninety-three percent of surveyed participants were satisfied with simulation, 97% found it useful, 80% found it realistic and 93% indicated that they may use this technique in the future.
Conclusion: This study shows our low-fidelity model to have construct, content, and face validity for vaginoscopic approach to hysteroscopy. A sufficiently powered, yet small sample of physician performance data yielded a large effect size in global mean score differences between attendings and junior residents. Physicians reported the technique to be satisfactory, realistic, and useful for future application.

6586

Variations in Endometriosis Location and Surgical Outcomes By Race

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Study Objective: To evaluate the frequency and outcomes of endometriosis surgery by race.
Design: Retrospective cohort (Canadian Task Force Classification II-2).
Setting: Data from the American College of Surgeons National Surgical Quality Improvement Program from 2014 to 2019.
Patients or Participants: 4211 women undergoing surgery for endometriosis were identified by ICD codes.
Interventions: Surgical interventions and outcomes were evaluated by race.
Measurements and Main Results: 4211 patients were identified, of whom 3% were Asian, 7.5% were Hispanic, 9% were Black, 11% were Other race, and 69% were White. The most common diagnoses were unspecified endometriosis (28%), pelvic peritoneal endometriosis (20%), ovarian endometriosis (13%), and uterine endometriosis (4%). Asian women had ovarian endometriosis most frequently (31%) and Black women had uterine endometriosis most frequently (22%). Laparoscopic excision/fulguration was completed for 11% of women. Compared to White women, Black, Hispanic, Asian and Other race women were more likely to undergo abdominal hysterectomy (8% vs 28-29%, p≤.0001) and to have operative times > 180 min (19% vs 21-35%, p<.0001). Black and Other race women had higher odds of bleeding requiring transfusion. Black, Asian, and Other race women also had higher odds of length of stay > 4 days.
Conclusion: Location of endometriosis varied by race. Few women of any race had laparoscopic excision/fulguration of endometriosis. More than a quarter of minority women underwent an abdominal hysterectomy for endometriosis, which varied from White women. Minority women also had worse surgical outcomes and longer surgeries. Interpretation of these results is limited by ICD and CPT codes that don't fully describe the presentation and surgeries performed for endometriosis.

6020

Vulvar Endometriosis by Suspected Spread Via the Round Ligament

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Study Objective: To present a rare case of vulvar endometriosis by suspected spread through the round ligament and review the literature regarding vulvar endometriosis.
Design: Case report.
Setting: Tertiary care hospital.
Patients or Participants: One patient.
Interventions: Patient with a painful 4 × 3 cm well-circumscribed, subcutaneous mobile mass on the left labia majora deep in the subcutaneous tissue with no overlying skin changes was worked up with CT-guided IR core biopsy that revealed endometriosis. Pelvic MRI revealed a fibroid uterus and 3.8 × 2.6 × 3.1 cm infiltrative soft tissue mass within the left mons pubis extending into the superior aspect of the left labia majora. The mass was noted to be contacting the distal aspect of the round ligament with resultant cyst in the canal of Nuck. Patient underwent laparoscopic myomectomy and local excision of the left vulvar mass for management.
Measurements and Main Results: Operative findings were consistent with endometrioma in the left vulva and endometriotic implant on the left round ligament at the insertion site into the inguinal canal. Pathology of both the left vulvar mass and excised left round ligament lesion revealed endometriosis. We suggest direct spread via the round ligament as the source of patient's vulvar endometriosis given these findings.
Conclusion: Spontaneous perineal and vulvar endometriosis is extremely rare, but in cases of clinically suspected vulvar endometriosis, the round ligament should be considered as the potential route of disease spread. Endometriosis should be suspected in extrapelvic lesions with observed cyclic response to the menstrual cycle and considerations should be given for diagnostic laparoscopy to look for pelvic disease in these cases.

6580

What Ultrasound Endometrial Thickness Threshold Better Detects Cancer and Atypical Hyperplasia in Asymptomatic Postmenopausal Women?

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Study Objective: Postmenopausal women with incidental thickened endometrium (≥4mm) on transvaginal ultrasound (TVUS) will usually undergo hysteroscopy and curettage despite having a low absolute risk of endometrial cancer (EC) or atypical hyperplasia (AH). This review examines whether an increased TVUS endometrial thickness (ET) threshold has superior diagnostic accuracy for endometrial malignancies and premalignancies in asymptomatic postmenopausal women.
Design: Systematic literature review.
Setting: N/A.
Patients or Participants: N/A.
Interventions: Pubmed, EMBASE and Cochrane Database of Systematic Reviews were electronically searched to identify articles published between 2011 and 2021 investigating ET and endometrial pathology in asymptomatic postmenopausal women. The quality of evidence of included articles was evaluated.

Measurements and Main Results: Seven studies reported the diagnostic accuracy of alternative ET thresholds for EC in asymptomatic postmenopausal women. Better evidence identified 12mm as the optimal threshold (AUC ROC 0.716, 95% CI 0.534-0.897, P=0.019). Remaining studies identified 7.2mm to 15mm as optimal cut-off points. Seven studies investigated a threshold for both EC and AH. A higher quality study identified a threshold of 11mm as optimal (AUC ROC 0.587, 95% CI 0.465-0.708) but this finding was not significant (P=0.144). Remaining studies identified optimal thresholds of 10mm to 13.5mm.

A new diagnostic strategy is only useful if it improves patient outcomes. Only one study reported adverse events. Four studies had nil insufficient endometrial sample rates at hysteroscopy while insufficient sampling occurred in 57/900 (6.3%) and 52/276 (18.8%) in two studies, reflecting a significant risk of patients undergoing a procedure without benefit.

Conclusion: Evidence for alternative ET thresholds for improved detection of EC and AH is not rigorous, and confidence intervals were often wide reflecting uncertainty. It is important for research in this area to consider patient outcomes. Long-term follow up in asymptomatic postmenopausal women with increased ET is appropriate and further evaluation may be prompted by ET of 10mm or more, increasing ET over time and existing risk factors.

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