AGL 2022

51st GLOBAL CONGRESS ON MIGS

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SYLLABUS

COMP-616: To Do or Not to Do...Making Safe Decisions in the Operating Room - Preventing, Avoiding and Managing Complications in MIGS

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COMP-616: To Do or Not to Do…Making Safe Decisions in the Operating Room – Preventing, Avoiding and Managing Complications in MIGS

Chair: *Giovanni Roviglione, MD, Linda C. Yang, MD, MS*

Faculty: *Samar Nahas, MD, Audrey T. Tsunoda, MD, PhD, Megan N. Wasson, DO*

Course Description

This course embraces all possible complications that may occur during minimally invasive surgery performed for easy or complex benign conditions such as deeply infiltrating endometriosis or oncological diseases. The different topics will begin with fundamental anatomical concepts and proceed to standard techniques and tips and tricks to perform a safe and successful surgery in easy or difficult cases. Moreover, surgical videos will be highlighted in each presentation to demonstrate complications and troubleshooting to help the learner better understand how to prevent and manage them independently or as part of a multidisciplinary team. Every presentation will end with a strategic algorithm which the learner will be able to easily recall and apply to future scenarios when faced with different types of complications.

Learning Objectives

At the conclusion of this course, the participant will be able to: 1) Implement a stepwise algorithm to promptly recognize and address surgical complications; 2) Select the proper surgical procedures to manage vascular, bowel or genitourinary tract injuries; and 3) Apply surgical tips and tricks to reduce complications during difficult minimally invasive gynecologic surgeries.

Course Outline

2:30 pm	Welcome, Introduction and Course Overview	G. Roviglione/L.C. Yang
2:35 pm	Knowing Your Enemy: Surgical Strategies to Minimize and Treat Complications in Laparoscopic Entry in Simple and Complex Cases	L.C. Yang
3:00 pm	To Resect or Not to Resect? How to Safely Manage Bowel Adhesions and Build Confidence When Tackling Deeply Infiltrating Endometriosis of the Bowel	M.N. Wasson
3:25 pm	The Water Under the Bridge Falls Safely into the Lake": How to Prevent and Manage Ureteral or Bladder Lesions in MIS	G. Roviglione
3:50 pm	Are You Really Ready? All You Need to Know to Rapidly Manage Vascular Complications in MIS: The Final Algorithm	S. Nahas
4:15 pm	How to Prevent Visceral, Vascular or Neural Complications In MIS: A Roadmap	A.T. Tsunoda
4:40 pm	Questions & Answers	All Faculty
5:00 pm	Adjourn	

Knowing Your Enemy: Surgical Strategies to Minimize and Treat Complications in Laparoscopic Entry in Simple and Complex Cases

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Disclosure

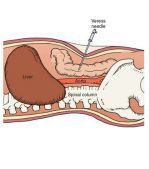
- Ownership interest: KLAAS, LLC

Objectives

- Describe preventative strategies for safe peritoneal access
- Incorporate tips and tricks for entry techniques into existing surgical practice
- Review management of entry-related complications

Abdominal Access Complications

- Primary peritoneal access injury occurs in <1% of patients
- **Trocar** = most common device cited in malpractice claims associated with LSC procedures
- **>50%** of LSC complications occur during initial peritoneal access[1-5]



MAUDE Database – Trocar Injury/Fatality

- Data collection 1997-2002
  - 31 fatal injury cases
  - 1353 nonfatal injury cases
- Most fatalities involved vascular injuries
- Other fatalities: **unrecognized** bowel injury
- Cholecystectomy most frequently associated with both fatal and nonfatal trocar injuries

Fuller et al., J Minim Invasive Gynecol 2005;12(4):302-7.

Complication Types

Intraoperative/Immediate → Postoperative/Delayed

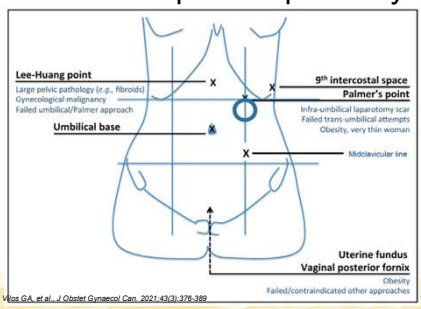
Abdominal Access Complications

Extraperitoneal port placement
Failed or difficult peritoneal entry
Visceral injury
Omental injury
Minor or major vascular injury
Insufflation/pneumoperitoneum-related complication
Death
Nerve injury
Trocar site hernia
Trocar site hematoma
Trocar site infection
Trocar site metastasis

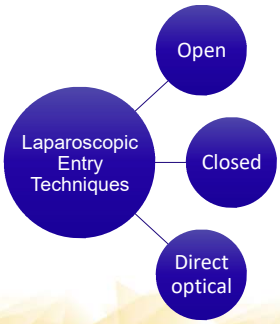
Abdominal Access = Key to Laparoscopic Success

- Surgical decision-making:
  - Choosing the **site** for primary trocar entry
  - Choosing the **technique** for primary trocar placement

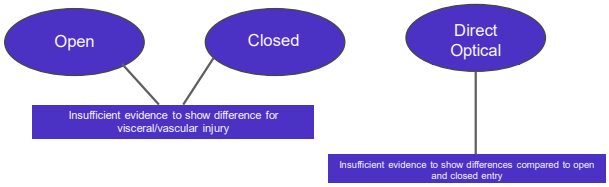
Sites for Laparoscopic Entry



Vilos GA, et al., J Obstet Gynaecol Can. 2021;43(3):376-389



Choosing Your Entry Approach



"Overall, evidence was insufficient to support the use of one laparoscopic entry technique over another."
(Cochrane Database 2019)

Summary of Cochrane Database of Systematic Review (2019)

Outcome	Open vs. Closed (any)	Open vs. Direct Vision	Open vs. Veres	Closed: Direct vs. Veres	Closed: Direct Vision vs. Veres
Vascular Injury	Insufficient evidence	*	*	Insufficient evidence	Insufficient evidence
Visceral Injury	Insufficient evidence	Insufficient evidence	*	Insufficient evidence	Insufficient evidence
Omental Injury	Open favored	*	Open favored	Direct favored	*
Trocar site infection	Insufficient evidence	*	Insufficient evidence	Insufficient evidence	*
Trocar site bleeding	Insufficient evidence	Insufficient evidence	Insufficient evidence	*	Insufficient evidence
Failed entry	Insufficient evidence	Insufficient evidence	Insufficient evidence	Direct favored	*
Incisional hernia	Insufficient evidence	*	Insufficient evidence	*	*
Extraperitoneal insufflation	Open favored	*	Insufficient evidence	Direct favored	*

* indicates no data

Pepin K, Contemporary OB/GYN 2020;65(11)

Risk Factors

- History of prior abdominopelvic surgery
  - C-section
  - Hernia repair with mesh
  - Laparotomy
- Extremes of BMI
- Pregnancy
- Large abdominal/pelvic mass

Zero Risk Factors ≠ Zero Complications

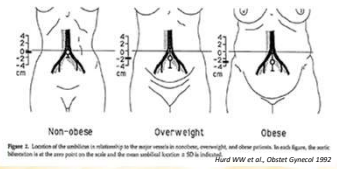
Risk of Adhesions with Prior Surgery

Group	Rate of Umbilical Adhesions	Rate of Severe Adhesions w/ Potential for Bowel Injury
No prior surgery	0.68%	0.42%
Prior LSC	1.6%	0.8%
Prior laparotomy (horizontal suprapubic)	19.8%	6.87%
Prior laparotomy (midline)	51.7%	31.46%

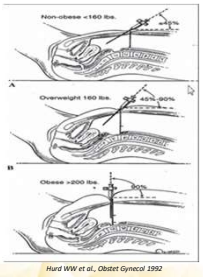
Audebert AJM and Gomel V. Fertil Steril 2000;73(3):631

Closed Entry

- In obese pts, the umbilicus is shifted caudally from the aortic bifurcation[10]



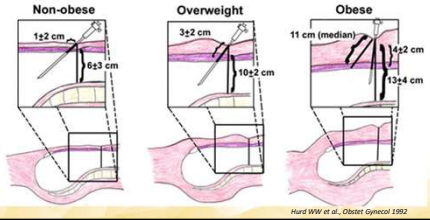
Hurd WW et al., Obstet Gynecol 1992



Hurd WW et al., Obstet Gynecol 1992

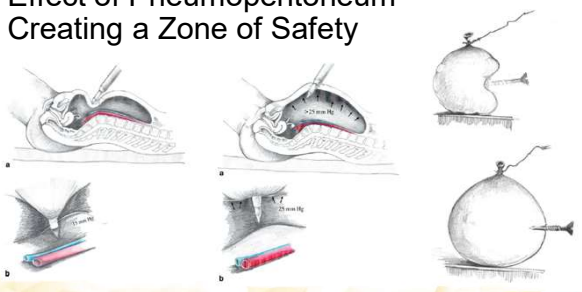
Closed Entry

- In non-obese pts, the distance from the anterior abdominal wall to aorta may be as little as **2 cm**[10]



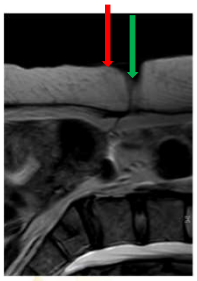
Hurd WW et al., Obstet Gynecol 1992

Effect of Pneumoperitoneum – Creating a Zone of Safety



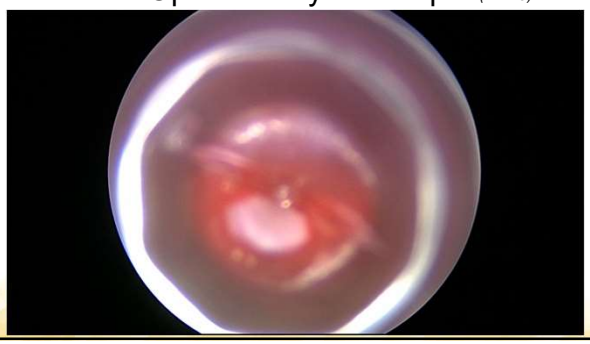
Open Entry

- Choose your incision wisely: ***infra***umbilical vs ***intra***umbilical
- Intraumbilical incision affords entry at the thinnest aspect of the umbilicus
- Elevate the abdominal wall and provide adequate traction
- Avoid pushing the fascia away – it's closer than you think!



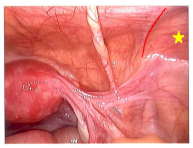
Open Entry Technique *(VIDEO)*

Direct Optical Entry Technique *(VIDEO)*



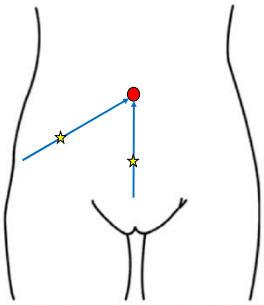
Accessory Trocar Placement

- Know your abdominal wall landmarks
- Direct visualization is essential
- Bladder decompression (if suprapubic trocar placement)
- Maintain perpendicular angle of insertion



"Rule of 1/3s"

- 1/3 distance between **ASIS** and **umbilicus**
- 1/3 distance between **pubic symphysis** and **umbilicus**



Accessory Trocar Placement (VIDEO)

Clinical Challenges - Pregnancy

- Gravid uterus – transient truncal obesity
- Abdominal wall anatomy is relatively unchanged
- Potential risk of injury to underlying gravid uterus – consider open entry technique or intraoperative guidance of Veress needle insertion
- Shift trocar placement **cephalad**
- Use of an angled 30 degree scope and "port hopping"

CASE SERIES JSLS

Inadvertent Perforation of a Gravid Uterus During Laparoscopy

Rebecca J. Post, MD, Esther Friedrich, MD, Kevin E. Amaya, DO, Ramen H. Chmait, MD

- Case 1: 19 wks GA - Veress needle placed 10 cm above umbilicus (uterine fundus 2 cm below umbilicus)
- Case 2: 32 wks GA – direct optical trocar insertion at subxiphoid
- Case 3: 18 wks GA twins – Veress needle placed 5 cm above umbilicus

- Rare risk of accidental gravid uterine perforation
- Management:
  - Consultation with OB/MFM
  - Surgical repair may not be necessary (~operative fetoscopy) if hemostatic with minimal fluid leak

Clinical Challenges – Obesity

- Umbilicus = thinnest entry point, however, distortion of umbilical location due to panniculus
- Use caution with Veress (umbilical) entry given risk of failed entry
- Consider LUQ entry
- Extra long trocars may be necessary

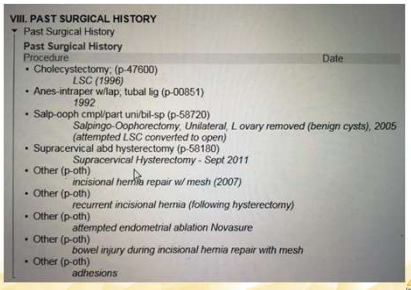
Clinical Challenges – Distorted Abdominal Wall

Abdominoplasty

Hernia repair with mesh

Muysoms et al., Hernia 2011;15(4):463-8.

Clinical Challenges – Prior Surgeries/Adhesions



VIII. PAST SURGICAL HISTORY

Past Surgical History

Past Surgical History

Procedure	Date
• Cholecystectomy; (p-47600)	
LSC (1996)	
• Anes-intraper w/lap; tubal lig (p-00851)	
1992	
• Salp-ooph cmpl/part uni/bil-sp (p-58720)	
Salpingo-Oophorectomy, Unilateral, L ovary removed (benign cysts), 2005 (attempted LSC converted to open)	
• Supracervical abd hysterectomy (p-58180)	
Supracervical Hysterectomy - Sept 2011	
• Other (p-oth)	
incisional hernia repair w/ mesh (2007)	
• Other (p-oth)	
recurrent incisional hernia (following hysterectomy)	
• Other (p-oth)	
attempted endometrial ablation Novasure	
• Other (p-oth)	
bowel injury during incisional hernia repair with mesh	
• Other (p-oth)	
adhesions	

Prevention Strategies – Visceral Slide Test

- Visceral slide assessment w/ ultrasound has high **negative predictive value** for the absence of **periumbilical bowel adhesions**
- Useful tool to detect adhesion-free areas for safe laparoscopic entry

Ultrasound Visceral Slide Assessment to Evaluate for Intra-abdominal Adhesions in Patients Undergoing Abdominal Surgery – A Systematic Review and Meta-analysis

Tobias Limperg, MD, MSc, Katherine Chaves, MD, Nicholas Jesse, MD, Zhiguo Zhao, MSc, and Amanda Yunker, DO, MSc

Visceral Slide Test (VIDEO)

Ensuring Safety After Entry – Stop and Survey!

- Direct inspection beneath trocar entry site
- 360 degree survey
- Delay Trendelenburg positioning until survey complete

Intraoperative Entry Complication - Vascular

- Timing: **entry**, dissection, adhesiolysis, procedural
- Vessels at risk:
  - **Anterior abdominal wall**
    - Inferior epigastric artery
    - Superficial circumflex iliac artery
  - **Posterior abdominal wall**
    - Aorta
    - IVC
    - External, internal, and common iliac arteries/veins
  - **Other:** omental, mesenteric

Recognition of Vascular Injury

- Retroperitoneal hematoma superior to sacral promontory
- Active bleeding from vessels
- Free blood in the abdominal cavity
- Hemodynamic instability

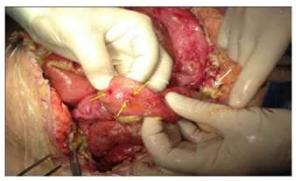
Declare major vascular emergency
- Communication with all team members - RN, OR staff, anesthesiology
- Consultants – vascular surgery, trauma surgery, IR
- Blood bank – massive transfusion/hemorrhage protocol

Identify and control the bleeding
- Leave trocar in place
- Employ direct pressure (compress or clamp)
- Minimize irrigation
- Review landmarks and gain exposure
- +/- conversion to laparotomy

Resuscitate and repair
- Arterial or central line placement
- Foley catheter
- Hemostatic agents versus surgical repair

Intraoperative Complication – GI Tract

- Incidence of bowel injury during GYN surgery: 0.13-0.54%
- 37.3-55% of bowel injuries are entry-related
- Delayed diagnosis:
  - 41% of bowel injuries at GYN laparoscopy
  - Mortality rate = 3.2%



Elbiss HM and Abu-Zidan FM, Afri Health Sci 2017;17(4):1237-1245

Glaser and Milad. Obstet Gynecol 2019;133(2):313-322

Injury Type	Management
Superficial sharp, small thermal injuries	Primary oversewing, 3-0 delayed absorbable
Partial thickness seromuscular	Primary interrupted, 2-0 or 3-0 delayed absorbable
Full-thickness, less than 1 cm	Two-layer closure, with or without closed-suction drain placement
Full-thickness, more than 1 cm	Primary repair or resection and re-anastomosis, with or without closed-suction drain placement
Large, delayed, necrotic, grossly infected, complicated	Resection and re-anastomosis, plus or minus diverting proximal ostomy, plus closed-suction drain placement

Glaser and Milad. Obstet Gynecol 2019;133(2):313-322

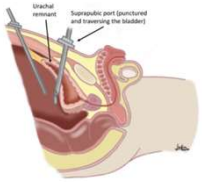
Intraoperative Entry Complication – GI Tract

"introduction of the laparoscope revealed that the 10-mm trocar had been placed within the lumen of the stomach"

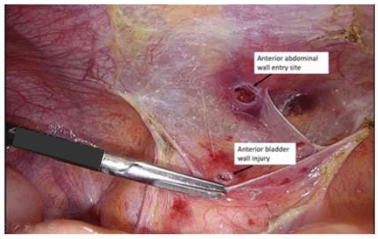
Nezhat CH et al., JMIG 2005;12:171-173

Intraoperative Entry Complication - Bladder

- Insertion of suprapubic trocar into bladder
  - If bladder is not drained
  - Adhesions
  - Anatomic variant – urachal remnant/diverticulum
- Most common injury site: bladder dome



Lim CL, et al. BMJ Case Rep 2021;14:e239361.

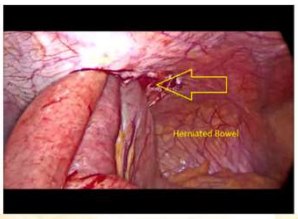


Lim CL, et al. BMJ Case Rep 2021;14:e239361.

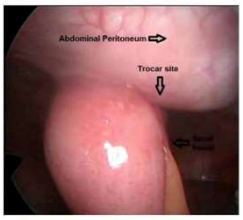
Management:

- Develop Space of Retzius to isolate injury site
- Expectant management or primary repair
- Urinary catheter decompression

Trocar Site Hernia



Leal et al., JMIG 2022;29(3):338-339



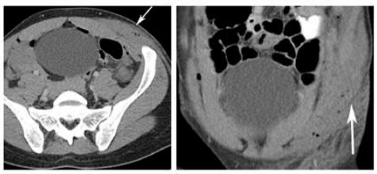
Tosun et al., J of Case Reports 2015;5(2):420-22

Diagnosis and Management

- Risk factors: trocar size ≥ 10 mm, advanced age, obesity, malnutrition
- Surgical repair –

LSC or laparotomy with possible bowel resection

Trocar Site Hematoma



Hindman NM, et al., Radiographics 2014;34:119-138

- Conservative management:
  - Pressure dressing
  - Serial Hgb
  - Close surveillance
- Surgical management:
  - Rare
  - Hemodynamic instability
  - Rapid expansion or superinfection

Key Lessons

- Preoperative planning and preparation is paramount
- Rely on fundamentals and knowledge of anatomy to navigate challenging surgical scenarios
- Stay vigilant and anticipate the worst case scenario

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23. Leal et al., JMIG 2022;29(3):338-339

THANK YOU!

MAYO CLINIC

To Resect or Not to Resect? How to Safely Manage Bowel Adhesions and Build Confidence when Tackling Deeply Infiltrating Endometriosis of the Bowel

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Disclosures

- I have no financial disclosures to disclose.

Objectives

- Avoid bowel injury during MIGS
- Effectively treat injury to decrease morbidity and mortality risk
- Evaluate large and small intestines for pathology

Background

Gastrointestinal Injury during Laparoscopy

- 0.03-0.18%
- Small bowel most common
- High morbidity and mortality

Etiology

- Abdominal entry
- Dissection
- Electrosurgery
  - Direct application
  - Direct coupling
  - Capacitive coupling
  - Insulation failure
- Trauma

Sequelae

- Bowel obstruction
- Bowel perforation
- Wound dehiscence
- Repeat laparotomy
- TPN
- Pneumonia
- Sepsis
- ICU

Delayed Diagnosis Presentation

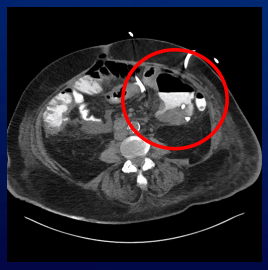
- Peritonitis
- Intra-abdominal abscess
- Enterocutaneous fistula

Thermal Injury Presentation

Sign	Large Intestine	Small Intestine
Normal or Low Temp	61.2%	50.6%
High Temp	38.8%	49.3%
High HR	63.3%	54.3%
Low BP	42.9%	18.5%
Low Hg	77.6%	63.0%
Low WBC	40.8%	22.2%
High WBC	49.0%	39.5%
Bandemia	51.0%	37.0%
High Crt	24.5%	6.2%

Diagnosis

- High index of suspicion
- Abdominal imaging
- Exploratory surgery
  - → identification
  - → resection
  - → reanastamosis



Prevent Delayed Injury

Assessing for Injury

- Small Intestine
  - Run the bowel

Assessing for Injury

- Small Intestine
  - Run the bowel
- Large Intestine
  - Air bubble test
  - Methylene blue enema
  - Proctoscopy
  - Indocyanine green fluorescence

Small Bowel Injury

- Serosa
  - Expectant
- <2 mm muscularis
  - Expectant
- ≥2 mm muscularis
  - Primary Repair in 1 or 2 layers
  - Transverse plane
- Transection
  - Resection and reanastamosis

Large Bowel Injury

- Serosa
  - Expectant
- Outer longitudinal muscularis fibers
  - Expectant
- Circular muscularis fibers exposed or breached
  - Primary Repair in 1 or 2 layers
  - Transverse plane
- Transection
  - Resection and reanastamosis

Imaging for Gastrointestinal Deep Infiltrating Endometriosis

Human Reproduction, Vol.36, No.6, pp. 1492–1500, 2021
Advance Access Publication on April 16, 2021 doi:10.1093/humrep/deab085

human reproduction ORIGINAL ARTICLE *Gynaecology*

Systematic evaluation of endometriosis by transvaginal ultrasound can accurately replace diagnostic laparoscopy, mainly for deep and ovarian endometriosis

Manoel Orlando Goncalves[1], Joao Siufi Neto[2], Marina Paula Andres[2,3], Daniela Siufi[2], Leandro Accardo de Mattos[1,4], and Mauricio S. Abrao[2,3,*]

"Preoperative TVUS-BP was accurate in identifying all sites of ovarian and deep endometriosis that were evaluated. It had significantly higher sensitivity than DL in detecting rectosigmoid endometriosis..."

Original Investigation

Pelvic MRI for Endometriosis: A Diagnostic Challenge for the Inexperienced Radiologist. How Much Experience Is Enough?

Clemence Bruyere, MD, Ioanna Maniou, MD, Céline Habre, MD, Anastasia Kalovidouri, MD, Nicola Pluchino, PHD, Xavier Montet, PD, Diomidis Botsikas, PD

Radiologist Experience Matters!

Purpose: The purpose of this study was to investigate the impact of radiologist experience on diagnostic performance of pelvic magnetic resonance imaging (MRI) for the evaluation of endometriomas and different localisations of deep pelvic endometriosis (DPE).

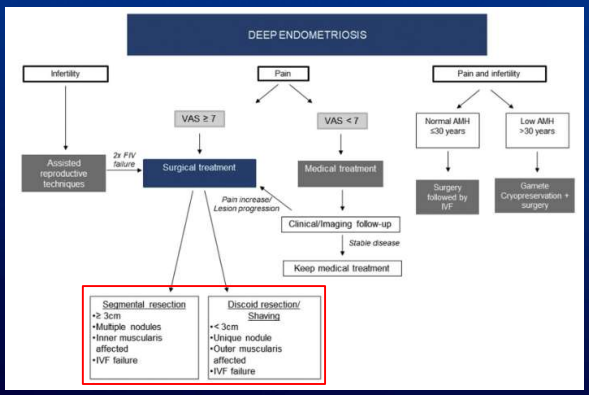
Materials and methods: In this prospective study all pelvic MRI examinations performed for pelvic endometriosis from December 2016 to August 2017 were evaluated by readers with different experience levels; junior resident (0–6 weeks of experience in female imaging), senior resident (7–24 weeks), fellow (6–24 months), and expert (10 years) in female imaging for the presence of endometriomas and DPE. Their evaluations were compared with surgery confirmed with pathology. Diagnostic performances of readers with different levels of experience were studied by the means of receiving operating characteristic curves and areas under the curve (AUC) were compared with the ones of the expert reader.

Results: Of 174 patients evaluated, the standard of reference was available for 59, consisting the final population of the study. The AUC for endometriomas, DPE for the posterior and anterior pelvic compartment, for rectosigmoid DPE and for overall evaluation were 0.983, 0.921, 0.615, 0.862, and 0.914 for the expert reader, 0.966 ($p = 0.178$), 0.805 ($p = 0.001$), 0.605 ($p = 0.91$), 0.872 ($p = 0.317$), and 0.849 ($p = 0.0009$) for the fellow level, 0.877 ($p = 0.002$), 0.757 ($p < 0.001$), 0.585 ($p = 0.761$), 0.744 ($p = 0.239$), and 0.787 ($p = < 0.001$) for the senior resident level and 0.861 ($p = 0.177$), 0.649 ($p < 0.001$), 0.648 ($p = 0.774$), 0.862 ($p = 1$), and 0.721 ($p < 0.001$) for the junior resident level.

Conclusions: According to our results, interpretation of pelvic MRI for DPE should be performed by specialists as; even the performance of radiologists with up to 2 years of experience in female imaging was statistically inferior to that of experts.

Keywords: Endometriosis; Magnetic resonance imaging; Pelvis; Comparative study.

"interpretation of pelvic MRI for DPE should be performed by specialists as; even the performance of radiologists with up to 2 years of experience in female imaging was statistically inferior to that of experts."



Number	Bowel segment involved	Points to be noted on the MRI report
1.	Stomach	1. Relationship to surrounding organs 2. Complications
2.	Small bowel	1. Location 2. Single or multifocal involvement 3. Length of segment/segments involved; 4. Lesion size 5. Adjacent structures involved 6. Proximity to the cecum/ileocecal valve 7. Relationship to the base of the appendix
3.	Rectosigmoid colon	1. Exact site 2. Distance of the distal-most extent of disease from the anal verge 3. Unifocal disease with lesion size >/< 3 cm 4. Multifocal (nodules in 2 cm length of bowel wall) 5. Satellite nodules (nodules > 2 cm apart) 6. Entire length of bowel segment involved 7. Degree of circumference (>/< ½ or 1/3) of rectosigmoid colon involved.

Surgical Treatment

Surgical Treatment

- Serosal shaving
- Discoid Resection
- Segmental Resection

Surgical Treatment

- Serosal shaving
  - Minimal involvement of the muscularis
- Discoid Resection
- Segmental Resection

Surgical Treatment

- Serosal shaving
- Discoid Resection
  - Muscularis involvement
  - <3 cm
  - <50% bowel circumference
- Segmental Resection

Surgical Treatment

- Serosal shaving
- Discoid Resection
- Segmental Resection
  - >3 cm
  - >50% bowel circumference
  - Multifocal lesions

Tips for Success

Prevention

- Rectal probe

Prevention

- Rectal probe
- Identify safety zones
- Work Lateral to Medial

Rules to Live By

- Avoid electrosurgery on bowel wall
- Bluntly manipulate
- Bowel graspers if needed
- If in doubt…oversew and reinforce

Take Home Messages

- Preparation is key
- Have a high index of suspicion
- Needs of the patient come first
  - When in doubt, bring your friends with you
  - Conversion is not a failure

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Questions

"The water under the bridge falls safely into the lake": how to prevent or manage ureteral or bladder lesions in minimally invasive surgery

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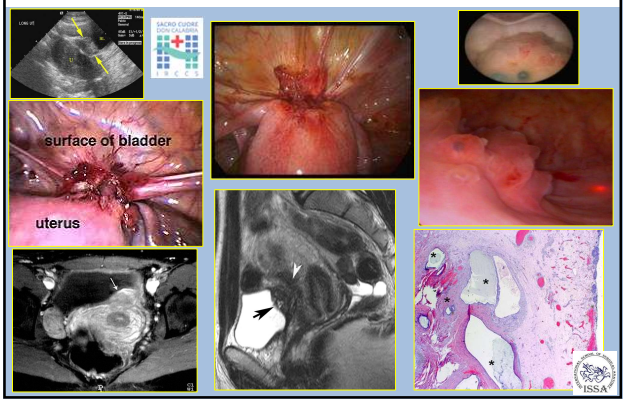
IRCCS Sacred Heart Hospital, Negrar, Verona, Italy
Gynecologic Oncology and Minimally-Invasive Pelvic Surgery Unit
Chief: Marcello Ceccaroni MD PhD

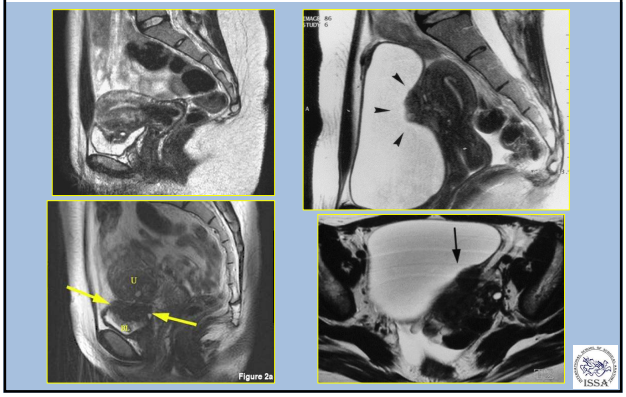
"The water under the bridge falls safely into the lake": how to prevent or manage ureteral or bladder lesions in minimally invasive surgery

NO DISCLOSURES

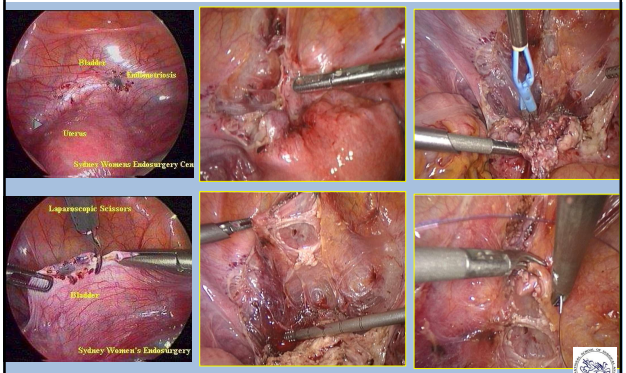
BLADDER ENDOMETRIOSIS: PRE AND INTRA-OPERATIVE ASSESSMENT



BLADDER ENDOMETRIOSIS: MRI IMAGING



Laparoscopic treatment of Bladder Endometriosis

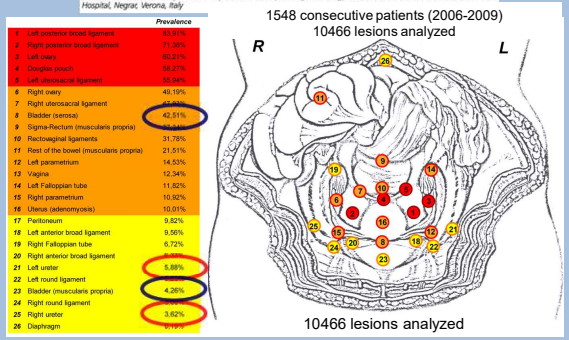


(Salvatores M, Landi S, Ceccaroni M, et al., Minerva Ginecol 2007; 59:19-25")

Distribution of endometriotic lesions in endometriosis stage IV supports the menstrual reflux theory and requires specific preoperative assessment and therapy

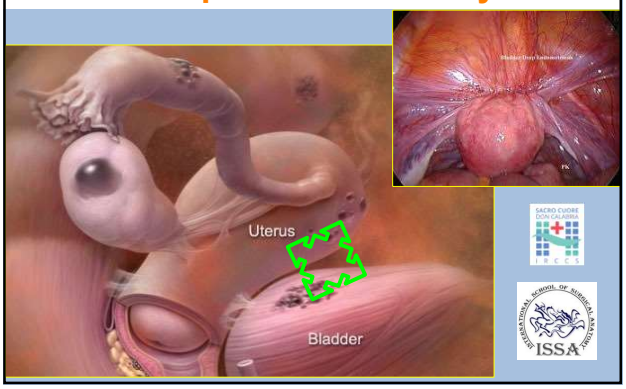
MARCO SCIOSCIA[1,2], FRANCESCO BRUNI[1,3], MARCELLO CECCARONI[1,3], MARTIN STEINKASSERER[1], ANNA STEPNIEWSKA[1] & LUCA MINELLI[1]

[1]Department of Obstetrics and Gynecology, Sacro Cuore Don Calabria General Hospital, Negrar, Verona, [2]Department of Perinatal Medicine, Tor Vergata University, Rome, and [3]Gynecologic Oncology Division, Sacro Cuore Don Calabria General Hospital, Negrar, Verona, Italy



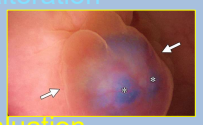
Acta Obstet Gynecol Scand 2011 Feb;90(2):136-9

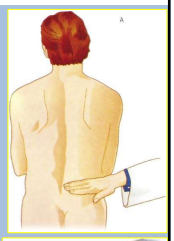
Bladder Endometriosis: ventral spread of adenomyosis



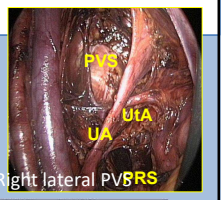
Bladder and Ureteral Endometriosis: DIAGNOSIS

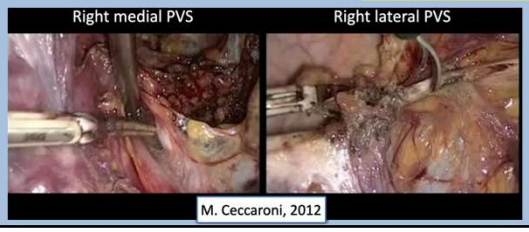
- Clinical findings
  - Ureteral trigger-points pain
  - Positive Giordano's sign
  - Pyelectasia
  - Bladder profile alteration
  - Pelvic mass
- CA125
- Uro CT
- Cystoscopic evaluation
- Transabdominal sonography(TAS)
- Transvaginal sonography(TVS)
- Magnetic resonance imaging(MRI)



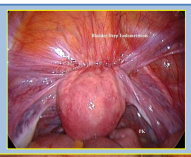


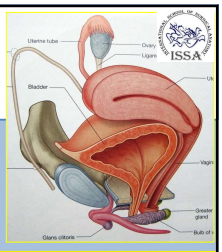
Laparoscopic surgical anatomy of para-vesical spaces

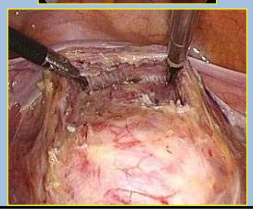


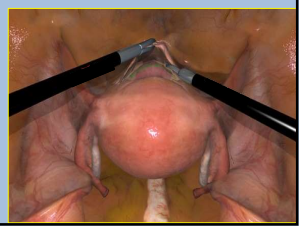


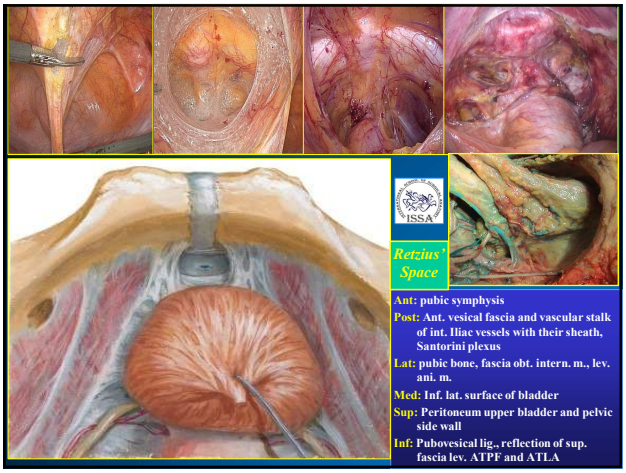
Laparoscopic surgical anatomy of vesico-vaginal and vesico-cervical spaces



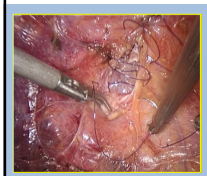


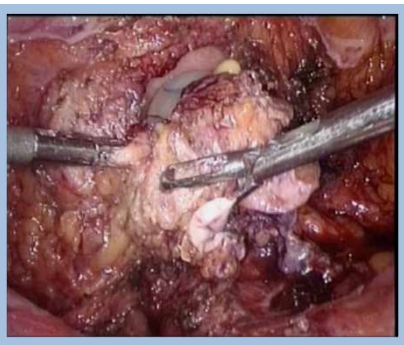




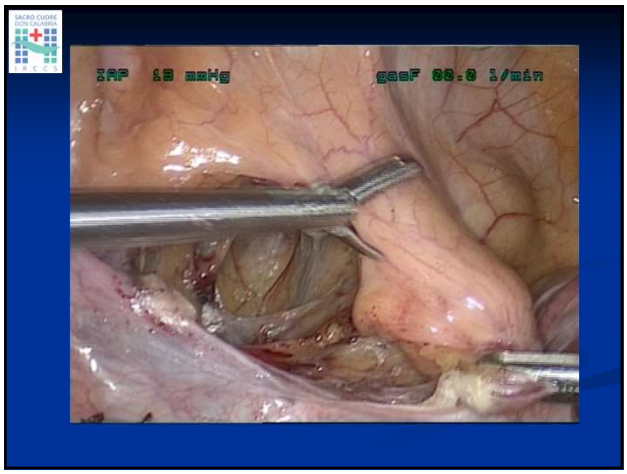


Laparoscopic treatment of Bladder Endometriosis





(Salvatores M, Landi S, Ceccaroni M, et al., Minerva Ginecol 2007; 59:19-25,
"The laparoscopic treatment of bladder endometriosis. A retrospective analisys of 21 cases.")



Laparoscopic surgical anatomy of para-vesical spaces

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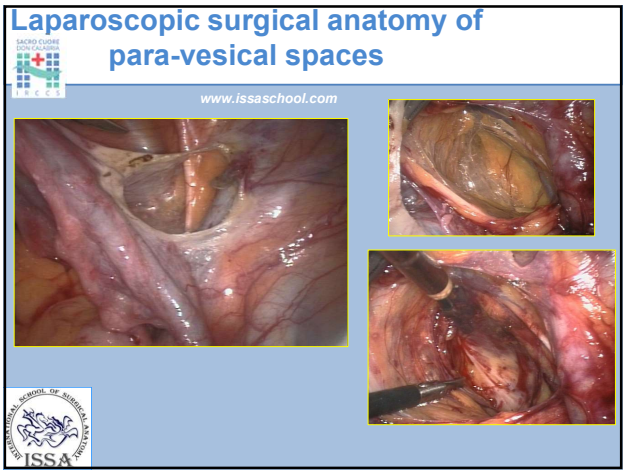
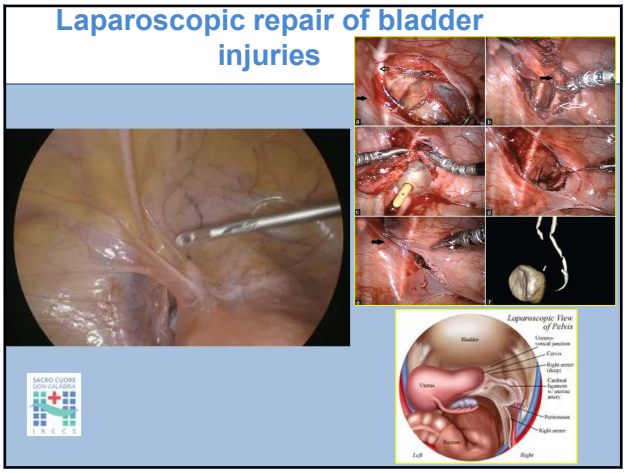
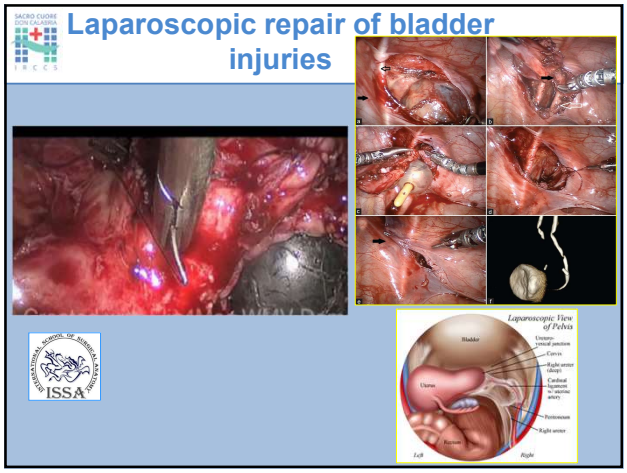


Laparoscopic Treatment of Bladder lesions

Laparoscopic repair of bladder injuries

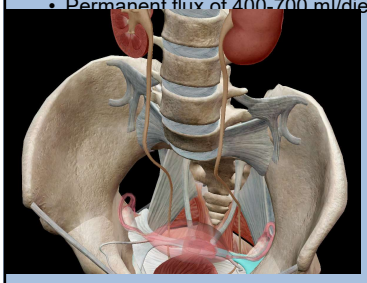


Laparoscopic repair of bladder injuries

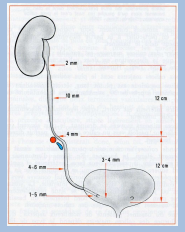


Before dating the ureter…. Anatomy first

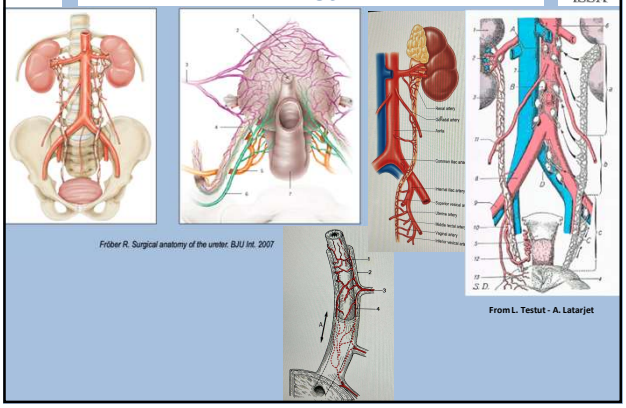
- Upper urinary conduit, from kidney to bladder
- Permanent flux of 400-700 ml/die



- Topography :
  - Abdominal 12 cm
  - Iliac 3 cm
  - **Pelvic 10 cm**



Before dating the ureter…. Anatomy first



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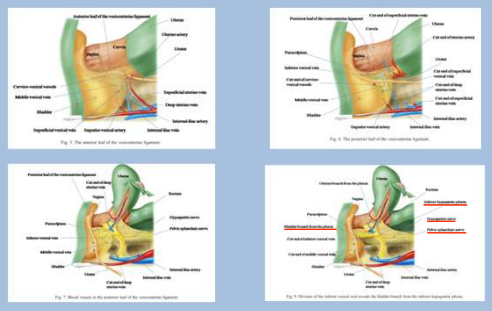
From L. Testut - A. Latarjet

Surgical Anatomy of Anterior Parametrium



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BACKGROUND
URINARY TRACT ENDOMETRIOSIS

- Urinary tract endometriosis (UTE), once considered a rare clinical entity is now increasingly recognized.
- Despite the true incidence is not precisely determined, recent estimates point to a prevalence of UTE ranging from 0.3% to 6% of cases with endometriosis.
- The most serious urological complication of endometriosis is hydronephrosis secondary to ureteral involvement.
- It has been reported that up to 47 % of patients with ureteral endometriosis required nephrectomy at the time of diagnosis.

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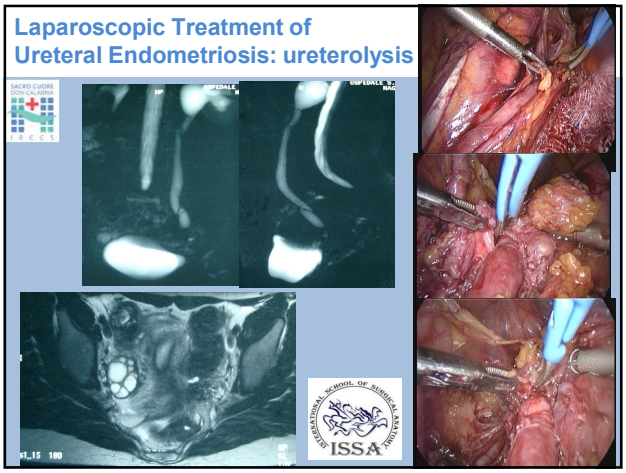
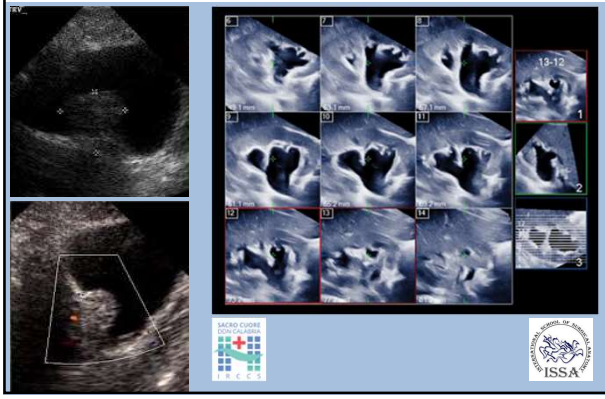
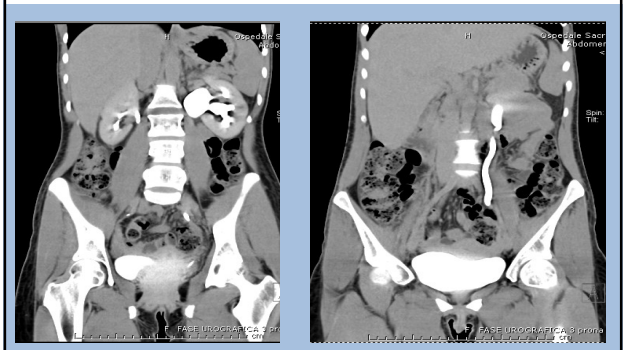
Laparoscopic Treatment of Ureteral Endometriosis: ureterolysis



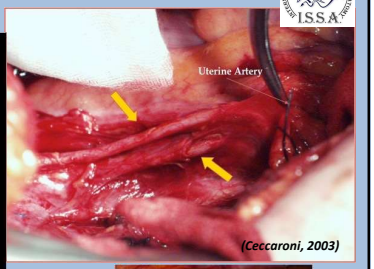
BLADDER AND URETERAL ENDOMETRIOSIS: ULTRASOUND IMAGING



URETERAL ENDOMETRIOSIS: Uro-CT IMAGING



Retroperitoneum: Double Ureter (1.3%)



(Ceccaroni, 2003)

(Ceccaroni, 2015)

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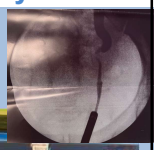
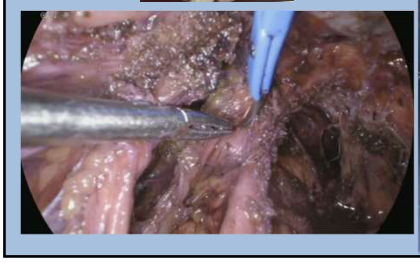
Laparoscopic Treatment of Ureteral Endometriosis: double ureters

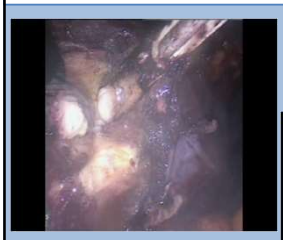
Laparoscopic Treatment of Ureteral Endometriosis: after ureterolysis

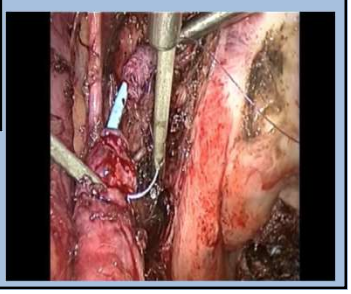


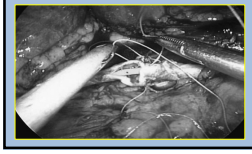


Laparoscopic Treatment of Ureteral Endometriosis: double ureters

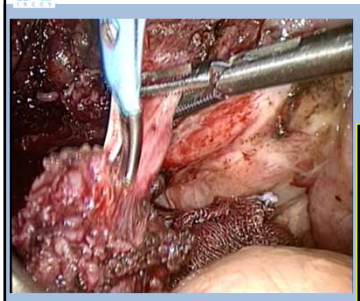
Laparoscopic repair of ureteral injuries

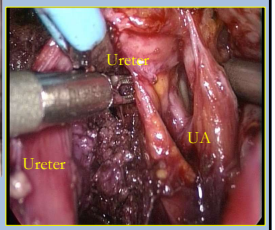






Laparoscopic Treatment of Ureteral Lesion: end to end anastomosis





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Mereu L, Gagliardi ML, Ciarizia R, Mainardi P, Landi S, Minelli L. Fertil Steril. 2010 Jan;93(1):46-51. Stepniewska A, Grosso G, Molon A, Minelli L, et al., Human Reprod. 2011 Jan; 26(1):112-6.

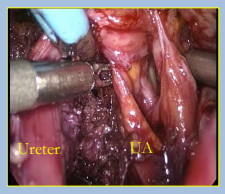
Laparoscopic Treatment of Ureteral Lesion: end to end anastomosis

End-to End outcomes


Ureteroureteral anastomosis for endometriosis involving the ureter: Case series and literature review

Recent Review identified 151 published cases

75 Laparoscopic
18 Laparotomy
1 Robotic
57 Unspecified
Operative time 300 min
Recurrence of obstructive uropathy occurred in 11 cases (7.3%)



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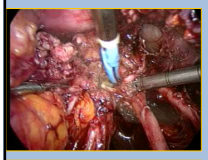
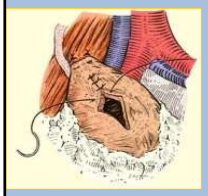
Laparoscopic Treatment of Ureteral Endometriosis: ureteroneocystostomy





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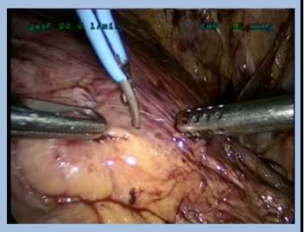
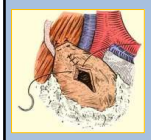
Stepniewska A, Grosso G, Molon A, Minelli L, et al., Human Reprod. 2011 Jan; 26(1):112-6.

Technique: ureteral reimplantation

- Eradication of parametrial endometriosis with distal ureterectomy
- Closing of the vescical outflow (clips or suturing)
- Development of medial paravescical spaces
- Development of Retzius' and Bogros' spaces
- Bladder opening and creation of mucosal tunnel
- Psoas hitch
- Double-J stent inserted (if not present)
- Uretero-vesical anastomosis completed using six interrupted sutures in 3/0 Monocryl, or three running sutures (Lich-Gregoire technique)
- Bladder incision was then closed longitudinally with a double suture in 2/0 Monocryl





- Patient's mobilization on day 2
- Pelvic drain removed on day 3 after endovenous blue test
- Foley catheter removed on day 7 after cystography
- If leakage, Foley catheter kept in place for 7-15 days more
- Double-J stent removed after 40 days

M. Ceccaroni, G. Caleffi

In Summary

- The ureter is mostly a friendly helpful anatomic landmark, but sometimes friends do not do so nice things
- Deep knowledge of macro- and micro-anatomy of the ureter and surrounding anatomy is needed
- Ureterolysis is one of the basic principal skills that gynecologic surgeon needs to master
- Ureter injury is now extremely rare in experienced hands at laparoscopic hysterectomy
- Ureteral endometriosis is often extrinsic, but if intrinsic, then either end-to-end anastomosis or reimplantation are required

How To Prevent Visceral, Vascular Or Neural Complications In MIS: A Roadmap

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HCor and Erasto Gaertner Hospital Gynecologic Oncology Dept
Professor at Pontifícia Universidade Católica do Paraná

AAGL 2022 51st GLOBAL CONGRESS ON MIGS
December 1-4, 2022 | Aurora, CO | congress.aagl.org

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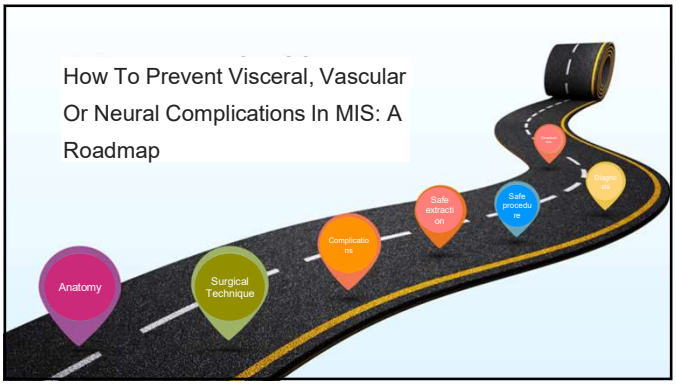
- Speakers' Bureau: AstraZeneca, Roche, MSD, Medtronic, Ethicon, Cooper Surgical
- Travel, Accommodations, Expenses for lectures/educational activities: AstraZeneca, Roche, MSD

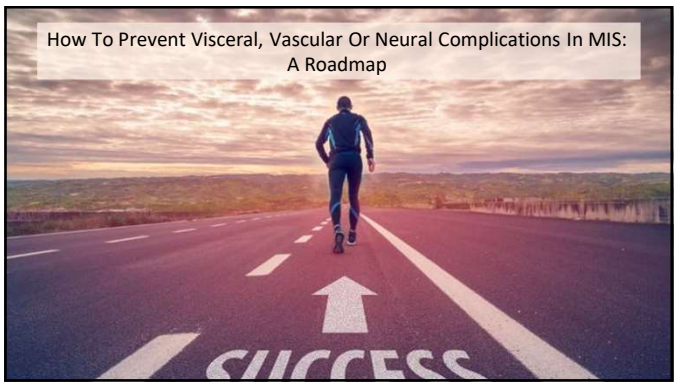
- No financial disclosures for this lecture

50 1971 ✱ 2021

How To Prevent Visceral, Vascular Or Neural Complications In MIS: A Roadmap

- To describe adequate peri-operative management to prevent complications
- To review general complications profile, and the main resources and techniques for a safe pelvic procedure
- To propose a roadmap to guide standardized pelvic approaches and to reduce complications

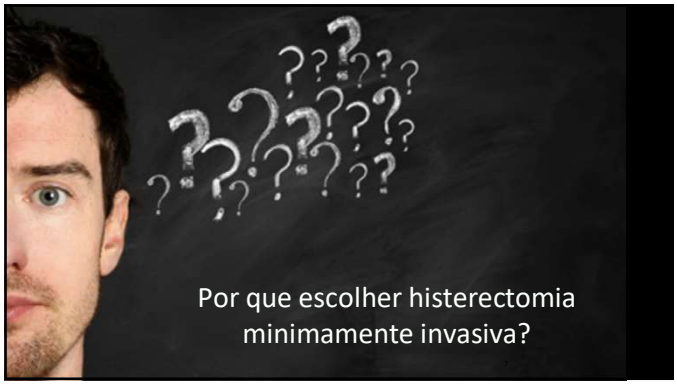


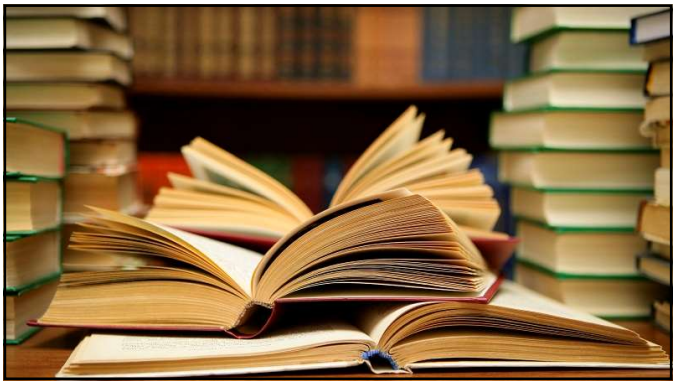


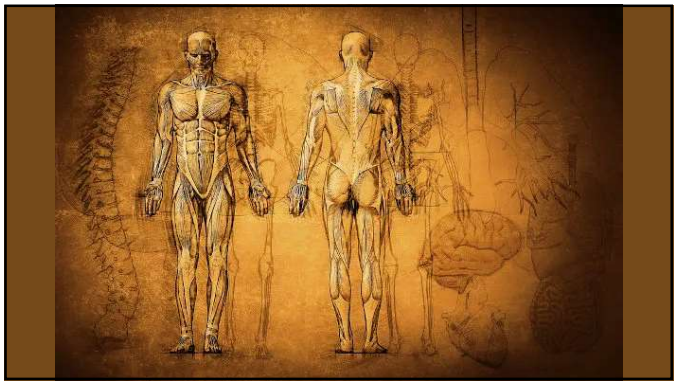
How To Prevent Visceral, Vascular Or Neural Complications In MIS: A Roadmap

Pre-operatively:

- Review anatomic key elements and surgical technique
- Understand limitations and most common complications
- Organize team and instruments/equipments
- Adequate patient selection
- **Understand that laparotomy does not reduce complications**


Por que escolher histerectomia minimamente invasiva?






Vamos devagar, pois eu tenho pressa
Napoleão Bonaparte
PENSADOR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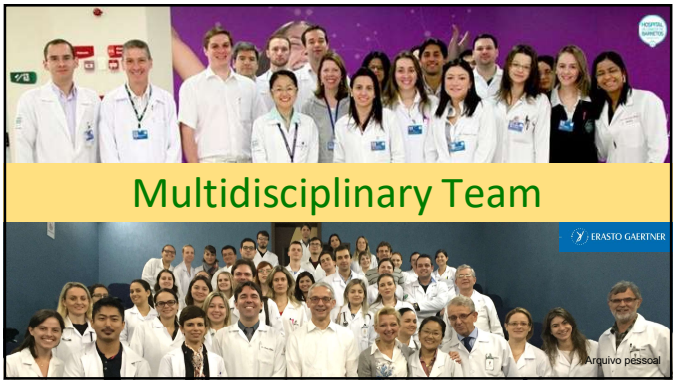
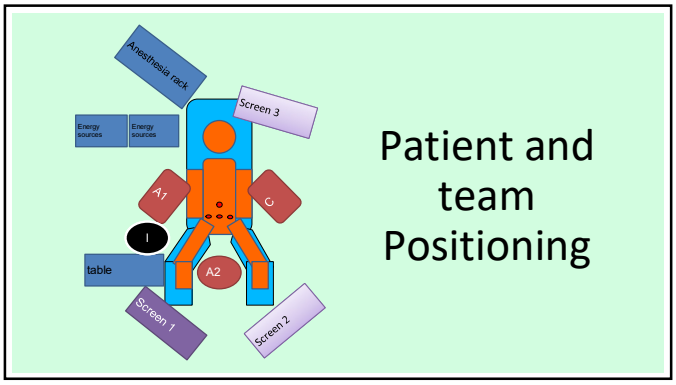
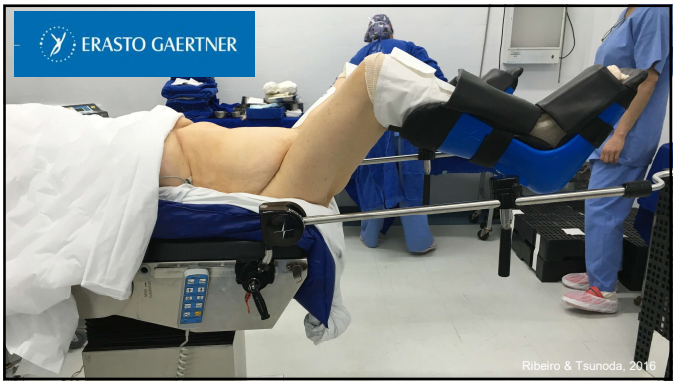
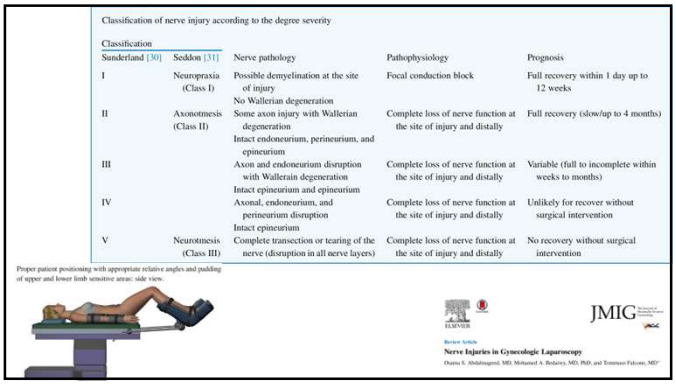
T/F


Multidisciplinary Team
ERASTO GAERTNER
Arquivo pessoal

Surgical Team





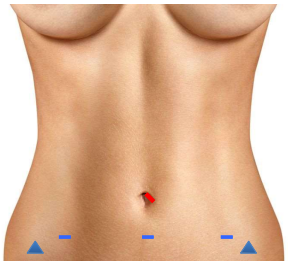


ow To Prevent Visceral, Vascular Or Neural Complications In MIS: A Roadma

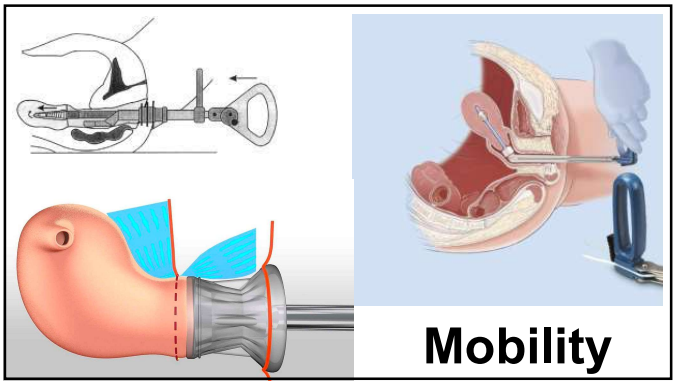
During surgery:

- Adequate ergonomy and use of energy
- Anatomical landmarks identification
- Provide a good uterus mobilization
- When facing a difficult case in the lateral or posterior aspcects: pelvic spaces development

Trocar positioning rationale

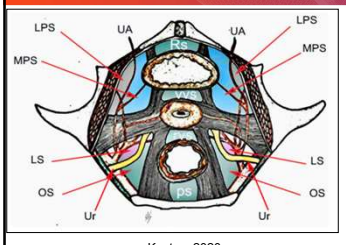


Anatomical landmarks - Video

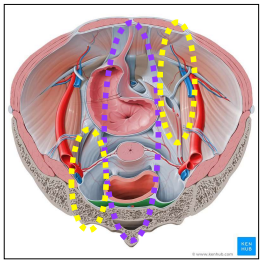


Uterus mobility without manipulator Video

Drive safely through the pelvis – map your pelvic roads

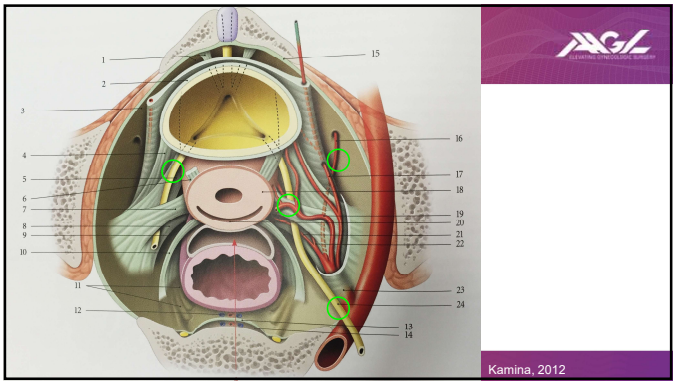


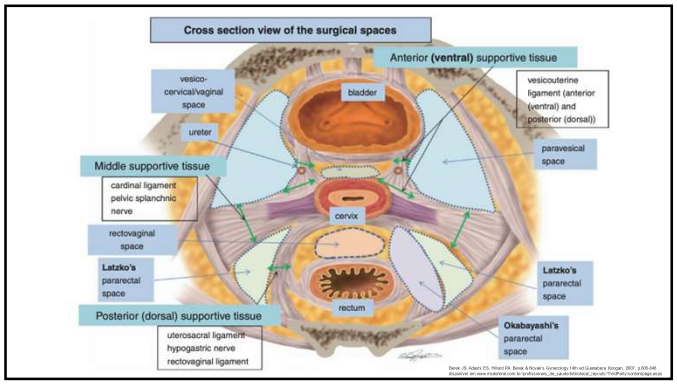
Kostov, 2020



Application of Avascular Spaces			Attention during Dissection
Oncogynecology/Gynecology	**Urogynecology**	**Obstetrics**	
Pelvic lymphadenectomy, RH, RVH, SLNB	Burch colposuspension, paravaginal repair	Cesarean hysterectomy, LA/A cerclage	CORM
Anterior exenteration, RH, DE treatment, RVH, SLNB	Ureteric reanastomosis, paravaginal repair	Cesarean hysterectomy, LA/A cerclage	CORM
Pelvic lymphadenectomy, RH, uterine artery ligation, nerve-sparing procedures, RVH, sentinel lymph node biopsy, SLNB	Ureter surgery for DIE or GC	Internal iliac artery ligation	Lateral sacral/hemorrhoidal vessels, pelvic splanchnic nerves
Nerve-sparing procedures, RH, LUNA procedure, bowel resection for DIE or GC, RVH, SLNB	Ureter surgery for DIE or GC		Middle rectal vessels, PT, hypogastric nerves
Nerve-sparing procedures during DIE or GC	Ureter surgery for DIE or GC		Vesico-uterine ligament vessels
Anterior exenteration, pelvic anterior peritonectomy, bladder endometriosis	MESH removals, ureteric re-implantation, retropubic TVT, anterior vaginal compartment repairs, Burch colposuspension, MMK procedure		Veins of Santorini, Dorsal vein of clitoris

Application of Avascular Spaces			Attention during Dissection
Oncogynecology/Gynecology	Urogynecology	Obstetrics	
TLH, RH, RVH, nerve-sparing procedures, management of DIE, vaginal cuff resection	Vesico-uterine/vaginal fistula repair, bladder/ureter endometriosis, transvaginal cystocele operations, sacrocolpopexy	CS, Cesarean hysterectomy, LA/A cerclage, CS scar ectopic excision	uterine artery, superficial uterine vein, ureter branch of the uterine artery, superior vesical vein, cervicovesical vessels
RH, rectovaginal fistula repair, treatment of pelvic adhesions, bowel resection for DIE	Sacrocolpopexy, uterosacral ligament suspension,		Vaginal, presacral veins, middle rectal vessels
bowel resection for DIE, presacral neurectomy, TME for GC, initiation of para-aortic lymphadenectomy	Sacrocolpopexy, hysterocolpopexy,		Common iliac, middle sacral vessels, inferior mesenteric artery, ureters, superior hypogastric plexus, hypogastric nerves

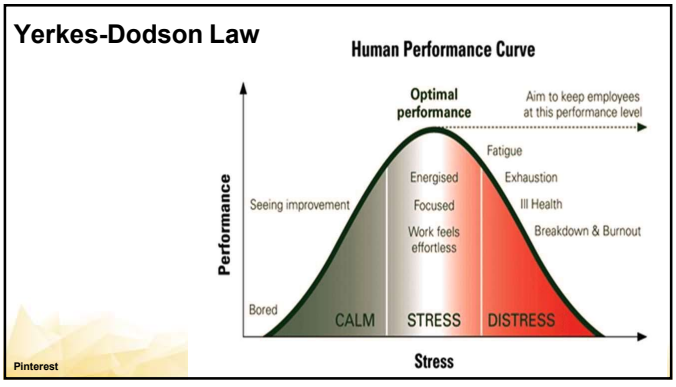




Video - Lateral Pelvic Spaces

ow To Prevent Visceral, Vascular Or Neural Complications In MIS: A Roadma

- Yerkes-Dodson Law and PERFORMANCE
- COMPLICATIONS are more frequent than we would expect
- Most COMPLICATIONS are related to simple steps and regular procedures
- COMPLICATIONS should be adequately prevented, detected and promptly managed



Average incidence rates of intra- and postoperative complications in gynecological laparoscopical procedures (in percent)

Variable	Conventional laparoscopical surgery	Robotic-assisted laparoscopical surgery
Overall (intra- and postoperative period)	0.5–13%	3.2–18.4%
Intraoperative	1.9%	3.2%
Vascular injury	0–1.7%	0–1.7%
Intestinal injury	0.13–0.5%	0.6–2.8%
Urinary tract	0.5–1.7%	1.2–3.5%
Postoperative	13–34%	18.4%
Clavien-Dindo grade 0–2	9%	13.2%
Clavien-Dindo grade 3–4	4%	5.2%
Vaginal cuff dehiscence	0.6–1.3%	1.6%
Port-site metastasis	1.0–1.2%	1.4–1.9%

Mortality of minimally invasive surgical procedures in gynecology (data pooled from [12, 210])

Procedure type	Procedures (n)	Deaths (n)	Deaths, % (95% CI)	Deaths, odds (95% CI)
All MIS procedures	39 183	77	0.26 (0.21–0.33)	1 : 381 (1 : 306–1 : 474)
Any hysterectomy	38 619	77	0.26 (0.21–0.33)	1 : 379 (1 : 304–1 : 472)
Radical hysterectomy	3369	0	0.05 (0.01–0.28)	1 : 2049 (1 : 356–1 : 11 832)
Hysterectomy + lymph nodes	3501	11	0.51 (0.29–0.91)	1 : 195 (1 : 109–1 : 349)
Ovarian cancer	418	0	0.15 (0.01–2.29)	1 : 685 (1 : 44–1 : 10 971)
Conventional laparoscopy:				
All laparoscopic procedures	9365	13	0.35 (0.21–0.57)	1 : 289 (1 : 175–1 : 476)
Any hysterectomy	8842	13	0.36 (0.21–0.59)	1 : 281 (1 : 169–1 : 469)
Radical hysterectomy	2442	0	0.05 (0.01–0.4)	1 : 1842 (1 : 247–1 : 13 771)
Hysterectomy + lymph nodes	1334	0	0.05 (0–1.59)	1 : 2217 (1 : 63–1 : 79 448)
RALS:				
All robotic procedures	27 971	54	0.21 (0.16–0.27)	1 : 476 (1 : 365–1 : 619)
Robotic hysterectomy	27 930	54	0.21 (0.16–0.27)	1 : 476 (1 : 365–1 : 620)
Radical hysterectomy	927	0	0.07 (0–1.06)	1 : 1496 (1 : 94–1 : 23 933)
Surgery (CLS + RALS) for benign indications:				
All MIS procedures	124 216	15	0.02 (0.01–0.03)	1 : 6456 (1 : 3946–1 : 10 562)
MIS hysterectomy	119 721	15	0.01 (0.01–0.02)	1 : 6814 (1 : 4119–1 : 11 275)
Laparoscopic hysterectomy	114 750	15	0.01 (0.01–0.02)	1 : 6799 (1 : 4109–1 : 11 249)
All robot procedures	5458	0	0.02 (0–1.45)	1 : 5430 (1 : 69–1 : 435 052)
All laparoscopy procedures	118 758	15	0.02 (0.01–0.03)	1 : 6512 (1 : 3971–1 : 10 680)
Sacrocolpopexy (MIS)	864	0	0.08 (0–2.8)	1 : 1246 (1 : 36–1 : 44 700)
Sacrocolpopexy (laparoscopy)	757	0	0.07 (0–5.65)	1 : 1343 (1 : 18–1 : 107 855)
Adnexal surgery	1960	0	0.04 (0–2.2)	1 : 2245 (1 : 45–1 : 113 372)

Thermal effects depending on ESD type

Energy modality (ESD type)	Working temperature range (°C)	Thermal spread within tissue [mm]
Monopolar	100–400	2–22
Bipolar (conventional)	80–120	2–6
Bipolar (advanced)	60–100	1–7
Ultrasonic	60–200	1–4
Hybrid (bipolar-ultrasonic)	100–220	2–3

Open in a separate window

ESD – energy-based surgical device.

Complications in laparoscopic and robotic-assisted surgery: definitions, classifications, incidence and risk factors – an up-to-date review

MAUDSLEY AND ROBERTSON: COMPLICATIONS OF HYSTERECTOMY

Canad. Med. Ass. J. April 24, 1965, vol. 92

Common Complications of Hysterectomy

R. F. MAUDSLEY, M.D.* and
E. M. ROBERTSON, M.B., Ch.B., F.R.C.S.(Edin.), F.R.C.O.G., F.R.C.S.[C],†
Kingston, Ont.

n=385

TABLE I.—BLOOD TRANSFUSIONS ASSOCIATED WITH HYSTERECTOMY

	Abdominal		Vaginal	
	No.	%	No.	%
Preoperative	25	8.8	4	3.9
Postoperative	82	28.8	40	39.6

TABLE II.—ANEMIA ASSOCIATED WITH HYSTERECTOMY

	Abdominal		Vaginal	
	No.	%	No.	%
Preoperative	24	8.4	3	2.9
Postoperative	20	7.0	10	9.9

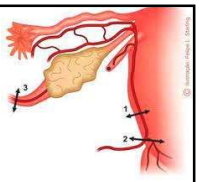
TABLE III.—URINARY TRACT INFECTION ASSOCIATED WITH HYSTERECTOMY

	Abdominal		Vaginal	
	No.	%	No.	%
Preoperative	16	5.6	8	7.9
Postoperative	74	26.0	48	47.5

Review > Clin Anat. 2017 Oct;30(7):946-952. doi: 10.1002/ca.22962. Epub 2017 Aug 22.

Anatomical complications of hysterectomy: A review

Rebecca C Ramdhan [1,2], Marios Loukas, R Shane Tubbs [1,2]



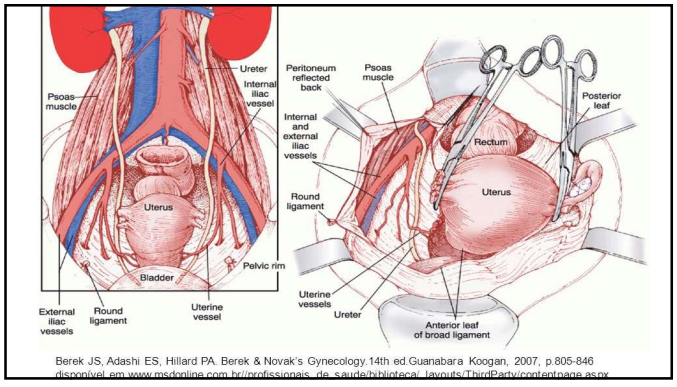
GU tract injuries 1-2% (5,000 cases/year in the USA)

- 0.3-1.2% open
- 0.2-8% laparoscopy
- 0.7-4% vaginal

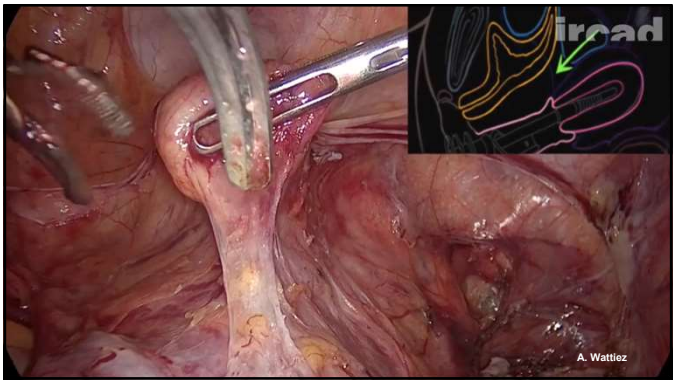
Bladder - most frequent, mainly during vesico-vaginal space development

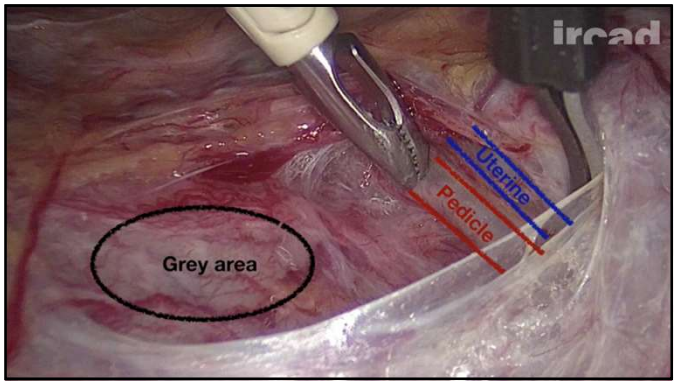
Ureter (66% are not detected during the procedure)

**Bladder catheter + adequate plane exposure



Berek JS, Adashi ES, Hillard PA. Berek & Novak's Gynecology.14th ed.Guanabara Koogan, 2007, p.805-846
disponível em www.msdonline.com.br//profissionais_de_saude/biblioteca/_layouts/ThirdParty/contentpage.aspx





Bladder video

BJOG An International Journal of Obstetrics and Gynaecology

Complications after benign hysterectomy, according to procedure: a population-based prospective cohort study from the Danish hysterectomy database, 2004–2015

All Danish women from 2004 to 2015
Elective hysterectomy
n= 51,141

7% minor complications (n=3,577)
9.4% major complications (n=4,788)

Predictive of major complications:

- Endometriosis
- Uterus >1.000cc
- BMI>30
- ASA 3-4

Table 4. Multivariate log-binomial regression for major and minor complications within 30 days of elective benign hysterectomy in Denmark from 2004 to 2015 according to surgical method, stratified by calendar periods

Method	2004–2009		2010–2015	
	Coded[a]	Imputed[b]	Coded	Imputed
Major complications: multivariate RR (95% CI) by calendar periods				
AH	1.80 (1.56–2.07)*	1.79 (1.55–2.06)*	1.85 (1.55–2.20)*	1.82 (1.53–2.16)*
LH	0.96 (0.75–1.22)	0.95 (0.75–1.22)	0.72 (0.60–0.87)*	0.72 (0.60–0.86)*
VHp	0.76 (0.47–1.23)	0.77 (0.48–1.24)	0.39 (0.25–0.61)*	0.39 (0.26–0.61)*
VHnp	Ref	Ref	Ref	Ref
Minor complications: multivariate RR (95% CI) by calendar periods				
AH	1.37 (1.23–1.54)*	1.35 (1.21–1.51)*	1.32 (1.15–1.53)*	1.30 (1.13–1.50)*
LH	1.26 (1.06–1.49)**	1.25 (1.05–1.48)**	1.55 (1.36–1.77)*	1.53 (1.33–1.74)*
VHp	0.93 (0.67–1.31)	0.94 (0.67–1.32)	0.90 (0.67–1.21)	0.90 (0.67–1.20)
VHnp	Ref	Ref	Ref	Ref

Reduced Complications Following Implementation of Laparoscopic Hysterectomy: A Danish Population-based Cohort Study of Minimally Invasive Benign Gynecologic Surgery between 2004 and 2018

Ministry of Health advised for the vaginal route in 2004 - 36%

In 2010, MH advised for laparoscopy (against open) - 72%

Since 2015, contained morcellation

Complications reduced from 8.1% to 4.1%

Mortality 0.27% (50% reduction)

Comparing benign laparoscopic and abdominal hysterectomy outcomes by time

All Canadian women from 2010 to 2016
Elective hysterectomy
n=109,821
(61% laparoscopic vs 39% open)

Table 3 Outcomes by procedure type

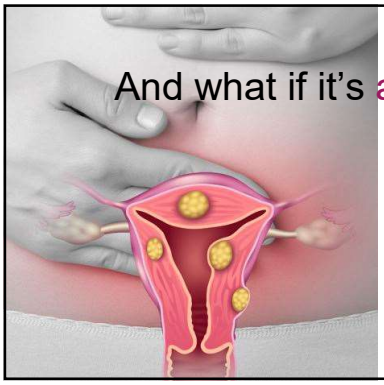
Outcome	Laparoscopic (n = 66,560)	Abdominal (n = 43,261)	*p*-value
Wound	1378 (2%)	1852 (4%)	<0.001
Cardiac	21 (0.03%)	49 (0.1%)	<0.001
Renal	35 (0.05%)	64 (0.2%)	<0.001
Pulmonary	129 (0.2%)	265 (0.6%)	<0.001
Clotting	198 (0.3%)	238 (0.6%)	<0.001
Sepsis	244 (0.4%)	367 (0.9%)	<0.001
UTI	1268 (1.9%)	770 (1.8%)	0.13
Bleeding	744 (1.1%)	3381 (7.8%)	<0.001
Return to OR	798 (1.2%)	775 (1.8%)	<0.001
LOS ≥ 3 days	1873 (2.8%)	18,376 (42%)	<0.001
Composite	4008 (6%)	6216 (14%)	<0.001

Best Practice & Research Clinical Obstetrics and Gynaecology

Robot-assisted laparoscopy in benign gynecology: Advantageous device or controversial gimmick?

Obianuju Sandra Madueke-Laveaux, MD, MPH, Arnold P. Advincula, MD

	Robotic	Laparoscopic	Vaginal
Costs	Same	Same	Reduced
Surgical time	154.63 ± 36.57	185.65 ± 42.98	
QOL	Same	Same	Same
Conversion to laparotomy rate	1%	5%	



And what if it's a large uterus?

More than 250cc

Strategies to overcome a large uterus

- Higher port placement
- Open or direct vision trocar first entry
- Advanced energy device
- Adequate uterine mobilization
- Ureters: always seen, sometimes dissected rule
- Morcellation (protected whenever possible)
- **TEAM WORK!!!**

Canadian Task Force

ACS NSQIP database

2005-2012

JMIG

Original Article

Association Between Body Mass Index, Uterine Size, and Operative Morbidity in Women Undergoing Minimally Invasive Hysterectomy

Divya K. Shah, MD, MME*, Bradley J. Van Voorhis, MD, Allison F. Vitonis, SM, and Stacey A. Missmer, ScD

Total hysterectomy (laparoscopy-assisted vaginal, laparoscopy or vaginal) for benign conditions

n=36,757

Characteristics of 36 757 women undergoing minimally invasive hysterectomy

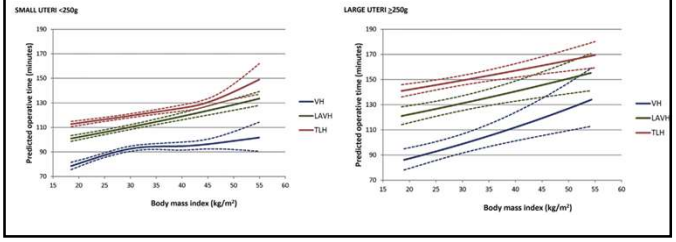
	All n = 36 757	VH n = 10 301 (27.9%)	LAVH n = 10 057 (27.4%)	TLH n = 16 450 (44.8%)
Uterine size >250 g				
No	31 228 (85.0)	9665 (94.3)	8633 (85.8)	12930 (78.6)
Yes	5529 (15.0)	585 (5.7)	1424 (14.2)	3520 (21.4)
Postoperative diagnosis				
Myomas and uterine pathology	11 499 (31.3)	1670 (16.3)	3182 (31.6)	6647 (40.4)
Bleeding	8612 (23.4)	2308 (22.5)	2487 (24.7)	3817 (23.2)
Prolapse	6439 (17.5)	4470 (43.6)	845 (8.4)	1124 (6.8)
Endometriosis or pelvic pain	5617 (15.3)	906 (8.8)	1988 (19.8)	2723 (16.6)
Other gynecologic conditions	2716 (7.4)	742 (7.2)	855 (8.5)	1119 (6.8)
Adnexal pathology	1147 (3.1)	63 (0.6)	449 (4.5)	635 (3.9)
Nongynecologic conditions	296 (0.8)	13 (0.1)	108 (1.1)	175 (1.1)
Prophylactic	431 (1.2)	78 (0.8)	143 (1.4)	210 (1.3)

JMIG

Original Article

Association Between Body Mass Index, Uterine Size, and Operative Morbidity in Women Undergoing Minimally Invasive Hysterectomy

TLH had less blood transfusion ($p < .02$) and shorter hospitalizations ($p < .03$) regardless of uterine size or BMI



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Uterine weight and complications after abdominal, laparoscopic, and vaginal hysterectomy

Michelle Louie, MD, MSCR; Paula D. Strassle, MSPH; Janelle K. Moulder, MD, MSCR; A. Mitch Dizon, MD, MSCR; Lauren D. Schift, MD; Erin T. Carey, MD, MSCR

SEER cohort
ACS NSQIP database
2014-2015
Hysterectomy for benign conditions
n=27,167

SGS Papers ajog.org

Uterine weight and complications after abdominal, laparoscopic, and vaginal hysterectomy

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SEER cohort
ACS NSQIP database
2014-2015
Hysterectomy for benign conditions
n=27,167

Complications were related to uterus size

Uteri >500cc were >30% more likely to have complications (vs <100cc), OR 1.34, p<0.001
>700cc almost 60%, OR 1.58, p<0.001
>1,000cc more than >80%, OR 1.85, p<0.001

SGS Papers ajog.org

Uterine weight and complications after abdominal, laparoscopic, and vaginal hysterectomy

TABLE 1
Demographics and surgical characteristics of women undergoing hysterectomy for nongynecologic cancer reasons from 2014 through 2015, stratified by uterine weight

	≤100 g 8625 (31.8%)	101–500 g 15,023 (55.3%)	>500 g 3519 (13.0%)
Admit year, n (%)			
2014	3812 (44.2)	6761 (45.0)	1620 (46.0)
2015	4813 (55.8)	8262 (55.0)	1899 (54.0)
Procedure type, n (%)			
Abdominal	1283 (14.9)	3585 (23.9)	2608 (74.1)
Vaginal	2464 (28.6)	2010 (13.4)	37 (1.1)
Laparoscopic	4878 (56.6)	9428 (62.8)	874 (24.8)

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Uterine weight and complications after abdominal, laparoscopic, and vaginal hysterectomy

Complications were higher in laparotomy

TABLE 2
Incidence of postoperative complications after hysterectomy, stratified by surgical approach

	Overall 27,167	Abdominal 7476 (28%)	Vaginal 4511 (17%)	Laparoscopic 15,180 (56%)
Complication, n (%)				
Gastrointestinal	266 (0.8)	127 (1.7)	30 (0.7)	69 (0.5)
Genitourinary	75 (0.3)	22 (0.3)	14 (0.3)	39 (0.3)
Infectious	1403 (5.2)	439 (5.9)	271 (6.0)	693 (4.6)
Cardiac	17 (0.1)	10 (0.1)	2 (0.0)	5 (0.0)
Vascular	864 (3.2)	576 (7.7)	78 (1.7)	210 (1.4)
Respiratory	68 (0.3)	43 (0.6)	8 (0.2)	17 (0.1)
Reoperation	378 (1.4)	105 (1.4)	71 (1.6)	202 (1.3)
Readmission	860 (3.3)	283 (3.9)	122 (2.9)	455 (3.1)
Death	10 (0.0)	7 (0.1)	1 (0.0)	2 (0.0)
Any complication, n (%)	2822 (8.1)	1153 (15.4)	436 (9.7)	1233 (8.1)

Louie et al. Uterine weight and posthysterectomy complications. Am J Obstet Gynecol 2018.

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Uterine weight and complications after abdominal, laparoscopic, and vaginal hysterectomy

Complications were higher in laparotomy

Open hysterectomy = 15% complications

Open hysterectomy + uterus<250cc = OR 2.05
Open hysterectomy + uterus 250-500cc = OR 1.76
Open hysterectomy + uterus>500cc = OR 1.35

VS

Laparoscopic hysterectomy 8% complications

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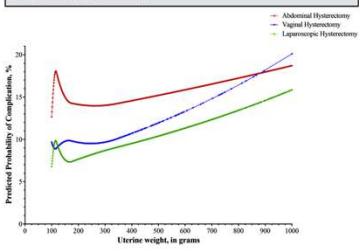
Uterine weight and complications after abdominal, laparoscopic, and vaginal hysterectomy

FIGURE
Abdominal hysterectomy had higher probability of complications compared to laparoscopic hysterectomy



Predicted probability of complication, percent, after hysterectomy, stratified by surgical approach.
Louie et al. Uterine weight and posthysterectomy complications. Am J Obstet Gynecol 2018.

Urinary Tract Injury in Gynecologic Laparoscopy for Benign Indication
A Systematic Review

Jacqueline M. K. Wong, MD, Pietro Bortoletto, MD, Jocelyn Tolentino, MD, MPH, Michael J. Jung, MD, MBA, and Magdy P. Milad, MD, MS

Table 1. Incidence of Laparoscopic Lower Urinary Tract Injury by Type of Procedure

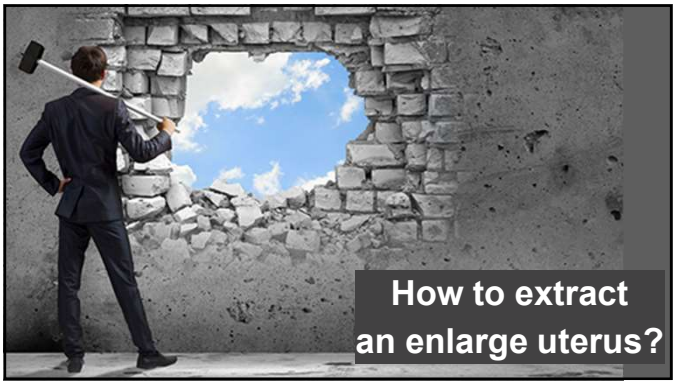
Procedure Type	No. of Surgeries	Total LUT Injury n	Total LUT Injury % (95% CI)	Ureter Injury n	Ureter Injury % (95% CI)	Bladder Injury n	Bladder Injury % (95% CI)	No. of Studies
TLH	86,683	122	0.1 (0.1–0.2)	31	0.04 (0.03–0.05)	91	0.1 (0.1–0.1)	37
LAVH	24,257	247	1.0 (0.9–1.2)	50	0.2 (0.2–0.3)	197	0.8 (0.7–0.9)	42
LSH	5,452	19	0.4 (0.2–0.6)	6	0.1 (0.1–0.3)	13	0.2 (0.1–0.4)	10
LH NOS	1,590	28	1.8 (1.2–2.6)	3	0.2 (0.1–0.6)	25	1.6 (1.1–2.3)	8
Adnexal surgery	6,905	9	0.1 (0.1–0.3)	6	0.09 (0.04–0.2)	3	0.04 (0.01–0.1)	10
Endometriosis resection	4,275	17	0.4 (0.3–0.6)	17	0.4 (0.3–0.6)	0	—	7
Major surgery NOS*	1,644	8	0.5 (0.2–1.0)	0	—	8	0.5 (0.2–1.0)	4
Minor surgery NOS†	2,257	3	0.1 (0.04–0.4)	0	—	3	0.1 (0.04–0.4)	7
NOS	3,235	5	0.2 (0.1–0.4)	1	0.03 (0.0–0.2)	4	0.1 (0.1–0.3)	4
Total	140,444	458	0.33	114	0.08	344	0.24	90

Nerve sparing key points

Radical hysterectomy

Nerve at risk	Anatomico-surgical « hot-spot »	Consequences of damage	How to avoid
Hypogastric nerve and inferior hypogastric plexus	US ligament division	Complex urinary, and sexual disorders	Check and retract laterally from the US
Splanchnic (usually + hypogastric)	Cardinal ligaments section		Keep dissecting cranially from the DUV
Vesical branches of the plexus	Bladder pilar and vesico vaginal ligament		Keep dissecting medially to the vesical nerve

Courtesy of E Leblanc

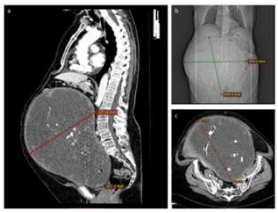


Archives of Gynecology and Obstetrics
https://doi.org/10.1007/s00404-020-05799-6

GENERAL GYNECOLOGY

Feasibility and safety of total laparoscopic hysterectomy for uteri weighing from 1.5 kg to 11.000 kg

Antonio Macciò[1] · Giacomo Chiappe[1] · Paraskevas Kotsonis[1] · Fabrizio Lavra[1] · Elisabetta Sanna[1] · Ivan Collu[1] · Sonia Nemolato[2] · Clelia Madeddu[3]



N=78

Median weight = 2,000g

Estimated blood loss = 100 mL (range 10–700 mL)

Operating time =135 min (range 60–300 min)

Hospital stay = 2 days (range 2–5 days)

Conversion to laparotomy in 4 patients (5.1%)

One intraoperative complication = ureteral injury (grade III) - uterus 11,000g

"extracorporeal intrauterine morcellation" through a low transverse minilaparotomy

GENERAL GYNECOLOGY

Feasibility and safety of total laparoscopic hysterectomy for uteri weighing from 1.5 kg to 11.000 kg

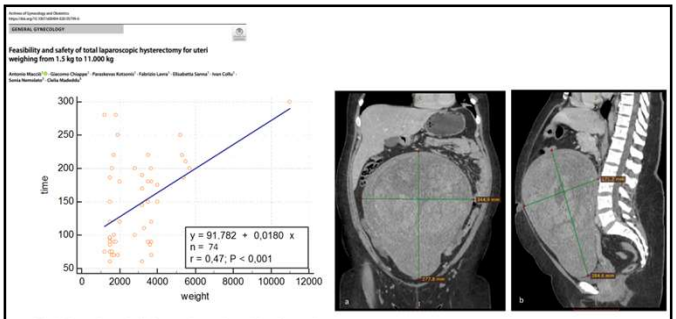
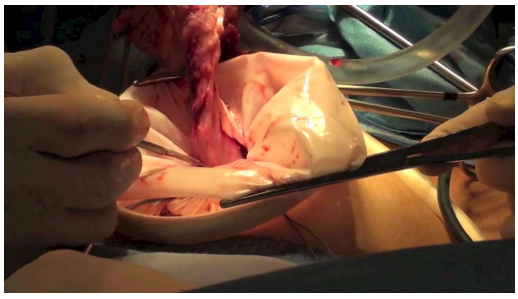
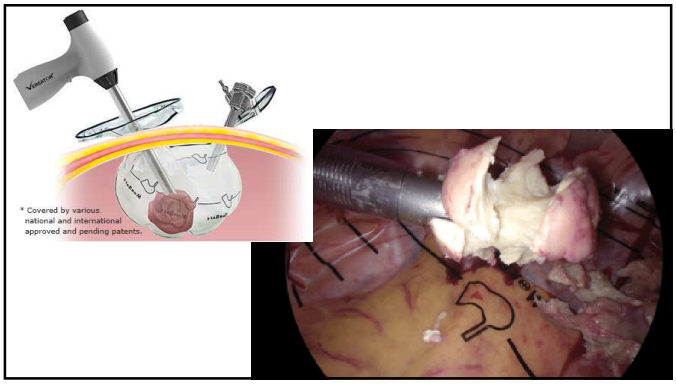


Fig. 5 Regression analysis between the uterine weight and operative time. Results were considered significant for $p < 0.05$

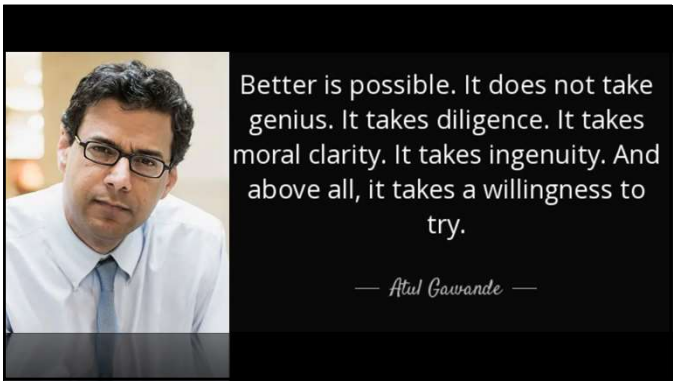
Large Uterus Extraction





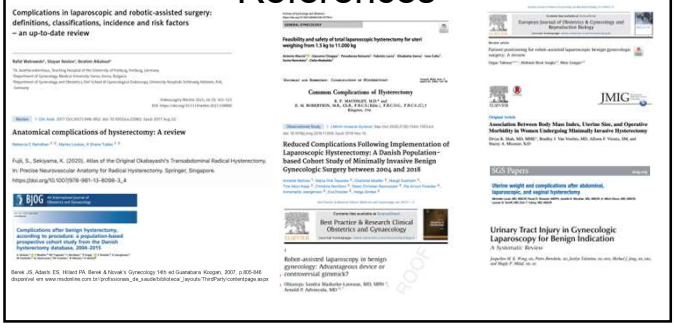
How To Prevent Visceral, Vascular Or Neural Complications In MIS: A Roadmap

- Adequate perioperative management, including anatomical landmarks identification (and not necessarily dissection!) is a must!
- Main complications are mostly related to simple procedures and/or steps, and basic resources and reproducible surgical techniques may prevent them
- Standardized pelvic approaches may positively impact surgical results (i.e. pelvic spaces development, adequate exposure, save approach to important structures)



Aknowledgements
Bruno R B Azevedo, MD;
Renato Moretti-Marques, MD, PhD
Reitan Ribeiro, MD;
José Clemente Linhares, MD, MSc

References



CULTURAL AND LINGUISTIC COMPETENCY & IMPLICIT BIAS

The California Medical Association (CMA) announced new standards for Cultural Linguistic Competency and Implicit Bias in CME. The goal of the standards is to support the role of accredited CME in advancing diversity, health equity, and inclusion in healthcare. These standards are relevant to ACCME-accredited, CMA-accredited, and jointly accredited providers located in California. AAGL is ACCME-accredited and headquartered in California.

CMA developed the standards in response to California legislation (Business and Professions (B&P) Code Section 2190.1), which directs CMA to draft a set of standards for the inclusion of cultural and linguistic competency (CLC) and implicit bias (IB) in accredited CME.

The standards are intended to support CME providers in meeting the expectations of the legislation. CME provider organizations physically located in California and accredited by CMA CME or ACCME, as well as jointly accredited providers whose target audience includes physicians, are expected to meet these expectations beginning January 1, 2022. AAGL has been proactively adopting processes that meet and often exceed the required expectations of the legislation.

CMA CME offers a variety of resources and tools to help providers meet the standards and successfully incorporate CLC & IB into their CME activities, including FAQ, definitions, a planning worksheet, and best practices. These resources are available on the CLC and IB standards page on the CMA website.

Important Definitions:

Cultural and Linguistic Competency (CLC) – The ability and readiness of health care providers and organizations to humbly and respectfully demonstrate, effectively communicate, and tailor delivery of care to patients with diverse values, beliefs, identities and behaviors, in order to meet social, cultural and linguistic needs as they relate to patient health.

Implicit Bias (IB) – The attitudes, stereotypes and feelings, either positive or negative, that affect our understanding, actions and decisions without conscious knowledge or control. Implicit bias is a universal phenomenon. When negative, implicit bias often contributes to unequal treatment and disparities in diagnosis, treatment decisions, levels of care and health care outcomes of people based on race, ethnicity, gender identity, sexual orientation, age, disability and other characteristics.

Diversity – Having many different forms, types or ideas; showing variety. Demographic diversity can mean a group composed of people of different genders, races/ethnicities, cultures, religions, physical abilities, sexual orientations or preferences, ages, etc.

Direct links to AB1195 (CLC), AB241 (IB), and the B&P Code 2190.1:

Bill Text – AB-1195 Continuing education: cultural and linguistic competency.
Bill Text – AB-241 Implicit bias: continuing education: requirements.
Business and Professions (B&P) Code Section 2190.1

CLC & IB Online Resources:

Diversity-Wheel-as-used-at-Johns-Hopkins-University-12.png (850×839) (researchgate.net)
Cultural Competence In Health and Human Services | NPIN (cdc.gov)
Cultural Competency – The Office of Minority Health (hhs.gov)
Implicit Bias, Microaggressions, and Stereotypes Resources | NEA
Unconscious Bias Resources | diversity.ucsf.edu
Act, Communicating, Implicit Bias (racialequitytools.org)
https://kirwaninstitute.osu.edu/implicit-bias-training
https://www.uptodate.com/contents/racial-and-ethnic-disparities-in-obstetric-and-gynecologic-care-and-role-of-implicitbiases
https://www.contemporaryobgyn.net/view/overcoming-racism-and-unconscious-bias-in-ob-gyn
https://pubmed.ncbi.nlm.nih.gov/34016820/