AAGL 26

55TH GLOBAL CONGRESS ON MIGS

BOSTON, MASSACHUSETTS
NOVEMBER 13-16, 2026

Syllabus

Surgical Tutorial 422

Essential Radical Hysterectomy Techniques for Resection of Parametrial Endometriosis Nodules

HONORARY CHAIR
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Surgical Tutorial 422

Essential Radical Hysterectomy Techniques for Resection of Parametrial Endometriosis Nodules

Chair: Xiaoming Guan
Faculty: Xiaoming Guan, Joseph Nassif, Helizabet Salomão

Course Description

In complex benign gynecologic surgery, particularly in the management of deep infiltrating endometriosis involving the parametrium, mastery of radical hysterectomy techniques is essential. Parametrial endometriosis significantly distorts pelvic anatomy and places critical neurovascular structures at risk, requiring advanced surgical strategies traditionally derived from oncologic radical hysterectomy. This surgical tutorial focuses on the application of radical hysterectomy principles—including parametrial dissection, ureterolysis, and nerve-sparing techniques—to enable safe and effective resection of deep endometriosis nodules. Through detailed anatomic review and step-by-step surgical demonstrations, participants will learn to adapt these techniques for both hysterectomy and uterine-preserving procedures, with the goals of minimizing complications and preserving pelvic organ function.

Learning Objectives: *At the end of this course, the participant will be able to:* 1) Identify and apply radical hysterectomy dissection planes to safely resect parametrial endometriosis nodules in patients undergoing hysterectomy; 2) Adapt radical endometriosis resection techniques for uterine-preserving surgery, accounting for anatomic variation and fertility-sparing considerations; and 3) Implement nerve-sparing strategies during radical endometriosis nodule resection to reduce postoperative bladder, bowel, and sexual dysfunction.

Course Outline

11:00 am	Welcome, Introduction and Course Overview	X. Guan
11:05 am	Radical Endometriosis Nodule Resection in Uterine-Preserving Patients	X. Guan
11:20 am	Radical Endometriosis Nodule Resection in Hysterectomy Patients	H. Salomão
11:35 am	Pelvic Autonomic Nerve Identification and Preservation During Radical Endometriosis Dissection	J. Nassif
11:50 am	Discussion Questions & Answers	All faculty
12:00 pm	Adjourn	

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COURSE CHAIR DISCLOSURE

Xiaoming Guan, MD, PhD*

FACULTY DISCLOSURES

The following faculty have agreed to support their presentations and clinical recommendations with the best available evidence from the medical literature (in alphabetical order by last name).

Xiaoming Guan, MD, PhD*
Joseph Nassif, MD MBA*
Helizabet Salomão, PhD*

MITIGATION OF RELEVANT FINANCIAL RELATIONSHIPS

All relevant financial relationships have been mitigated.

Drs. Lee, Lemos, Mikhail, and Chaudhari's planning decisions, as part of the Scientific Program Committee (SPC), were peer reviewed by other planners on the SPC who had disclosed no financial relationships with ineligible companies, and found to be fair, balanced, and free of commercial bias. Dr. Moawad's financial relationships ended 12/2024, thus mitigating them. For most of his AAGL Professional Education Committee service, Dr. Mourad had no financial relationships to disclose. He recently disclosed a new relationship as a Proctor for Intuitive Surgical. Since then, he has not participated in activities involving control or influence over accredited educational content; therefore, no additional mitigation was necessary.

Radical Parametrium Endometriosis

Nodule Resection with Fertility Preservation

Uterine-preserving surgery: anatomy, strategy, nerve/vascular preservation & operative technique

Xiaoming Guan, MD, PhD
Baylor College of Medicine
Houston, Texas

Principle: radical excision of disease — conservative preservation of uterine function

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1

Disclosure

I have no financial relationships to disclose.

2

Learning objectives

Define parametrial endometriosis and recognize the anatomic subcompartments.

Map the ureter, uterine vessels, hypogastric nerve, pelvic splanchnic nerves, and inferior hypogastric plexus before cutting.

Apply a reproducible **"healthy tissue → disease"** dissection strategy.

Excise the nodule completely while preserving the uterus, uterine perfusion, autonomic nerves, and adjacent organs whenever oncologically unnecessary.

Recognize when ureteral, vaginal, rectal, or vascular reconstruction is required.

3

Parametrial deep endometriosis

Prevalence of deep infiltrating endometriosis (DIE) and parametrial nodules

17–19%

in two surgical cohorts

Approximately 1 in 5–6 patients with confirmed or suspected DIE undergoing surgery.

17.0% · 231 of 1,360 patients

Lateral parametrial involvement in patients undergoing surgery for confirmed DIE. Mabrouk et al., 2019 [1]

19.3% · 105 of 545 patients

Surgically confirmed parametrial nodules in patients undergoing surgery for suspected DIE. Barra et al., 2024 [2]

These are prevalence estimates in selected surgical populations. They do not establish annual incidence or general-population prevalence. A nodule alone does not confirm endometriosis.

[1] Mabrouk et al. J Minim Invasive Gynecol. 2019;26:871–876. PMID: 30176361
[2] Barra et al. Fertil Steril. 2024;122:150–161. PMID: 38382700

4

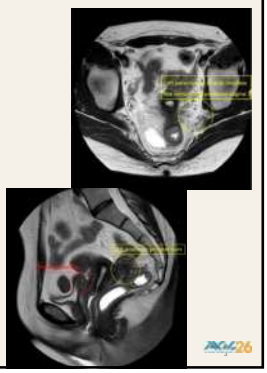
What is a parametrial endometriosis nodule?

Deep endometriosis involving the connective-tissue planes around the cervix, often with dense fibrosis and distortion.

Parametrium contains visceral pelvic ligaments plus vascular and neural structures between layers of visceral pelvic fascia.

Clinically important disease is commonly posterolateral/dorsolateral and may involve the ureter, bladder, uterine vessels, vagina, rectum, or pelvic autonomic nerves.

Think of the lesion as a 3-D fibrotic "hub," not an isolated peritoneal implant.



Sinha et al., 2025: parametrium definition and multiorgan involvement; MRI example shown from uploaded article.

5

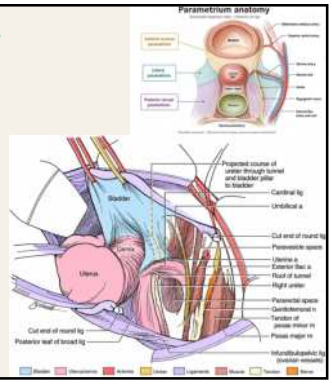
Parametrium: surgical compartments

Anterior: vesicouterine/vesicovaginal connective tissue.

Lateral: cardinal/vascular pedicle region; **ureter and uterine vessels** are key landmarks.

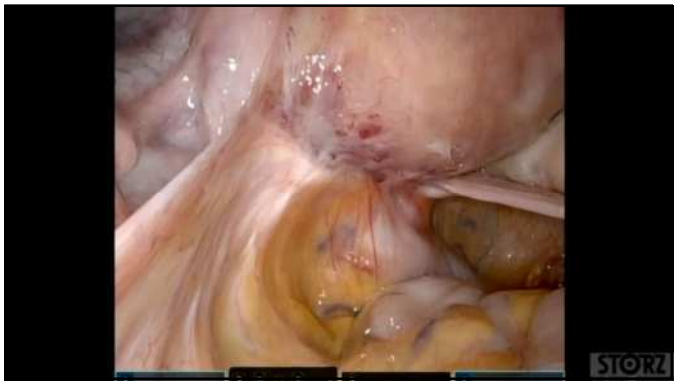
Posterior: uterosacral/rectovaginal region; **hypogastric nerve and inferior hypogastric plexus** are at risk.

Parametrial disease often crosses conventional boundaries—plan by structures involved, not by labels alone.



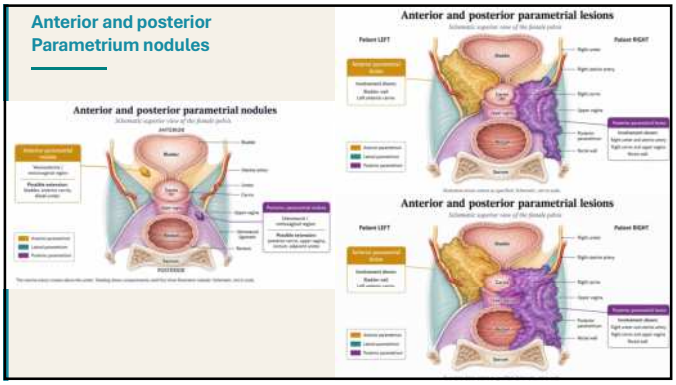
Uploaded Sinha et al. article divides the parametrium into anterior, lateral and posterior regions.

6



7

Anterior and posterior Parametrium nodules



8

Critical anatomy: the "structures you must see"

- **URETER** — lateral → tunnel
- **UTERINE ARTERY** — crosses ureter
- **HYPOGASTRIC NERVE** — posterolateral
- **Internal Iliac Vessels**
- **INFERIOR HYPOGASTRIC PLEXUS** — deep lateral pelvis
- **RECTUM / VAGINA** — medial boundary

Do not start by cutting the nodule. Start by identifying what the nodule has displaced, encased, or fused.

9

Why uterine preservation changes the operation

Goal is **not simply "parametrectomy"**: preserve the uterus and its functional blood supply while clearing symptomatic deep disease.

Preserve the **main uterine artery** whenever feasible; if a branch is sacrificed, confirm remaining uterine perfusion.

Protect the **ureter** throughout its pelvic course—especially where fibrosis fixes it to the nodule.

Minimize autonomic denervation to reduce postoperative urinary, bowel and sexual dysfunction.

Tailor vaginal/rectal excision to depth of invasion; reconstruction should restore anatomy without compromising uterine support.

Radicality applies to disease clearance—not indiscriminate removal of normal parametrium.

Fertility goal → preserve uterus + adnexa + perfusion + pelvic nerve function.



10

Operating room setup & exposure

Modified lithotomy; steep enough Trendelenburg for pelvic sidewall exposure.

Uterine manipulator when appropriate; vaginal probe can define fornix and rectovaginal plane.

Mobilize/suspend ovary away from the affected side to expose pelvic brim and sidewall.

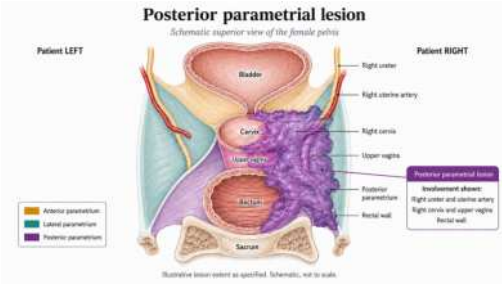
Consider cystoscopy and temporary ureteral catheter/stent or **fluorescence** selectively when anatomy is severely distorted.

Use low-thermal-spread dissection near ureter and nerves; prioritize traction–countertraction and cold/sharp dissection when needed.



11

Posterior Parametrium nodule removal



12

The core concept: reverse dissection



Begin in **uninvolved tissue and work toward fibrosis.**

Create recognizable avascular spaces before attempting the diseased center.

This improves orientation and allows critical structures to be protected before the nodule is mobilized.

Reverse-technique principle emphasized in The Trocar 2025: healthy peripheral tissue → lesion.

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Step 1 — Enter the retroperitoneum and open safe spaces

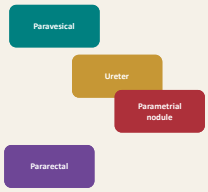
Open pelvic sidewall peritoneum away from the nodule.

Identify external/internal iliac landmarks and the ureter at a normal proximal segment.

Develop **paravesical space(s)** to define the vascular side of the parametrium.

Develop pararectal space(s): Okabayashi/medial pararectal plane is particularly useful for posterior disease.

Expose normal tissue both cranial and caudal to the fibrotic block.



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Step 2 — Ureterolysis: free the ureter before freeing the nodule

Start proximal where the ureter is normal; dissect longitudinally along its adventitial plane.

Release **periureteral fibrosis circumferentially only as needed**—avoid devascularizing the ureter.

Follow distally toward the uterine artery crossing and ureteric tunnel.

Once mobilized, displace the ureter laterally away from the planned excision line.

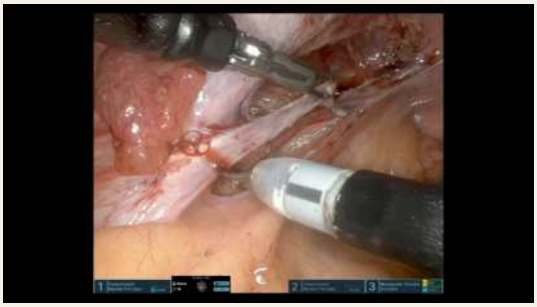
If intrinsic disease/stricture is suspected, prepare for ureteral resection and reconstruction rather than aggressive shaving.



Sinha et al., 2025: ureter externally encased by endometriosis/fibrosis was dissected and deflected laterally before nodule excision.

15

Video — Ureterolysis + uterine artery exposure



16

Step 3 — Control the vascular anatomy while preserving the uterus

Identify the uterine **artery at its origin** when disease obscures the distal pedicle.

Skeletonize only what is necessary; avoid unnecessary interruption of the uterine vascular arcade.

Separate the ureter from the uterine artery **("water under the bridge")** before dividing any diseased vascular branch.

For uterine-preserving surgery, favor branch-level control over proximal uterine artery sacrifice whenever technically safe.

After excision, visually assess uterine color/perfusion; fluorescence can be considered when perfusion is uncertain.

Decision point

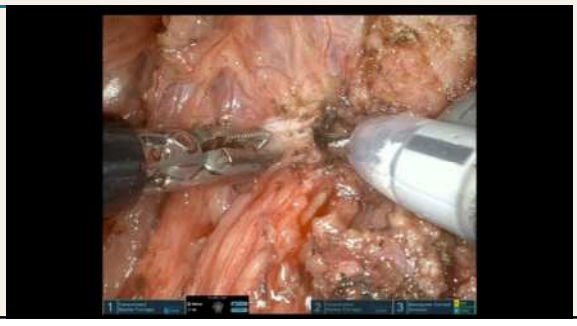
Can the nodule be cleared without sacrificing the main uterine artery?

YES → preserve & peel disease away
NO → individualized vascular strategy + perfusion assessment



17

Video — vascular preservation



18

Step 4 — Nerve-sparing posterior parametrium dissection

Identify the hypogastric nerve in healthy tissue along the posterolateral pelvis.

Open the pararectal plane and keep the nerve/plexus lateral when the nodule is medial.

Recognize pelvic splanchnic contributions (S2–S4) entering the inferior hypogastric plexus.

Use sharp, millimeter-by-millimeter dissection at the neural interface; avoid blind traction on fibrotic tissue.

Accept a tailored balance when disease directly infiltrates nerve tissue—preoperative counseling is essential.

Functional endpoints: spontaneous voiding • bowel function • vaginal lubrication/arousal

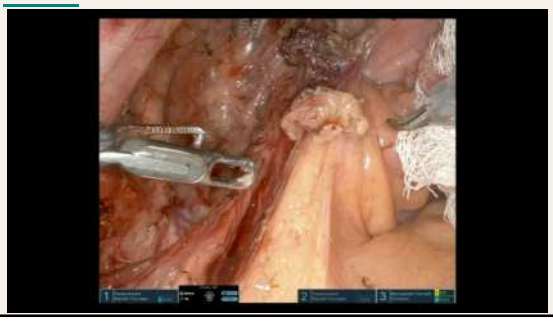
The "nerve-sparing" plane must be created before the nodule is pulled medially.

The Trocar 2025 highlights preservation of inferior hypogastric plexus structures during parametrial excision.

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Video — Nerve-sparing



17

20

Step 5 — Separate rectum and vagina from the nodule

Approach the rectum from a healthy side and develop the rectovaginal/mesorectal plane.

Rectal serosal/muscular involvement: shaving, discoid, or segmental resection depends on depth, size, circumference and stenosis.

Vaginal involvement: **shave muscularis if superficial; perform full-thickness excision when mucosa is infiltrated.**

Mark the vaginal margin with a probe; close full-thickness defects without narrowing the vagina.

Keep ureter and autonomic nerves visible during posterior/forniceal excision.

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Video — Vaginal / rectal interface & reconstruction



18

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Step 6 — Two-step nodule excision for complex multiorgan disease

Large fixed nodules can be divided strategically after all critical structures are mapped.

Example concept: **split the lesion into a rectal-facing component and a vaginal-facing component.**

Resect each component under direct visualization rather than rotating a bulky fibrotic mass around the ureter.

Two-step removal **may improve access to the deepest interface** and reduce traction injury.

This is a strategy—not a requirement. The key is controlled exposure of every organ interface.

15

23

Video — two step



24

Video

25

Anterior Parametrium nodule removal



Video

26

Take-home: a 7-step uterine-preserving algorithm

1. MAP disease
2. ENTER healthy retroperitoneum
3. IDENTIFY ureter
4. DEFINE vessels + nerves
5. MOBILIZE organ interfaces
6. EXCISE nodule radically
7. RECONSTRUCT + verify function

Radical disease excision + uterine preservation requires anatomy-first surgery.

The ureter, uterine blood supply and pelvic autonomic nerves should be identified before the deepest parametrial cut.

Best teaching format: anatomy → MRI map → stepwise video → complications → final algorithm.

Key sources supplied: Sinha R et al. Case Rep Obstet Gynecol. 2025; Chura Paco JJ et al. The Trocar. 2025.

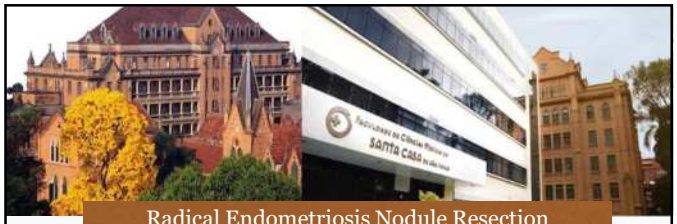
27

References

1. Sinha R, Singh S, Flaxman T. Two-Step Parametrial Endometriosis Nodule Excision Using Virtual Reality Technology and 3D Modelling for Surgical Planning. Case Rep Obstet Gynecol. 2025;2025:5513823. doi:10.1155/crog/5513823.

2. Chura Paco JJ, Cabrera R, Chaul L, Ovando AJ, Menocal A, Kondo W. Parametrectomy and discoid resection for deep endometriosis of the medial and posterior compartments using the reverse technique. The Trocar. 2025;6(2):65–70. doi:10.36205/trocar6.vid25006.

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Radical Endometriosis Nodule Resection in Hysterectomy Patients

Helizabet Salomão Abdalla Ayroza Ribeiro
Full Professor of Santa Casa de Sao Paulo School of Medical Science- São Paulo- Brazil
Head of Endometriosis Division Santa Casa Medical Sciences São Paulo , Brazil
Cientiic Director of Endometriosis Brazilian Association

1

Multimodal Mapping Predicts Complexity, But the EFI Dictates Organ Preservation

The Mapping Matrix

TVUS (with Bowel Prep)
Primary dynamic tool (>90% sensitivity). Evaluates "sliding sign", rectosigmoid muscularis invasion, and trigonal proximity.

High-Res Pelvic MRI
Gold standard for parametrial spread, sacral root encasement, and sciatic nerve involvement.

The Fertility Imperative

The Endometriosis Fertility Index (EFI) acts as the strongest independent predictor for spontaneous pregnancy, superseding the specific excisional technique chosen.

**Note: Hysterectomy remains strictly indicated only for patients who have entirely completed childbearing.*

Ref: Bazot M, et al. AJR Am J Roentgenol. 2004;182(6):1585-1589. | Manu et al., 2026.

2

Endometriosis Classification Systems: Staging, DIE & Surgical Complexity

r-ASRM (1997)
Anatomical Extent & Staging

- Staging: Stages I (minimal) to IV (severe) based on point score.
- Focus: Peritoneal implants, ovarian endometriomas, pelvic adhesions.
- Limitation: Poor correlation with pain severity, deep infiltrating endometriosis (DIE), and surgical complexity.

#Enzian (2021)
Deep Disease & Organ Involvement

- Anatomy: Compartments A (vagina/retrovaginal), B (sacrouterine/pelvic wall), C (rectum/sigmoid).
- Organ Extent: FA (adenomyosis), FB (bladder), FU (ureter), FI (bowel).
- Key Strength: Excellent correlation with surgical complexity in frozen pelvis.

AAGL 2021
Surgical Complexity Score

- Staging: Complexity levels 1 to 4 based on objective intraoperative findings.
- Focus: Quantifies technical difficulty, operative time, and skill level required.
- Key Strength: Directly predicts risk of perioperative complications and need for multidisciplinary team.

EFI (Adamson 2010)
Fertility Prognosis

- Staging: Functional score (0 to 10) combining surgical findings & patient history.
- Focus: Functional status of tubes, ovaries, uterus, age, and duration of infertility.
- Key Strength: Validated tool to predict non-IVF spontaneous pregnancy rates post-surgery.

References: Keckstein J, et al. Acta Obstet Gynecol Scand. 2021; Abrao MS, et al. J Minim Invasive Gynecol. 2021; Canis M, et al. Fertil Steril. 1997; Adamson GD, et al. Fertil Steril. 2010.

3

Obliteration of Avascular Planes Elevates Visceral and Vascular Risks

1. Structural Distortion
- Complete fibrotic fusion of pelvic organs and retroperitoneum.
- Loss of normal anatomical landmarks and surgical cleavage planes.
- High density of neovascularization and reactive inflammation.

2. Visceral & Vascular Risk
- Ureteral entrapment within fibrotic uterosacral ligaments.
- Rectovaginal fistula risk during posterior cul-de-sac dissection.
- Bladder and trigone involvement compromising anterior planes.

3. Multidisciplinary Team
- Requirement for high-volume minimally invasive surgical centers.
- Routine involvement of Colorectal and Urological surgical teams.
- Structured preoperative planning based on dedicated deep mapping.

Bibliographic Reference: Bahrami F, et al. PLoS One. 2023; Gracia M, et al. Sci Rep. 2022; Leborne P, et al. Sci Rep. 2022.

4

Reoperation Reaches 10.5% at 10 Years Following Hysterectomy

10.5%
10-Year Cumulative Reoperation Rate
Most common secondary procedures: Oophorectomy and complex pelvic adhesiolysis due to persistent deep lesions or ovarian remnant tissue.

Strict Patient Selection Criteria
- Definitive surgical therapy reserved for patients with completed childbearing.
- Refractory pelvic pain, severe dysmenorrhea, dyspareunia, and adenomyosis.
- Documented failure of medical management and conservative surgical excisions.

Clinical Evidence & Patient Counseling
- Low quality of baseline longitudinal evidence regarding long-term pain cure.
- Importance of realistic patient counseling regarding residual neuropathic pain.
- Total hysterectomy vs. subtotal hysterectomy (subtotal contraindicated in deep USL involvement).

Bibliographic Reference: As-Sanie S, et al. JAMA. 2025.

5

Step-by-Step Intraoperative Decision Algorithm for Frozen Pelvis

STAGE 1
Surgical Access
Retroperitoneal space opening & Pararectal development

STAGE 2
Ureteral Mapping
Bilateral ureteral tracing & ICG fluorescence visualization

STAGE 3
Posterior Dissection
Rectovaginal adhesiolysis & Nerve-sparing preservation

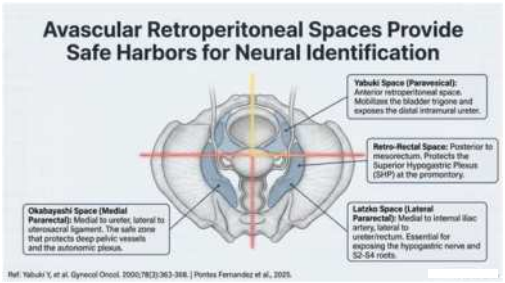
STAGE 4
Bowel Strategy
Shaving / Discoide / Segmental (13.6% ileostomy)

STAGE 5
Hysterectomy
Uterine vessel ligation, colpotomy & cuff closure

Bibliographic Reference: Gracia M 2022; Leborne P 2022; Giorgi M 2025; Tanaka Y 2023; Lovell DY 2024.

6

Avascular Retroperitoneal Spaces Provide Safe Harbors for Neural Identification

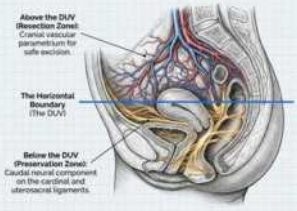


Ref: Yabuki Y, et al. Gynecol Oncol. 2000;78(3):363-368. | Pontes Fernandez et al., 2025.

7

The Deep Uterine Vein Acts as the Anatomical Watershed of the Parametrium

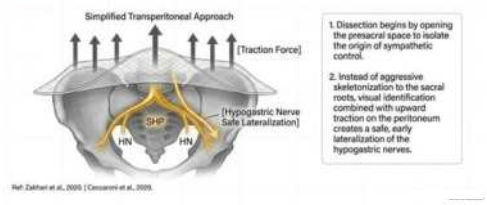
Safe lateral parametrectomy demands identifying the DUV to segregate the intra-parametrial space, avoiding deep extension into the neural meshwork.



Ref: Ceccaroni et al., 2020 | Li et al., 2019.

8

Sympathetic Preservation Relies on Peritoneal Traction Over Radical Dissection



1. Dissection begins by opening the presacral space to isolate the origin of sympathetic control.
2. Instead of aggressive skeletonization to the sacral roots, visual identification combined with upward traction on the peritoneum creates a safe, early lateralization of the hypogastric nerves.

Ref: Zakhari et al., 2020. | Ceccaroni et al., 2020.

9

Cephalad Traction and Avascular Plane Entry Isolate Rectovaginal Nodule

Dissection of Rectovaginal Space

- Uterine manipulator elevation creates tension on rectovaginal septum.
- Sharp dissection along the anterior rectal wall, pushing rectum posteriorly.
- Identification of the correct loose areolar tissue plane behind posterior cervix.

Vaginal Cuff Delineation & Colpotomy

- Isolation of retrocervical nodule prior to colpotomy.
- Prevention of thermal injury to anterior rectal wall during vaginal entry.
- Ensures complete excision of posterior vaginal cuff disease if involved.

Bibliographic Reference: Tanaka Y, et al. Am J Obstet Gynecol. 2023; Yagur Y, et al. PLoS One. 2024.

10

Early Ureteral Identification via Avascular Pararectal Spaces

01
Step 1: Parietal Opening
Open pelvic peritoneum at the pelvic brim, high above the iliac vessel bifurcation.

02
Step 2: Pararectal Spaces
Develop Okabayashi (medial) and Latzko (lateral) pararectal avascular spaces.

03
Step 3: Ureteral Tracing
Trace ureter along the medial leaf of the broad ligament down to the ureteral tunnel.

04
Step 4: Infundibulopelvic
Safely transect IP ligament only after complete visual ureteral identification.

Bibliographic Reference: Gracia M, et al. Sci Rep. 2022; Giorgi M, et al. Adv Ther. 2025.

11

Real-Time Indocyanine Green (ICG) Outperforms Prophylactic Stenting

Indocyanine Green (ICG) Fluorescence

- Intraureteral or intravenous ICG administration provides dynamic real-time NIR fluorescence.
- Allows non-invasive real-time visualization of ureteral course through dense fibrosis.
- Assesses ureteral vascular perfusion post-dissecion to prevent delayed ischemic fistula.
- No risk of ureteral micro-trauma or catheter-associated mechanical edema.

Prophylactic Ureteral Catheters (Stents)

- Prophylactic ureteral catheters facilitate tactile identification in dense frozen pelvis.
- Evidence Analysis: Does NOT reduce overall incidence of iatrogenic ureteral injury.
- Associated with increased urinary tract infection rates, postoperative hematuria.
- Significantly increases operative setup time and overall length of hospital stay.

Bibliographic Reference: Lebarne P, et al. Sci Rep. 2022; Giorgi M, et al. Adv Ther. 2025.

12

Ovarian Preservation Mitigates Early Surgical Menopause Risks

Clinical Dimension	Ovarian Preservation (Recommended)	Bilateral Oophorectomy (BSO)
Endocrine & Cardiovascular Impact	Preserves endogenous estrogen; prevents premature cardiovascular and bone density decline.	Induces immediate surgical menopause; increases cardiovascular and osteoporotic risk.
Cognitive & Quality of Life	Protects cognitive function and neurovascular health in women < 50 years.	Associated with cognitive impairment, severe vasomotor symptoms, and mood disruption.
Recurrence vs. Reoperation Risk	Slightly higher risk of pain recurrence if deep lesions are incompletely resected.	Eliminates ovarian disease source but increases reoperation risk for adhesion-related pain.

Bibliographic Reference: As-Sanie S, et al. JAMA. 2025; Zondervan KT, et al. N Engl J Med. 2020.

13

Shaving, Discoid, and Segmental Resection for Bowel Endometriosis

13.6%

Protective Stoma Rate

Temporary protective ileostomy required in 13.6% of extensive deep endometriosis cases involving low colorectal anastomoses or concomitant vaginal cuff excision.

Surgical Selection Matrix

- Rectal Shaving: Superficial muscularis lesions < 2 cm, low stenosis risk.
- Discoid Resection: Full-thickness solitary lesions < 3 cm without significant stenosis.
- Segmental Resection: Multiple lesions, lesions > 3 cm, or lumen stenosis > 50%.

Bibliographic Reference: Leborne P, et al. Sci Rep. 2022.

14

Nerve-Sparing Techniques Prevent Postoperative Pelvic Dysfunctions

Autonomic Nerve Anatomy

- Hypogastric Nerves: Located 1-2 cm inferior to ureter within the lateral fold.
- Inferior Hypogastric Plexus: Situated in the deep parametrium beneath uterine vessels.
- Pelvic Splanchnic Nerves (S2-S4): Preserved during deep pararectal dissection.

Functional Outcomes & Prevention

- Baseline voiding dysfunction occurs in 30-50% after radical non-sparing resections.
- Preservation of bladder sensation, detrusor contractility, and self-catheterization avoidance.
- Maintenance of rectal motility, defecatory sensation, and sexual lubrication/orgasm.

Bibliographic Reference: Tanaka Y, et al. Am J Obstet Gynecol. 2023; Yagur Y, et al. PLoS One. 2024.

15

Voiding Dysfunction and Visceral Lesions Dominate Perioperative Morbidity

Major Perioperative Complications

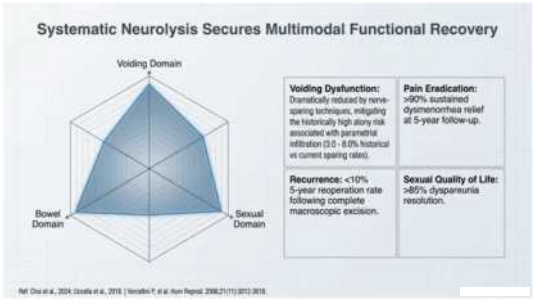
- Bladder Atonia / Voiding Dysfunction: 30-50% in radical nerve-sacrificing resections.
- Ureteral Fistula / Stricture: Secondary to devascularization during lateral thermal dissection.
- Rectovaginal Fistula: Elevated risk when concomitant rectosigmoid and vaginal cuff resections occur.

Risk Factor Stratification

- ENZIAN Score Severity: Direct linear association with total complication rate.
- Concomitant Adenomyosis: Independent risk factor for intraoperative blood loss.
- Prior Pelvic Surgery Count: Significantly increases adhesiolysis time and visceral injury risk.

Bibliographic Reference: Bahrami F, et al. PLoS One. 2023; Leborne P, et al. Sci Rep. 2022; As-Sanie S, et al. JAMA. 2025.

16



17

Robotic Platform Superiority in Retroperitoneal Deep Pelvic Dissection

Technical Dimension	Laparoscopic Surgery	Robotic-Assisted Surgery (Preferred)
Visualization & Magnification	2D or 3D HD camera; assistant-dependent scope stability.	High-definition 3D immersive digital magnification with surgeon camera control.
Instrument Dexterity	Straight rigid instruments; limited range of motion in deep pelvis.	Wristed EndoWrist instruments (7 degrees of freedom) for precise deep suturing.
Ergonomics & Tremor Filtration	Increased fatigue during long complex adhesiolysis cases.	Tremor filtration, motion scaling, and seated ergonomic console comfort.

Bibliographic Reference: Gracia M, et al. Sci Rep. 2022; Giorgi M, et al. Adv Ther. 2025; Lovell DY, et al. JMIG. 2024.

18

Robotic vNOTES Bypasses Extraintestinal Abdominal Adhesions

Indications & Surgical Advantages

- Avoidance of hostile upper abdominal adhesions from prior laparotomies or abdominal mesh.
- Direct transvaginal access to uterine vessels and cardinal ligament complex.
- Elimination of abdominal wall trocars and incisional hernia risks.

Technical Considerations & Limitations

- Requires vaginal cuff accessibility and adequate pelvic capacity.
- High robotic platform ergonomic precision within narrow transvaginal spaces.
- Combined laparoscopic/robotic assistance for severe upper abdominal frozen pelvis.

Bibliographic Reference: Lovell DY, Guan X. J Minim Invasive Gynecol. 2024.

19



20

Core Surgical Pillars in Frozen Pelvis Hysterectomy

Summary Take-Home Messages for Expert Surgeons

- Multidisciplinary pre-booking based on TVUS/MRI ENZIAN score.
- Routine retroperitoneal ureteral mapping before IP transection.
- Nerve-sparing dissection to preserve urinary and bowel function.
- Ovarian preservation whenever technically and clinically feasible.

Bibliographic Reference: Bahrami F 2023; Gracia M 2022; As-Sanie S 2025; Tanaka Y 2023.

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Core Surgical Pillars in Frozen Pelvis Hysterectomy



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Pelvic Autonomic Nerve Identification and Preservation During Radical Endometriosis Dissection

Joseph NASSIF, MD · Baylor College of Medicine / Texas Childrens Hospital

NOVEMBER 13-16, 2026 · BOSTON · #AAGL26

1

Disclosure

"I have no financial relationships to disclose."

2

Objectives

- *Describe pelvic autonomic nerve anatomy*
- *Identify key nerves during endometriosis surgery dissection*
- *Recognize the possible complications in case of nerve damage*

3

Outline

- Introduction
- Anatomy of the Parametrium
- Conclusion

4



JMIG

Original Article

Parametrial Endometriosis: The Occult Condition that Makes the Hard Harder

Mohamed Mabrouk, MD, PhD, Diego Raimondo, MD, Alessandro Arena, MD, Raffaella Iodice, MD, Michele Altieri, MD, Neveta Sutherland, MD, Paolo Salucci, MD, Elisa Moro, MD, and Renato Seracchioli, MD, Prof

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LPE patient

- more severe intensity of dysmenorrhea
- more frequent voiding symptoms
- more constipation
- Rectovaginal septum, vaginal, rectal, and ureteral involvement ++
- Intraoperatively concomitant posterior nodule with a larger transverse diameter
- Surgical time and hospital stay longer
- Postoperatively more need for self-catheterization at discharge and 1-month post op

6

Parametrium

- defined as the fibrous and fatty connective tissues surrounding the uterus and cervix
- Lies between
  - the leaves of the broad ligament
  - the area anteriorly between the cervix and bladder
  - extends to the pelvic wall
- Contains:
  - Uterine pedicle
  - Nerves
  - Lymphatics
  - Loose connective tissue

7

Parametrium

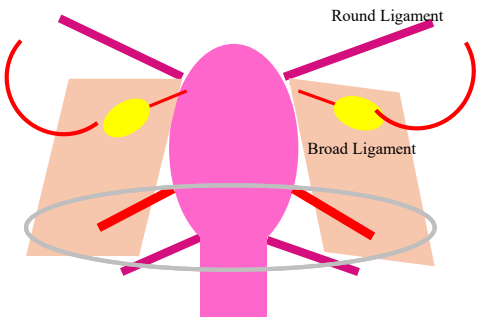
- Thicker in :
  - radiation
  - cancer
  - infection
  - endometriosis

8

Nerves of the Parametrium

- Autonomic Nerve Supply
  - Inferior hypogastric plexus (IHP)
- Somatic Nerve Supply
  - Obturator nerve: Provides somatic innervation to the pelvic floor muscles and parts of the parametrium.
  - Femoral nerve branches: May contribute to sensory innervation of the anterior pelvic wall.
  - Lumbosacral trunk and sacral nerve 1: Supply the pelvic floor and adjacent parametrial tissue

9

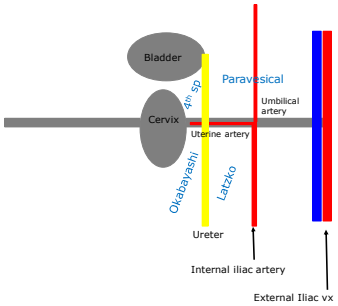


10

Pelvic Spaces



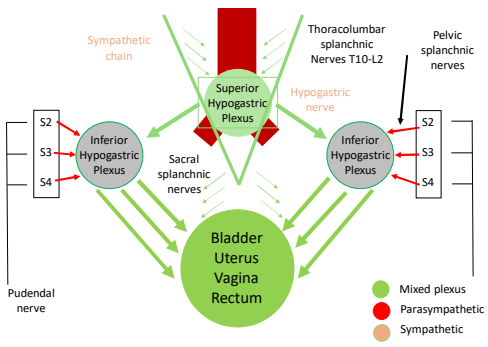
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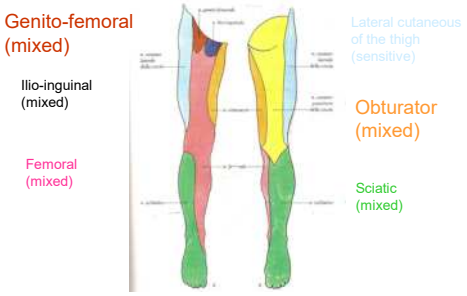
Nerves

13



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Sensory innervation



15

Visceral innervation

SEXUAL FUNCTION

BLADDER FUNCTION

RECTAL FUNCTION



16



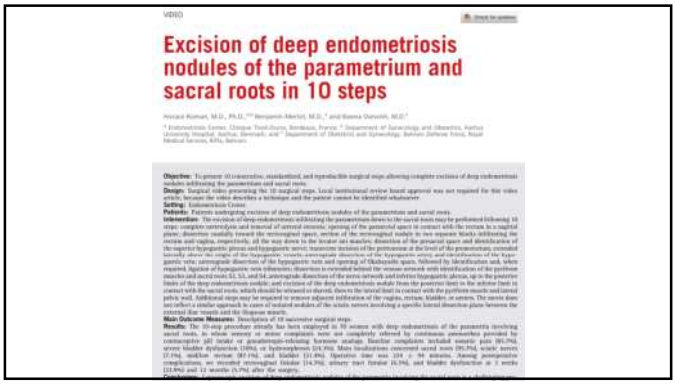
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18

Conclusion

19



VIDEO

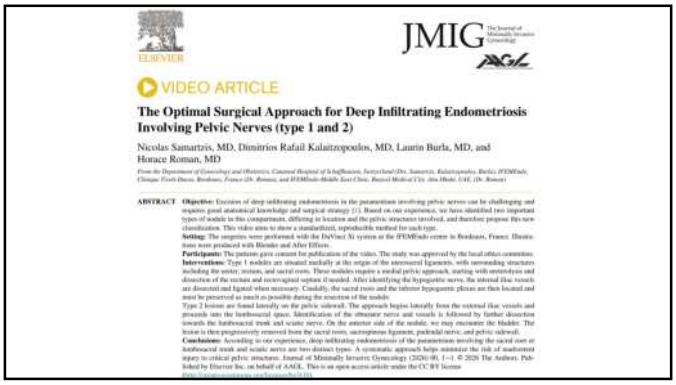
Excision of deep endometriosis nodules of the parametrium and sacral roots in 10 steps

20

10 steps

- Complete ureterolysis and removal of ureteral stenosis
- Opening of the pararectal space
- Dissection caudally toward the rectovaginal space
- Section of the rectovaginal nodule in two separate blocks rectum and vagina
- Dissection of the presacral space and identification of the superior hypogastric plexus and hypogastric nerve
- Transverse incision of the peritoneum at the level of the promontory
- Anterograde dissection of the hypogastric artery and identification of the hypogastric vein
- Anterograde dissection of the hypogastric vein and opening of Okabayashi space
- Identification and possibly ligation of hypogastric vein tributaries
- Dissection behind the venous network of pyriform musclesand and sacral roots S2,S3,andS4

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ELSEVIER

JMIG

VIDEO ARTICLE

The Optimal Surgical Approach for Deep Infiltrating Endometriosis Involving Pelvic Nerves (type 1 and 2)

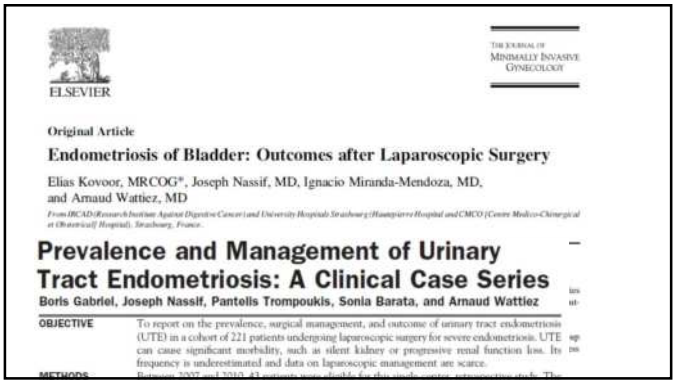
Nicolas Samartzis, MD, Dimitrios Rafail Kalaitzopoulos, MD, Laurin Burla, MD, and Horace Roman, MD

22

Types of nodules

- Type 1 nodules
  - situated medially at the origin of the uterosacral ligaments
  - require a medial pelvic approach
- Type 2 lesions
  - found laterally on the pelvic sidewall
  - approach begins laterally from the external iliac vessels and proceeds into the lumbosacral space

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ELSEVIER

THE JOURNAL OF MINIMALLY INVASIVE GYNECOLOGY

Original Article

Endometriosis of Bladder: Outcomes after Laparoscopic Surgery

Elias Kovoor, MRCOG*, Joseph Nassif, MD, Ignacio Miranda-Mendoza, MD, and Arnaud Wattiez, MD

Prevalence and Management of Urinary Tract Endometriosis: A Clinical Case Series

Boris Gabriel, Joseph Nassif, Pantelis Trompoukis, Sonia Barata, and Arnaud Wattiez

OBJECTIVE

To report on the prevalence, surgical management, and outcome of urinary tract endometriosis (UTE) in a cohort of 221 patients undergoing laparoscopic surgery for severe endometriosis. UTE can cause significant morbidity, such as silent kidney or progressive renal function loss. Its frequency is underestimated and data on laparoscopic management are scarce.

METHODS

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Prevalence and Management of Urinary Tract Endometriosis: A Clinical Case Series

Boris Gabriel, Joseph Nassif, Pantelis Trompoukis, Sonia Barata, and Arnaud Wattiez

OBJECTIVE To report on the prevalence, surgical management, and outcome of urinary tract endometriosis (UTE) in a cohort of 221 patients undergoing laparoscopic surgery for severe endometriosis. UTE can cause significant morbidity, such as silent kidney or progressive renal function loss. Its frequency is underestimated and data on laparoscopic management are scarce.

METHODS Between 2007 and 2010, 43 patients were eligible for this single-center, retrospective study. The inclusion criterion was the presence of UTE (ie, bladder and/or ureteral endometriosis). All patients were operated laparoscopically.

RESULTS The prevalence of UTE was 19.5% (43/221). There was no correlation between bladder and ureteral endometriosis ($P > .05$). Ureteral endometriosis was associated with patient's age ($P < .01$). Patients with bladder, but not ureteral, involvement complained more frequently about dysuria, hematuria, and urinary tract infections. Intraoperative and magnetic resonance imaging (MRI) findings revealed a moderate to good correlation. UTE was not associated with rectovaginal or bowel endometriosis, but rather with involvement of the uterosacral ligaments ($P < .01$). Twenty-two patients with bladder endometriosis were treated by mucosal skinning and 11 patients underwent partial cystectomy. Superficial ureteral excision was performed in 4 patients, whereas resection with ureteroureterostomy was done in 9 patients. There was no difference regarding the intra- and postoperative complications in patients with or without UTE.

CONCLUSION In severe pelvic endometriosis, involvement of the urinary tract is quite common. Laparoscopic management is feasible and safe. Because of the lack of specific symptoms, the preoperative diagnosis of ureteral endometriosis still remains a challenge. Pelvic MRI represents a useful preoperative diagnostic tool. UROLOGY 78: 1269–1274, 2011. © 2011 Elsevier Inc.

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CASE REPORT

Long-term urinary retention after laparoscopic surgery for deep endometriosis

Elias Kovoor, M.R.C.O.G.,[a] Joseph Nassif, M.D.,[a] Ignacio Miranda-Mendoza, M.D.,[a] Gerlinde Lang-Avérous, M.D.,[b] and Arnaud Wattiez, M.D.[c]

[a] Institute for Research Against Cancer of the Digestive System, IHTS Department, [b] Department of Pathology; and [c] Department of Obstetrics and Gynecology, University Hospitals Strasbourg, Strasbourg, France.

Objective: To report on chronic urinary retention after surgery for deep endometriosis and the possible risk factors for this complication.
Design: Descriptive study.
Setting: University hospital.
Patient(s): Four patients with deep endometriosis who developed this complication.
Intervention(s): Laparoscopic surgery, intermittent self-catheterization (ISC).
Main Outcome Measure(s): To identify site(s) of lesion associated with this complication.
Result(s): Four patients developed this complication from damage to the inferior hypogastric plexus involving the sympathetic and/or parasympathetic afferents from the bladder. One patient regained complete bladder function 8 months after surgery, and the others required ISC at the time of writing (13, 24, and 3 months after surgery). Patients with lesions located laterally and deep in the uterosacral ligaments especially near the ischial spines were at high risk. All patients were, however, satisfied with the results of surgery.
Conclusion(s): Most such injuries are unpredictable, but in our experience, two of three patients with lesions near the ischial spine developed this complication. Chronic urinary retention after radical endometriosis surgery is rare and often under reported. Although most lesions are unilateral and have a potential for improvement, it is not known how long these effects will last. More data from other centers may help in providing additional information. (Fertil Steril® 2011;95:803.e9–e12. ©2011 by American Society for Reproductive Medicine.)

Key Words: Endometriosis, urinary retention, self-catheterization, complications, laparoscopy

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- n=126
- damage to the inferior hypogastric plexus
  - n=1 regained complete bladder function 8 months after surgery,
  - n=3 (13d , 24 d, and 3 months after surgery)
- Lesions located laterally and deep in the uterosacral ligaments especially near the ischial spines were at high risk
- All patients were, however, satisfied with the results of surgery.

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Int Urogynecol J (2012) 23:131–138
DOI 10.1007/s00192-011-1492-2

ORIGINAL ARTICLE

Prevalence and outcome of urinary retention after laparoscopic surgery for severe endometriosis—does histology provide answers?

Boris Gabriel · Joseph Nassif · Pantelis Trompoukis · Ana Maria Lima · Sonia Barata · Gerlinde Lang-Avérous · Arnaud Wattiez

Received: 29 May 2011 / Accepted: 14 June 2011 / Published online: 6 July 2011
© The International Urogynecological Association 2011

Abstract
Introduction and hypothesis Urinary retention after radical laparoscopic surgery for severe endometriosis is a clinically relevant complication. We hypothesized a relationship between the amount of resected nerves and the occurrence of urinary retention.
Methods We evaluated, retrospectively, a cohort of 221 patients. The expression of nerves in the resected specimens was investigated in patients with urinary retention and matched controls using standardized immunohistochemistry techniques.
Results The prevalence of urinary retention was 4.8% (n = 10). Importantly, there was no difference between cases and controls regarding the quantity of nerves in the resected specimens. The cumulative probability of 50% to overcome urinary retention was reached after 5.6 months. Age was the main risk factor for persistent retention (40.3 years with vs. 31.6 years without, $p<0.01$).
Conclusions In older endometriosis patients, surgical radicality should be balanced against preservation of organ function. There is a fairly good chance to recover, even after 6 months, which is important for patient counseling.

Keywords Endometriosis · Laparoscopic surgery · Urinary retention · Urination disorders · Voiding dysfunction

Introduction

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- **Hypothesis:** relationship between the amount of resected nerves and the occurrence of urinary retention.
- **Methods:** n= 221 patients retrospective study of expression of nerves in the resected specimens (immunohistochemistry techniques).
- **Results:** prevalence = 4.6% (n = 10), NO difference between cases and controls regarding the quantity of nerves in the resected specimens. Cumulative probability of 50% to overcome urinary retention was reached after 5.6 months. Age is the most important risk factor +++
- **Conclusions:** In older patients = surgical radicality should be balanced

29

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Thank for Your Attention!







31

CULTURAL AND LINGUISTIC COMPETENCY & IMPLICIT BIAS

The California Medical Association (CMA) outlines 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 which began on 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)
Implicit Bias, Microaggressions, and Stereotypes Resources | NEA
Act, Communicating, Implicit Bias (racialequitytools.org)
https://www.contemporaryobgyn.net/view/overcoming-racism-and-unconscious-bias-in-ob-gyn
https://pubmed.ncbi.nlm.nih.gov/34016820/
https://hr.ucdavis.edu/departments/learning/certificate/implicit-bias
https://pmc.ncbi.nlm.nih.gov/articles/PMC7011228/