MIGS 26

55TH GLOBAL CONGRESS ON MIGS

BOSTON, MASSACHUSETTS
NOVEMBER 13-16, 2026

Syllabus

PG-26219

How to Become a Sailor and Not a Pirate: Tips and Tricks in Minimally Invasive Retroperitoneal Surgical Anatomy to Perform Safe Gynecologic Surgery
7th International School of Surgical Anatomy (ISSA) Course

HONORARY CHAIR
Charles H. Koh, MD

SCIENTIFIC PROGRAM CHAIR
Nash S. Moawad, MD

PRESIDENT
Michael Hibner, MD, PhD



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PG-26219: How to Become a Sailor and Not a Pirate:
Tips and Tricks in Minimally Invasive Retroperitoneal Surgical Anatomy to Perform Safe Gynecologic Surgery 7th International School of Surgical Anatomy (ISSA) Course

Chair: Marcello Ceccaroni
Co-Chair: Shailesh P. Puntambekar
Faculty: Marcello Ceccaroni, Javier Magrina, Shailesh P. Puntambekar, Giovanni Roviglione,

Course Description

Minimally Invasive surgery for benign and deeply infiltrative diseases represents a difficult and challenging issue for pelvic surgeons. A precise knowledge of pelvic Surgical Anatomy and the achievement of a know-how for navigating the retroperitoneal spaces and structures, provide a powerful tool to formulate a well-planned treatment strategy for a successful and safe surgery. A skilled laparoscopic surgeon is the one who is able to dominate with no fear the surgical field, achieving the perception of retroperitoneum as his "best friend." The golden word for that is: "ANATOMY." A panel of teachers of the International School of Surgical Anatomy (ISSA) of Verona (Italy), directed by Dr. Marcello Ceccaroni, will be delighted to share its experiences with you.

Learning Objectives: *At the end of this course, the participant will be able to:* 1) Recognize the anatomical landmarks and major pelvic structures pertinent to gynecologic minimally-invasive surgery and retroperitoneal dissection for basic, intermediate and advances procedures; 2) Apply minimally-invasive surgical techniques to enter and expose avascular spaces of the pelvis, parametrial ligaments, nerves and pelvic vessels and their relations to the ureter and retroperitoneal structures; and 3) Describe the principles of a nerve-sparing "philosophy", the step-by-step dissection of the uterine artery and the pelvic ureter related to the different gynecological retroperitoneal procedures (i.e. big uteri, infraligamentary myomas, deep endometriosis and gynecologic cancers).

Course Outline

10:30 am	Welcome, Introduction and Course Overview	M. Ceccaroni
10:35 am	“Put Some Anatomy and Make It Easier:” Minimally Invasive Surgical Anatomy for a Safe Hysterectomy Step-By-Step in Easy and Difficult Settings	G. Roviglione
11:00 am	“Friends Will be Friends:” When the Surgeon Meets the Deep Pelvic Spaces, the Parametrial Ligaments and the Ureter. Tips and Tricks for a Safe Minimally Invasive Pelvic Surgery	S. Puntambekar
11:25 am	“Navigating Through the Electric Storm?” Principles of Neurogynecology and Surgical Anatomy of Visceral and Somatic Pelvic Innervation for a Safe Basic and Radical Surgery	M. Ceccaroni
11:50 am	“With a Little Help from My Friends:” How Anatomy Can Help the Surgeon in Preventing and Managing Complications	J. Magrina
12:15 pm	Discussion Questions & Answers	All faculty
12:30 pm	Adjourn	

ADA Statement: In accordance with the Americans with Disabilities Act (ADA), please contact CMEsupport@aagl.org should you require any special assistance.

Disclosure of Relevant Financial Relationships

As an ACCME-accredited provider, AAGL is responsible for ensuring that accredited education is fair, balanced, free of commercial bias, and supports safe, effective patient care. AAGL maintains control over all aspects of educational planning, content, faculty selection, delivery, and evaluation.

All individuals in a position to control educational content are required to disclose financial relationships with ACCME-defined ineligible companies within the past 24 months. AAGL identifies and mitigates all relevant financial relationships before individuals assume their respective roles. Educational content is also subject to independent peer review by individuals without relevant financial relationships.

Disclosure information and acknowledgment of any commercial support are provided to learners before the activity to promote transparency and maintain the independence and integrity of the education.

Asterisk (*) denotes no financial relationships with ACCME-defined ineligible companies to disclose.

PLANNER DISCLOSURES

The following members of AAGL have been involved in the educational planning and/or review of this course (listed in alphabetical order by last name).

PROFESSIONAL EDUCATION COMMITTEE

Harold Wu, MD* - Chairman
Adrian Balica, MD*
Jamal Mourad, DO – Proctor: Intuitive Surgical
Jude Okohue, MD*
Steven Radtke, MD*
Anna Reinert, MD*
Jean Uy-Kroh, MD*
Linda Bradley, MD, AAGL Medical Director*
Linda Michels, AAGL Executive Director*
Linda Bell, AAGL Admin Support*
Nancy Williams, COO, CME Consultants*

SCIENTIFIC PROGRAM COMMITTEE

Nash Moawad, MD, MS, Chairman – Consultant (ended 12/2024): Medtronic, Womed, Integra Life Sciences
Amani Harris, MD*
Ted Lee, MD – Advisory/Consultant: Johnson & Johnson, Regeneron Pharmaceuticals
Nucelio Lemos, MD, PhD – Speakers Bureau: Pfizer, Inc., Medtronic; Advisory Board: Knight Therapeutics, Vecfer Pharma
Mario Malzoni, MD*
Emad Mikhail, MD – Consultant: Johnson & Johnson
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Jose "Tony" Carugno, MD*
Angela Chaudhari, MD - Consultant: Tag/Dream Medical, Johnson & Johnson; Speakers Bureau: Johnson & Johnson
Linda D. Bradley, MD, Medical Director*
Linda Michels, Executive Director, AAGL*

COURSE CHAIR DISCLOSURE

Johnny Yi, MD*

COURSE CO-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*
Hye-Sung Moon, MD PhD*
Xiang Xue, MD, PhD*
Johnny Yi, MD*

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.

"Put Some Anatomy and Make It Easier:" Minimally-Invasive Surgical Anatomy for a Safe Hysterectomy Step-By-Step In Easy and Difficult Settings / Speaker's Corner



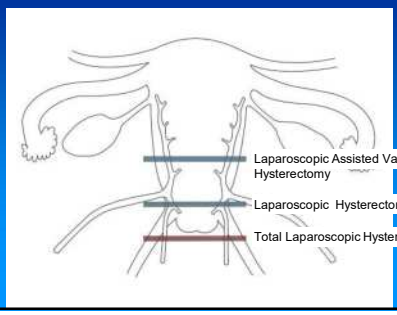




Giovanni Roviglione, M.D.
Department of Obstetrics & Gynecology, Gynecologic Oncology and Minimally Invasive Pelvic Surgery
International School of Surgical Anatomy
IRCCS "Sacro Cuore - Don Calabria" Hospital, Negrar di Valpolicella, Verona

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CLASSIFICATION OF LAPAROSCOPIC HYSTERECTOMY (REICH 2003)



Laparoscopic Assisted Vaginal Hysterectomy

Laparoscopic Hysterectomy

Total Laparoscopic Hysterectomy

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Extrafascial Hysterectomy:
Laparoscopic uterine Anatomy

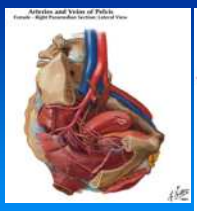
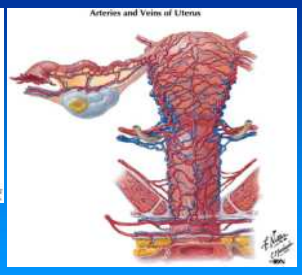




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Extrafascial Hysterectomy:
Laparoscopic Anatomy

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4

Extrafascial Hysterectomy:
Broad ligament




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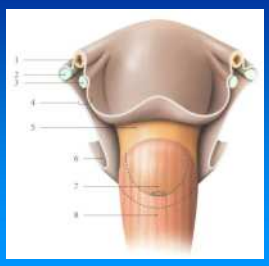
Extrafascial Hysterectomy:
Lateral compartment

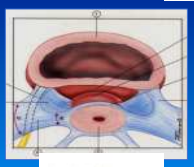


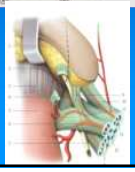

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Extrafascial Hysterectomy:
Anterior compartment







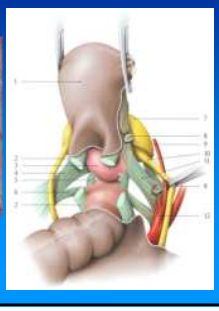
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Extrafascial Hysterectomy:
Posterior compartment



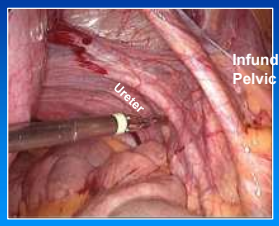
Kamina et al, 2011



8

Avoiding ureteral damage

First: identification



Infundibulo Pelvic ligament





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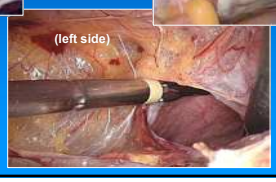
Avoiding ureteral damage

Second: fenestration in the posterior leaf of the broad ligament to move the ureter laterally









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Avoiding ureteral damage
Dissection of the ureter



Medial (Okabayashi's) pararectal space

(Right side)



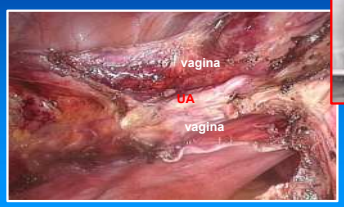
Lateral (Latzko's) pararectal space

www.issaschool.com Malzoni et al, Surg Oncol 2009

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Avoiding ureteral damage

Anatomical consideration:
after dissection of vesical fold and posterior peritoneum, ureter is 100% far away!





www.issaschool.com Wattiez, Barcelona, ESGE 2010

12

Avoiding ureteral damage

Third: isthmic coagulation of uterine artery (not too low!!)
Superficial coagulation of the ascendent branch
(avoids back-bleeding)
Attention to repeated coagulations (Knot gets hot!)



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Final ureteral check after ureterolysis: endovenous indocianine green?



real-time identification of tissue perfusion
G. Roviglione

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TLH for enlarged uterus: modifications of current technique

Anterior/Posterior Mobilization of the uterus

Developement of the vesico-uterine fold and mobilization of the bladder



Developement of the Douglas-pouch



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Surgical Technique

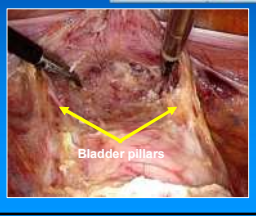
Dissection of the vesico-uterine fold



Vesico-uterine fold

Median approach





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Avoiding bladder damage

Dissection of the vesico-uterine fold
Lateral approach



Optimizing the Total Laparoscopic Hysterectomy Procedure for Benign Uterine Pathology
J Am Assoc Gynecol Laparosc 11 (2): 211-18. 2004

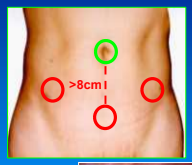
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Surgical Technique

Initial Operating Steps

- Veress needle (umbilicus, supraumbilical, Palmer's point)
- 10-mm laparoscope
- Abdomino-pelvic inspection (clockwise fashion)
- Ancillary trocars (lateral to hepigastric artery)
- Trendelenburg position (≥15°)
- Adhesiolysis

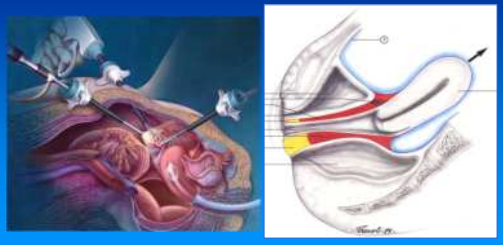




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Total Laparoscopic Hysterectomy: Uterine manipulator



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"Minelli" uterine manipulator



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Indications to Hysterectomy

- Uterine Bleeding (not–responsive to medical/conservative treatment)
- 33-35% Leiomyomas
- Uterine volume >14 wks (>800g)
- 15% uterine prolapse
- 10-15% Uterine hyperplasia/cancer/sarcoma/Cervical cancer
- Adenomyosis & Endometriosis
- Chronic Pelvic Pain
- Post-partum haemorrage



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"Enlarged" uterus

The term *enlarged* has not been clearly defined

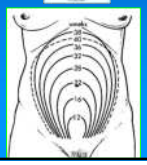
Normal-size uterus weighs approximately 70 to 125g

Vaginal hysterectomy is indicated in women with mobile uteri no larger than 12 weeks' gestational size (~280g), suggesting that uteri greater than 280g are appropriately performed by the abdominal route

80% and 90% of all uteri removed for various indications weigh 280g or less and do not require reduction technique for vaginal removal

Size of the uterus *in vivo* usually measured by simple physical examination

Ultrasound: algebraic formula (length X width X anteroposterior diameter at the fundus) by 0.52

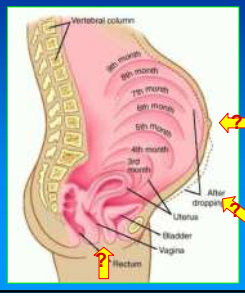


American College of Obstetricians and Gynecologists. Precis IV: An Update in Obstetrics and Gynecology. Washington, DC: The College;1990:page 197.

22

"Enlarged" uterus

TLH - TAH - VH ?



- Patient age
- Performance status
- Obesity
- Previous Surgery
- Parity
- Prolapse
- Suspicion of malignancies

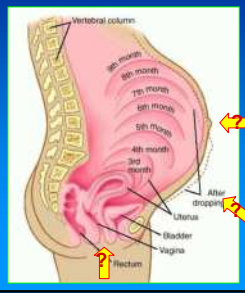
Surgeon's experience

Subjects of continuing debate and the real role of these procedures has not yet been defined

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"Enlarged" uterus

REAL LIMITS FOR TLH ?



1) Unaccessible uterine arteries ("wide uterus")
2) Inadequate manipulation
3) Obliterated Douglas (Deep Infiltrating Endometriosis)
4) Cancer

Surgeon's experience

Essential pre-operative work-up

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TLH for enlarged uterus: modifications of current technique

Good Exposure





30° Optic
Better visualization of uterine pedicles





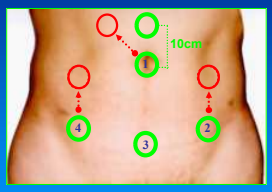
Uterine manipulator securing uterine vessels reduce operating time

Wattiez et al. Total Laparoscopic Hysterectomy in case of very enlarged uteri. J Am Assoc Gynecol Laparosc 9(2):125-130, 2002

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TLH for enlarged uterus: modifications of current technique

Good Exposure



1. Middle cannula through the umbilicus or even higher
2. Optic cannula 10 cm above the umbilicus.
3. & 4. Lateral cannulas according to uterine size in order to approach uterine pedicle anteriorly or posteriorly to the uterus and above.

Wattiez et al. Total Laparoscopic Hysterectomy in case of very enlarged uteri. J Am Assoc Gynecol Laparosc 9(2):125-130, 2002



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TLH for enlarged uterus: modifications of current technique

Lateral Mobilization of the uterus

Division of the round ligaments



Division of the utero-sacral ligaments



Division of ovarian ligament (ovarian conservation)



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TLH for enlarged uterus: modifications of current technique

Morcellation

Adequate morcellator
Attention to motor overheating



Laparoscopic cold-knife morcellation (few vascular and bowel injuries)

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Total Laparoscopic Hysterectomy for enlarged uterus

Literature

Total Laparoscopic Hysterectomy for Very Enlarged Uteri
J Am Assoc Gynecol Laparosc 9(2):125-130. 2002
A. Wattiez, M.D., D. Soriano, M.D., A. Fiaccavento, M.D., M. Cano, M.D., R. Balcombe, M.D., J. Prats, M.D., G. Mage, M.D., and M.A. Bruhat, M.D.

Optimizing the Total Laparoscopic Hysterectomy Procedure for Benign Uterine Pathology
J Am Assoc Gynecol Laparosc 11 (2): 211-18. 2004
Mario Malzoni, M.D., Giorgia Perdoda, M.D., Filippo Perrotta, M.D., and Fabio Imperato, M.D.

A review of total laparoscopic hysterectomy: role, techniques and complications
Nicholas M. Elkington[a] and Danny Chou[b]
Curr Opin Obstet Gynecol 18:380–384. 2006

Total laparoscopic hysterectomy in cases of very large uteri: A retrospective comparative study
Journal of Minimally Invasive Gynecology 14, 559–563. 2007
Andrea Fiaccavento, MD, Stefano Landi, MD, Fabrizio Barbieri, MD, Riccardo Zaccoletti, MD, Carlo Tricolore, MD, Marcello Ceccaroni, MD, Paola Pomini, MD, Francesco Bruni, MD, David Soriano, MD, Ania Stepniewska, MD, Luigi Selvaggi, MD, Luisa Zanolla, MD, and Luca Minelli, MD

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Total laparoscopic hysterectomy in cases of very large uteri: A retrospective comparative study

Andrea Fiaccavento, MD, Stefano Landi, MD, Fabrizio Barbieri, MD, Riccardo Zaccoletti, MD, Carlo Tricolore, MD, Marcello Ceccaroni, MD, Paola Pomini, MD, Francesco Bruni, MD, David Soriano, MD, Ania Stepniewska, MD, Luigi Selvaggi, MD, Luisa Zanolla, MD, and Luca Minelli, MD

	<350g (149 pts)	>500g (100 pts)	P (<0.05)
Intraop. complications	0%	2%	NS
Post-OP stay	3+/-1.8days	3.2+/-1.2days	NS
Operative Time	101+/-34mins	149+/-57mins	<0.001
Major complications	0%	0%	NS
Minor complications	8.7%	18%	0.03

TLH is a feasible surgical technique also in cases of very large uteri. An increase in operative time, intraoperative blood loss, hospital stay length, and postoperative minor complications can be expected as the uterine weight increases.

Journal of Minimally Invasive Gynecology 14, 559–563. 2007

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Total Laparoscopic Hysterectomy for very enlarged uterus

Literature

Laparoscopic extirpation of a 3-kg uterus

M. Sami Walid · Richard L. Heaton



Total laparoscopic hysterectomy of an uterus of 1840 grams: a case report

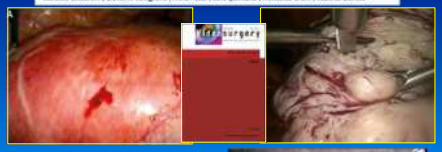
Martine Rollé, Maria Lucia Gagliardi, Loredana Giacomantonio, Marcello Ceccaroni, Francesco Bruni, Luca Minelli

Negrar (Jan 2003 – April 2012) 2186 TLH
384 patients with uteri >500g
Median weight: 787g (510-3030g)
Median EBL: 210ml (10-2400ml)
Median OT :140 min (45-480min).
Conversions: 9/283 (3%)
Median hospital stay 3,6 days (2- 8 days)



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Total laparoscopic hysterectomy of very enlarged uterus (3030 g): case report and review of the literature







M. Ceccaroni, G. Roviglione
Videosurgery Miniinv 2014; 9 (2): 302–307

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TLH for enlarged uterus : modifications of current technique

Case Report

Operative time:
TLH: 90 mins
Morcellation: 150 mins
Overall OT: 300 mins

EBL: <100ml

Pelvic drain: removed post-op day-1

Dry uterine weight: 3030g

Hospital-stay: 3 days

30 days f-up: complete recovery





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Total Laparoscopic Hysterectomy for enlarged uterus



G. Roviglione, Negrar, April 2017

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Surgical Technique

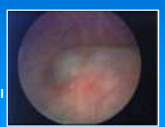
Final (and medico-legal) aspects

Haemostasis (control of vascular pedicles)



Pelvic toilette (saline solution, distilled water, iodopovidone)

Ureteral integrity test: 5 mL methylene blue intravenously



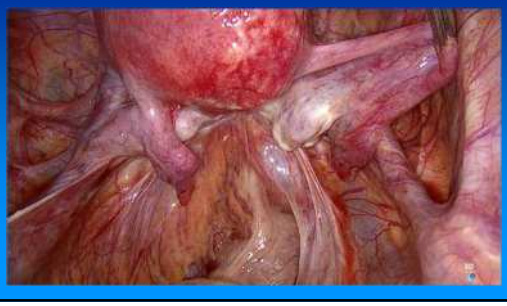
Final control of normal ureteral permeability

Post-operative cystoscopy: bladder integrity, ureteral peristalsis

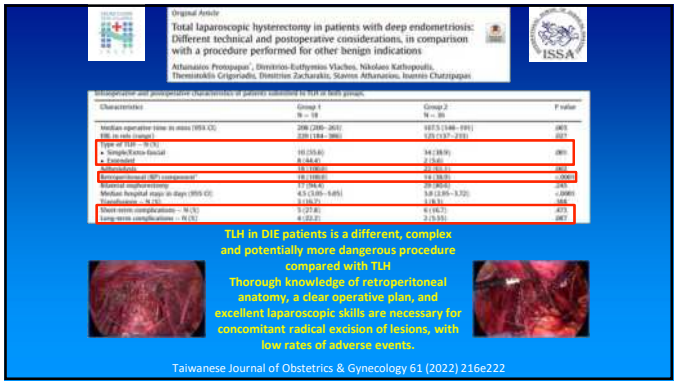
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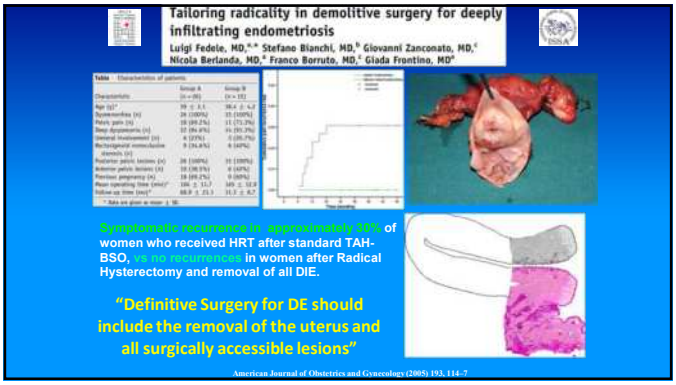
Laparoscopic Hysterectomy for DE
Is it that simple?



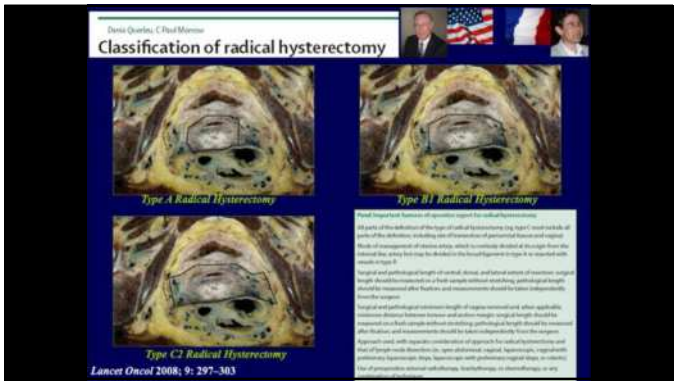
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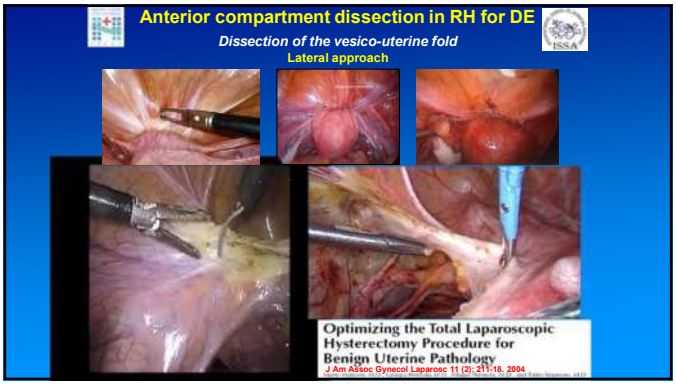
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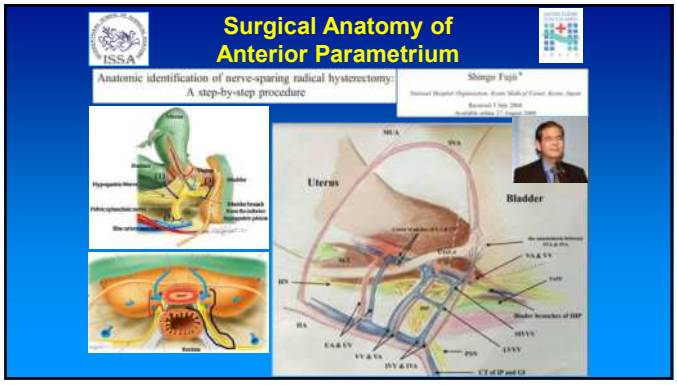
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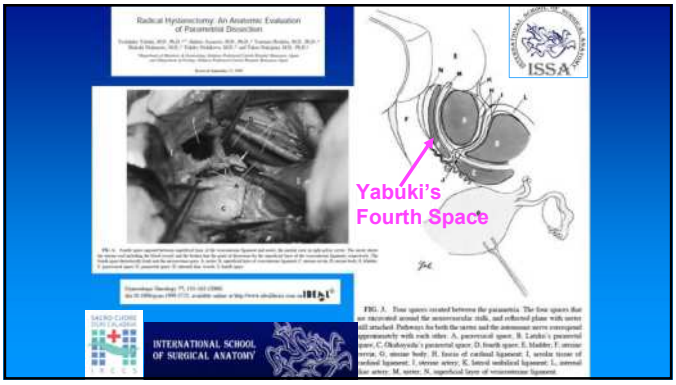
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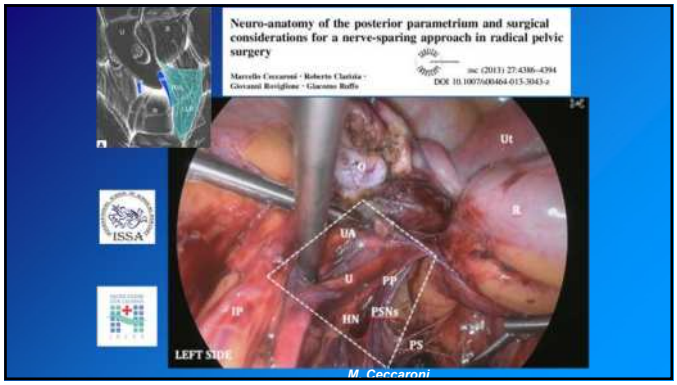
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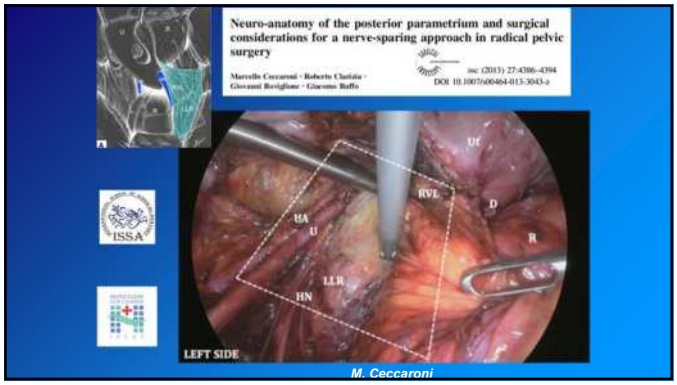
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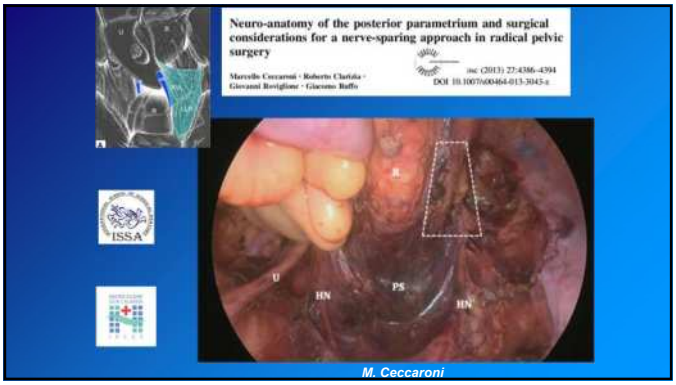
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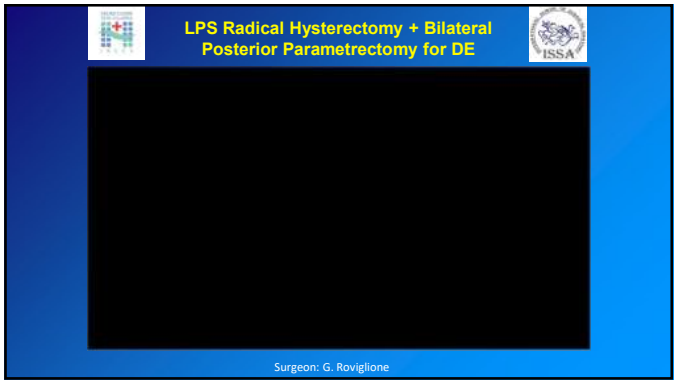
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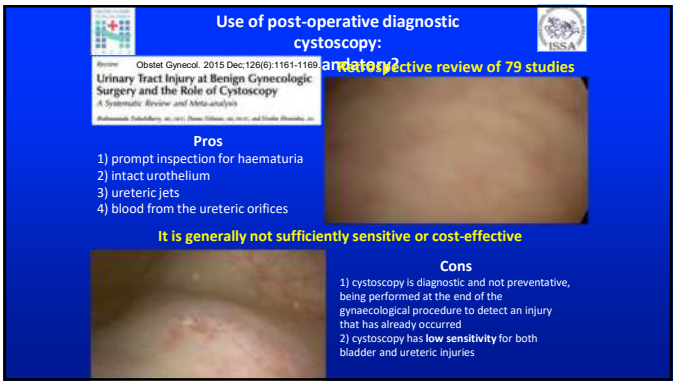
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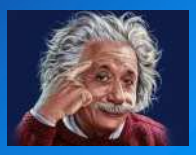
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48

CONCLUSIONS

- Total LH is a standard procedure, and should be the base for the gynecologic surgeon
- Big uteri impose to adequate ergonomY and operative times
- A Tailored Radicality (asymmetry) is mandatory in case of DE
- Knowledge of Oncological steps for Nerve-Sparing RH is mandatory
- Deep knowledge of surgical anatomy of the retroperitoneum, of the parametria and pelvic functional anatomy is requested
- LPS Radical Hysterectomy must be managed by expert hands and in Referral Centers



Everything should be made as simple as possible…but not simpler

Albert Einstein

49

TIPS AND TRICKS FOR A SAFE MINIMALLY INVASIVE PELVIC SURGERY

Dr. Shailesh Puntambekar
M.S Oncosurgeon
Medical Director
Galaxy Care Multispeciality Hospital Pvt., Ltd

NOVEMBER 13-16, 2026 · BOSTON · #AAGL26

1



THE SURGEON WHO REDEFINED PELVIC SURGERY

2003
1. First laparoscopic cervical cancer surgery in India - Birth of the *Pune Technique*

2009
2. India's first robotic oncosurgeon · 400+ robotic surgeries

2017
3. India's first uterine transplant · Asia's first successful programme

2018
4. First uterine-transplant baby born · 12th in the world

2

ALL YOU NEED IS



"A KNOWLEDGE OF ANATOMY IS ONLY A DEAD WEIGHT IF WE DO NOT KNOW HOW TO APPLY THAT KNOWLEDGE WITH SUCCESSFUL SKILL"

KNOWLEDGE OF ANATOMY & HOW TO APPLY

3

HISTORY OF ANATOMY

Extends from the earliest examination of sacrificial victims in the 15th century to the sophisticated analyses of the body performed by the modern scientists



4

19th & 20th Century Surgical Approach

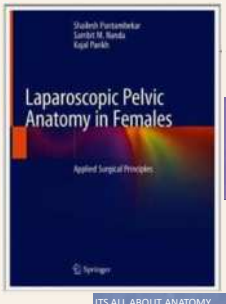


21st Century Surgical Approach



GONE ARE THE DAYS WHEN EVERYONE STRUGGLED TO VISUALISE AND UNDERSTAND ANATOMY

5



Anatomy is network of fascia and planes and finding theses planes lead to a bloodless surgery



ITS ALL ABOUT ANATOMY, ANATOMY & ANATOMY.....

6

In the course of evolution,
Pelvic Anatomy
has remained constant

With advancements in technology, the understanding of pelvic anatomy has become easier

Anatomy remains to be the Cornerstone for any Ultra-Modern Surgery



7

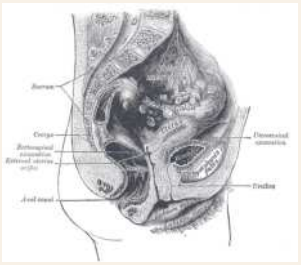
PRELIMINARY CONCEPTS IN PELVIC ANATOMY

- SACRAL PROMONTORY
- FASCIAS
- SPACES
- VESSELS
- NERVES OF THE PELVIS



8

WHAT HAS CHANGED???



Pelvic anatomy is a constant anatomy with very few variations

A thorough knowledge of anatomy leads to better surgery

9

WHAT LIES WHERE??

WHAT COMES NEXT..

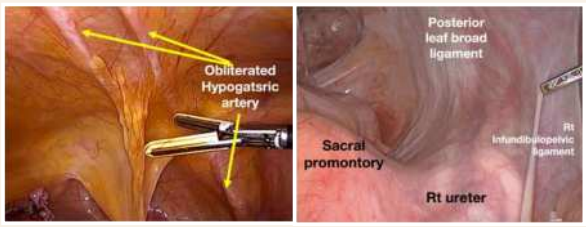
Anticipating Based on Anatomical Knowledge..

That is Predictive Anatomy!!



10

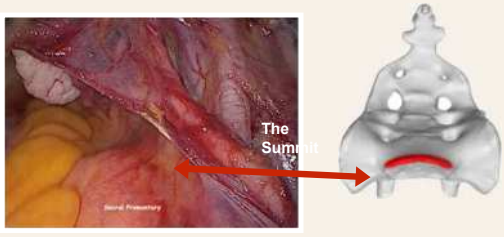
AS WE PUT LAPAROSCOPE WHAT WE SEE IS...



11

SACRAL PROMONTORY

OF ALL PELVIC BOUNDARIES SACRAL PROMONTORY IS IMPORTANT ONE



Common Iliac Vessels divide at this level into Internal and External Iliac Vessels

12

At the level of sacral promontory

- Crossing of Ureter from lateral to medial side.
- Bifurcation of common iliac artery
- Superior hypogastric plexus & HYPOGASTRIC NERVE TRAVEL ON POSTEROLATRAL ASCPECT OF ALL ORGANS - TAKE CARE DURING SACROCOPLOPEXY
- None of the Uterine Pathology reach beyond sacral promontory, so in difficulty start dissection from sacral promontory.
  - The sacral promontory forms the initiation point for Transperitoneal para-aortic lymph node dissection .

13

Bifurcation of the Common Iliac into Internal and External Iliac Vessels at Sacral Promontory

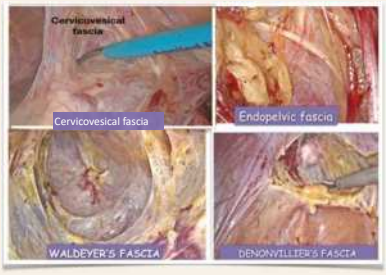


Sweeping movements along Ext. Iliac facilitates Lymph node dissection as there are no branch on the Antero-lateral side

14

FASCIAS OF THE PELVIS

knowledge of fascias important for dissection of avascular spaces



15

ENDOPELVIC FASCIA

- IT COVERS OBTURATOR INTERNUS & LEVATOR ANI
- KEY TO SUPPOR PELVIC DIAPHRAGM & PELVIC ORGANS
- THE URETER IS THE ONLY ORGAN TO PIERCE THE ENDOPELVIC FASCIA
- IDENTIFICATION AND DISSECTION OF THE FASCIA FACILITATES HEALTHY URETERIC DISSECTION
- DISSECTION OF THE ENDOPELVIC FASCIA HELPS IN TRANS-OBTURATOR TAPING PROCEDURE



16

FASCIA AND ITS RELATION TO VEINS



DENONVILLERS FASCIA


CERVICO VESICAL FASCIA



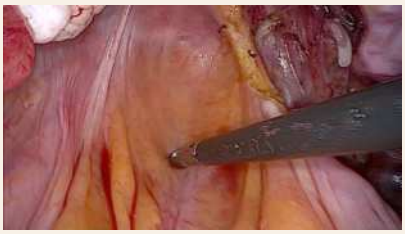
INTERNAL ILIAC VEIN

The veins lie underneath the fascia



17

Denonvillier's Fascia



The two layers of Denonvillier's fascia form a tough layer between the uterus and the rectum

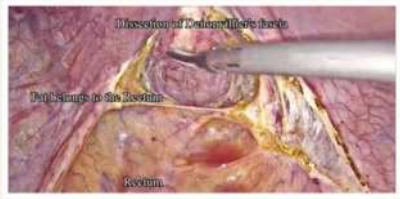
This tough layer prevents direct spread of cancer to the rectum

Vaginal Veins lie between the post vagina wall and Denonvillier's fascia

18

Denonvillier's Fascia

Always remain above the fat to prevent rectal injuries



FAT BELOGS TO RECTUM IS THE DICTUM

Fascia in the pouch of douglas covering the rectovaginal septum

19

CERVICO - VESICAL FASCIA

Cervicovesical fascia splits into anterior & posterior cervicovesical ligament to allow the ureter

Anterior cervicovesical ligament is commonly called as the ureteric tunnel.

The posterior cervicovesical ligament merges with the endopelvic fascia.



20

CERVICO - VESICAL FASCIA

Covers the cervix Anteriorly and Laterally
Continues as the Endopelvic Fascia as it reaches the Levator Ani

Bladder dissection will lie Anterior to the fascia

↓

The venous plexus lies Beneath the fascia

↓

The Uterine Vessels lie Above the fascia, thus exposing them

↓

The Vagina is accessible after dissection of the fascia for colpotomy

If these steps are followed sequentially, would achieve bloodless dissection

21

Dissection of Cervicovescical fascia

IMPLICATIONS OF VEINS LYING UNDERNEATH THE FASCIA

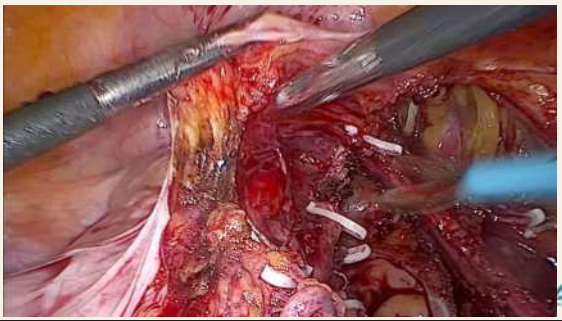
APPLIED - STAY ABOVE FASCIA

IF WANTS TO CONTROL BLEEDING - HOLD & COAGULATE FASCIA BLEEDING WILL STOP



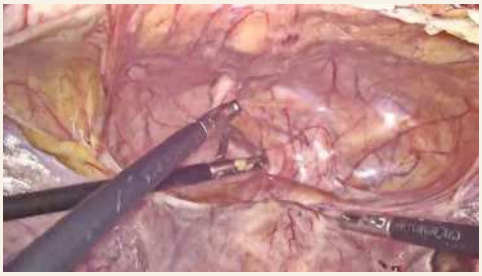
22

BLADDER DISSECTION PRESERVING THE CERVICOVESICAL FASCIA (PUSH THE BLADDER AWAY)



23

BLADDER DISSECTION



Secret Mantra

ABOVE THE FAT , ANTERIOR TO UTERINE ARTERY AND DO NOT ENTER THE CERVICOVESICAL FASCIA !!

24

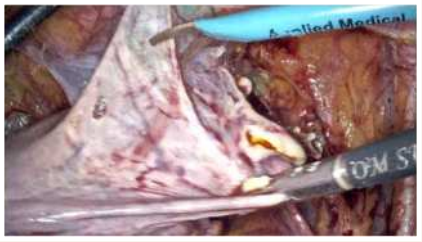
BLADDER DISSECTION IN Prev 3 LSCS

[redacted]

- Use of lateral window approach

25

BLADDER DISSECTION PRESERVING THE CERVICOVESICAL FASCIA (PUSH THE BLADDER AWAY)



Fat belongs to the bladder, dissection to be done remaining above the cervicovesical fascia to stay away from the vaginal veins

26

WALDEYER'S FASCIA

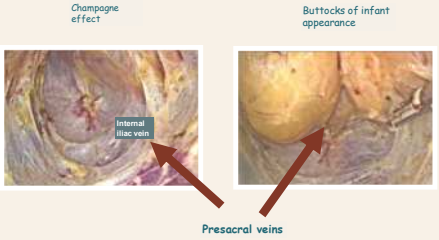
- AVASCULAR FASCIA BEHIND RECTUM
- DISEECTED IN - POSTERIOR EXENTERATION DURING MOBILISATION OF SIGMOID/RECTUM IN PRESACRAL SPACE
- UNDER IT LIES PRESACRAL VEINS - ALWAYS REMAIN ANTERIOR TO WALDYER'S FASCIA

[redacted]

FAT BELONGS TO THE RECTUM

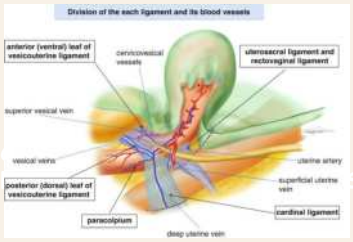
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HOLY PLANE OF BILL HEALD



28

PELVIC LIGAMENTS

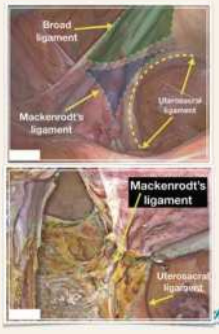


29

MACKENRODT'S LIGAMENT

- UTERUS SUSPENDED TO LATERAL PELVIC WALL BY IT
- SIGNIFICANCE- VASCULAR SUPPLY LYMPHATIC DRAINAGE

UTERINE VEIN LIES IN CARDINAL LIGAMENT & THUS LYMPHATIC DRAIN IN TO THE INTERNAL ILIAC/OBTURATOR NODES



30

FASCIA LACKS FIBROBLASTS
DISSECTION CARRIED OUT IN THESE PLANES



WILL LEAD TO MINIMAL ADHESIONS

SO A GOOD KNOWLEDGE OF FASCIAL PLANES HELPS IN ADHESION FREE AND MINIMAL BLOOD LESS SURGERY

31

FOR CANCERS TO SPREAD THEY HAVE TO BREACH THE FASCIA OR THEY MAY SPREAD THROUGH A PREVIOUSLY EXISTING BREACH



Splitting of the CERVICO VESICAL fascia leads to the spread of cervical and vaginal pathologies into pararectal and paravesical spaces.

DUE TO THE INTACT DENONVILLER'S FASCIA CANCERS OF RECTUM DO NOT SPREAD

32

ELSEVIER JMIG

VIDEO ARTICLE

Fascial Anatomy and Its Relevance in Safe Laparoscopic Hysterectomy

Shailesh P. Puntambekar, MS*, Seema P. Puntambekar, MS, Yamini Gadkari, DNB, and Suyash Navale, DNB

ABSTRACT **Study Objective:** To demonstrate the importance of being familiar with the anatomy of the endopelvic fascia as seen by laparoscopy to perform safe laparoscopic hysterectomies.

Design: Combination of surgical videos and design diagrams.

Setting: Compiled high-definition surgical videos from the Galaxy Care Laparoscopic Institute, Pune, India. These videos clearly demonstrate the anatomy of the endopelvic fascia and describe tips to avoid damage to the major structures, including the major vessels, ureter, bowel, bladder, and endopelvic fascia. The laparoscopic view of the anatomy with the current camera system is an excellent tool to demonstrate and teach pelvic anatomy, which can be applied to surgical principles in difficult benign and oncological cases.

Intervention: We used a total laparoscopic approach to demonstrate the fascias that were seen during various types of hysterectomies. The video shows the following: (1) the posterior leaf of the broad ligament was opened until it reached the apex of the uterosacral ligament; (2) the anterior leaf of broad ligament was opened until it reached the vesico-uterine peritoneal reflection; (3) the principles of bladder dissection; (4) the pubocervico-vesical fascia and its relevance to bladder dissection; (5) the relevance of the anatomy of the uterine artery, vein, and ureter with endopelvic fascia within the leaves of the broad ligament; (6) Denonvillier's fascia dissection technique for dissection of the rectum away from the vagina; (7) the anatomy of the vesicocervical ligaments, forming the ureteric tunnel; (8) the dissection principles of lateralizing the ureter in the ureterovesical region; (9) the endopelvic fascia reflection, which continued caudally, covering the pelvic floor; and (10) the relevance of the anatomy of the endopelvic fascia and the stress urinary incontinence treatment technique.

Conclusion: Understanding the anatomy of the fascias of the pelvis helps to create avascular planes and is crucial for performing safe hysterectomies. Journal of Minimally Invasive Gynecology (2015) ■, ■–■ © 2015 AAGL. All rights reserved.

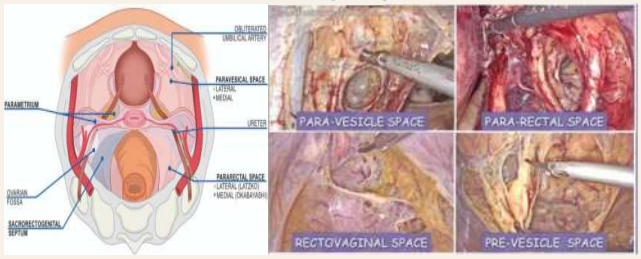
33

SIGNIFICANCE OF FASCIAS

- The ureter is the only organ to pierce the Endopelvic fascia
- Dissection of the endopelvic fascia helps in trans-obturator taping procedure (TOT)
- The two layers of Denonvillier's fascia form a tough layer between the uterus and the rectum
- This tough layer prevents direct spread of cancer to the rectum
- Always remain above the fat to prevent rectal injuries
- Cervicovesical fascia splits into anterior & posterior cervicovesical ligament to allow the ureter
- Anterior cervicovesical ligament is commonly called as the ureteric tunnel.
- In posterior exenteration dissection of waldeyer's fascia helps in the mobilisation of rectum and colon

34

DEEP PELVIC SPACES



According to Gray's Anatomy, Anatomical Space is :

The term "spaces" refers to the areas delimited by at least two independent fasciae and filled with areolar connective tissue.

35

CONTRIBUTING TO LITERATURE

Journal of Clinical Medicine

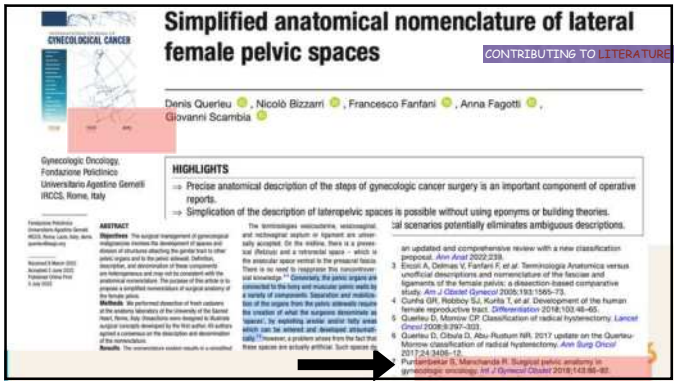
Article

Avascular Spaces of the Female Pelvis—Clinical Applications in Obstetrics and Gynecology

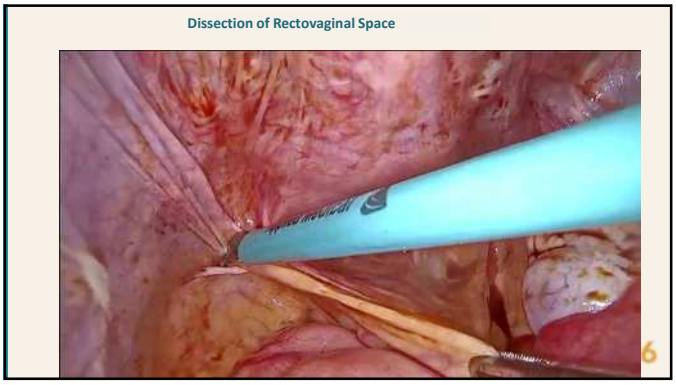
Stoyan Kostov *, Stanislav Slavchev *, Deyan Dzhenkov *, Dimitar Mitev † and Angel Yordanov *,†

1 Department of Gynecology, Medical University Varna, 9000 Varna, Bulgaria;
2 Department of General and Clinical pathology, Forensic Medicine and Deontology, Medical University Varna, 9002 Varna, Bulgaria; dzhenkov@mail.bg
3 Department of Obstetrics and Gynecology, Medical University Sofia, Sofia, Bulgaria; dimitarmitev@gmail.com

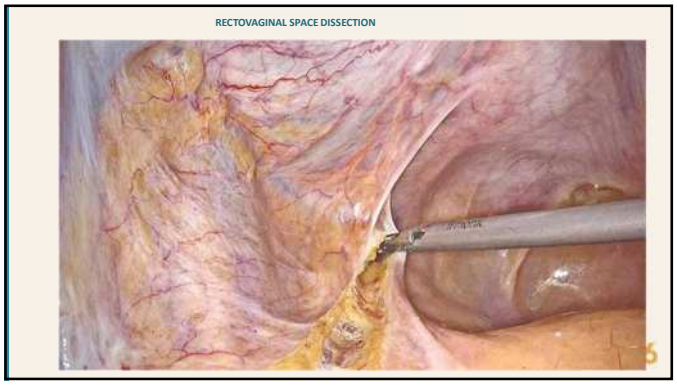
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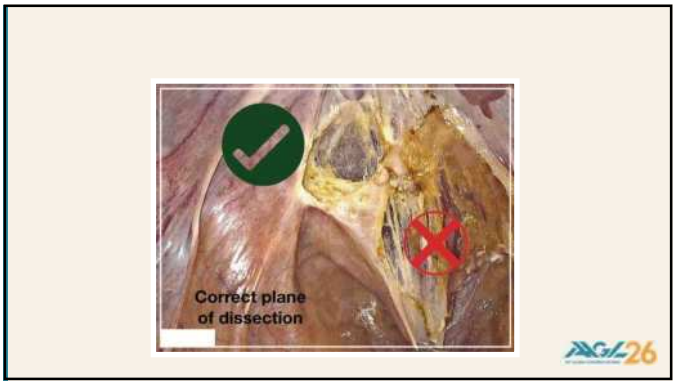
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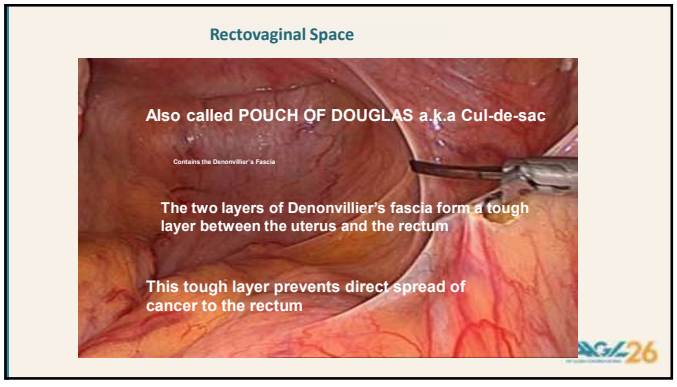
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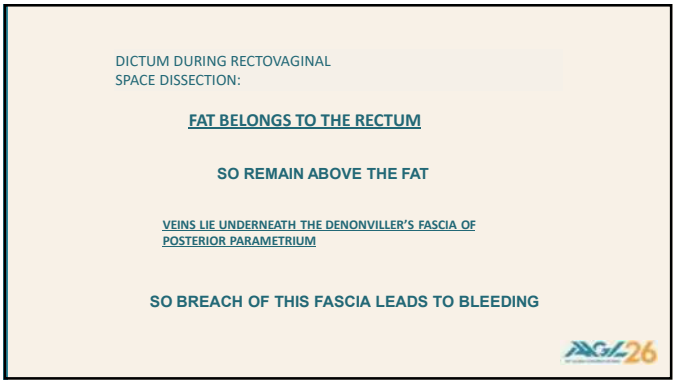
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Dissection of Rectovaginal Space

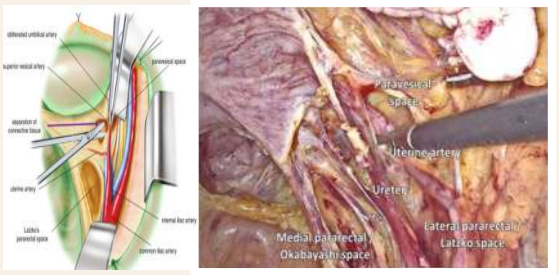
endometriosis, or rectovaginal fistula repair.

Attention during dissection: The main rule is "fat belongs to the rectum". For safe dissection, the goal is to stay between two fascial layers to avoid vessel or rectal injury. Vessel injury can occur from the middle rectal artery/vein, vaginal veins, and presacral veins if rules of dissection are not followed [23].

9. Presacral/Retrorectal Go to: ▸

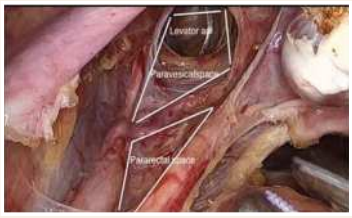
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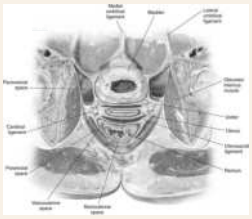
PARARECTAL SPACE



46

Paravesical Space





Content:
Obturator Neurovascular bundle
Lymphatics
BEWARE OF CORONA MORTIS

anastomosis between the external iliac/inferior epigastric and obturator vessels

Uses
Best Access to Lateral pelvic Wall for Optimal Oncological Clearance & Lymph Node dissection

47

4. Pararectal Space Go to: ▸

Pararectal space boundaries: ventrally–cardinal ligament, including the parametrium (over the ureter) and paracervix (below the ureter); dorsally–presacral fascia, sacrum; laterally–internal iliac artery; medially–rectum; cranially–peritoneum of the posterior leaf of the broad ligament; caudally–levator ani muscle [1,4,5,7,9,10,11]. There are two different approaches to the pararectal space–oncological (lateral) and endometriotic (medial), as reported by Pontambekar. In the lateral approach, the peritoneum is incised lateral to the infundibulopelvic ligament, whereas in the medial approach, the incision is medial to the infundibulopelvic ligament [7]. The first structure visualized through the medial approach is the ureter. After a slight dissection, the ureter divides the pararectal space (PRS) into medial (Okabayashi's space) and lateral (Latzko's space) pararectal spaces [8,7]. Lemos et al. reported that the hypogastric nerve is the structure dividing the PRS into lateral and medial [21] We agree with this proposal, as the ureter and the hypogastric nerve (HN) are in the same connective tissue plane (mesoureter), and the HN is localized 2–3 cm dorsally to the ureter [1,22] (Figure 6, Figure 7 and Figure 8).



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Pararectal Space

Ureter Divides Pararectal Space into

Medial - Okabayashi

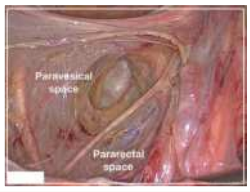
Contains - Inferior Hypogastric plexus
Hypogastric nerve

Essential in Nerve-Sparing Radical Hysterectomy

Lateral - Latzko

Contains the pelvic splanchnic nerves and uterine artery

Best place to clamp uterine artery

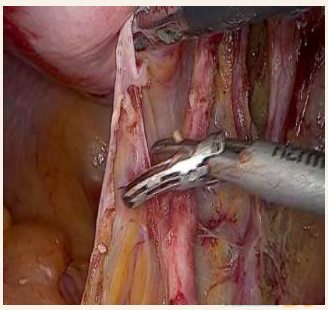


49

LATZO SPACE



OKABAYASHI SPACE



50

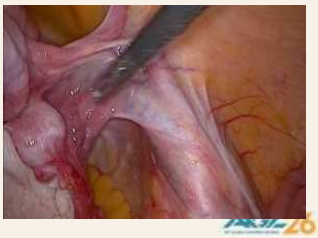
PARARECTAL SPACE

Medial Approach

Lateral approach (Oncological)

Entering the Space following separation of Posterior fascia of Transverse Cervical Ligament and Int. Iliac vessel Sheath from the main body





51

The obliterated umbilical artery and umbilical pre-vesical fascia divides this space into

medial paravesical space (MPS)

access for - bladder or ureteric endometriosis -anterior exenteration

lateral paravesical space (LPS)

Contents - obturator nerve Obturator artery Obturator vein, lymphatic tissue

access for - BPLND

Burch colposuspension

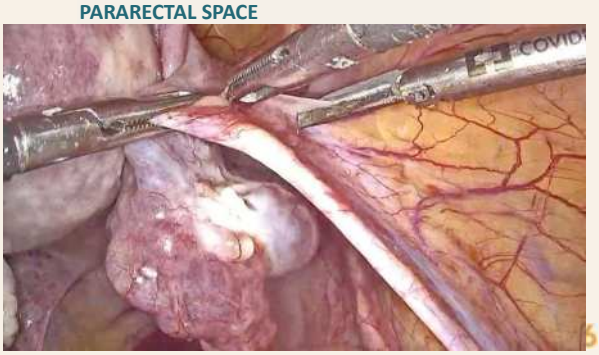
52

PARARECTAL SPACE



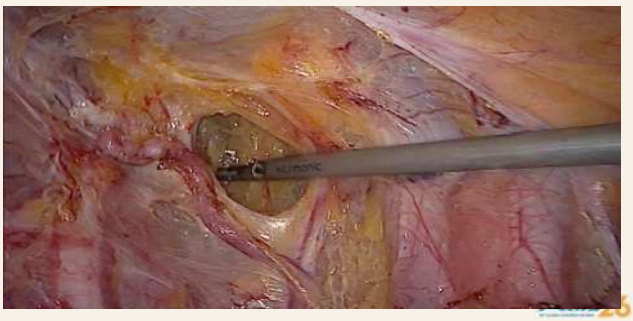
53

PARARECTAL SPACE



54

DISSECTION OF PARAVESICAL SPACE



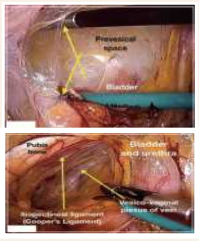
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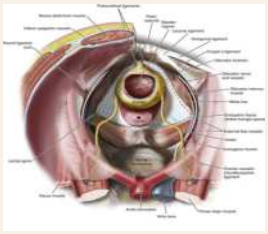
DISSECTION OF PARAVESICAL SPACE



56

Pre -Vesical Space



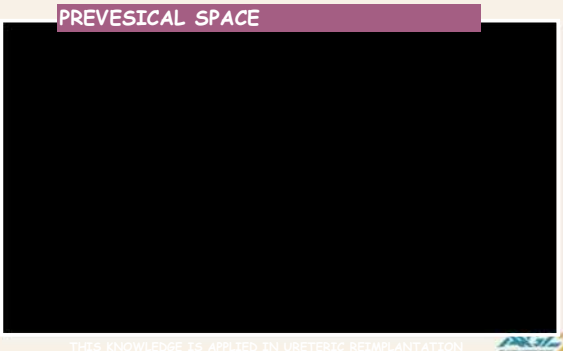


Content
Plexus of Santorini
Obturator Neurovascular bundle

Uses: Anterior Exenteration
Mobilization of Bladder for Injuries
Bursch Colposuspension
Sling Surgeries for SUI

57

PREVESICAL SPACE

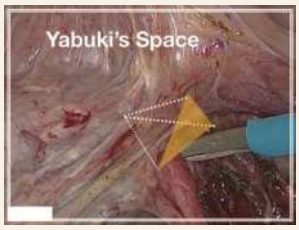


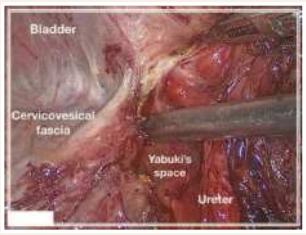
THIS KNOWLEDGE IS APPLIED IN URETERIC REIMPLANTATION

58

YABUKI'S SPACE

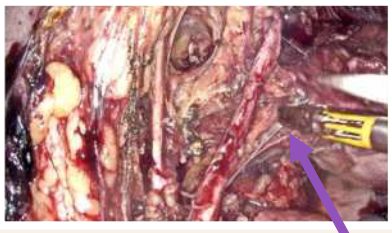
Site for separation of Hypogastric nerves for Nerve-Sparing Radical Hysterectomy

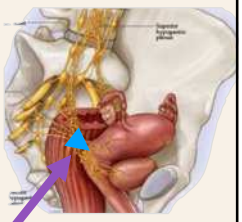




59

YABUKI SPACE





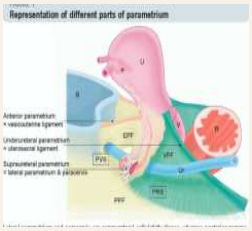
Yabuki space

60

With Basic Knowledge of Anatomy

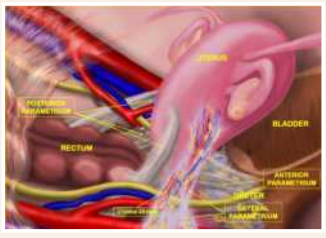
We Evolved

Parametrium



61

THE PARAMETRIAL REVOLUTION…



Involvement of parametrium in cases of ca cervix
changes modality of treatment from surgery to chemotherapy/radiotherapy

Perfect knowledge of the specific anatomy IS REQUIRED to prevent bleeding and functional disorders OF BLADDER AND RECTUM.

62

THE PARAMETRIAL REVOLUTION...

Involvement of parametrium in cases of ca cervix changes modality of treatment from surgery to chemotherapy/radiotherapy

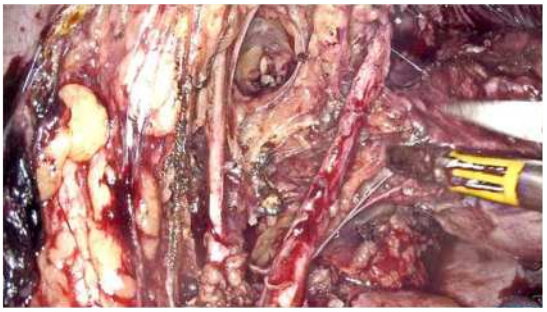
Perfect knowledge of the specific anatomy IS REQUIRED to prevent bleeding and functional disorders OF BLADDER AND RECTUM



ALL PARAMETRIUM IN ONE FRAME

63

Anterior parametrium



64

UNDERSTANDING IN DISSECTION OF ANTERIOR PARAMETRIUM -ANS TO FAILURE OF LACC TRAIL



As complete parametrium dissection help in prevention of recurrence of cervical cancers

65

KEY STEPS

- DISSECTION OF ANTERIOR & POSTERIOR CERVICO-VESICAL LIGAMENT.
- OPENING OF YABUKI SPACE
- TRACING URETER UPTO THE URETERO-VESICAL JUNCTION
- IDENTIFYING INFERIOR VESICAL VEIN



66



67

APPLIED ANATOMY

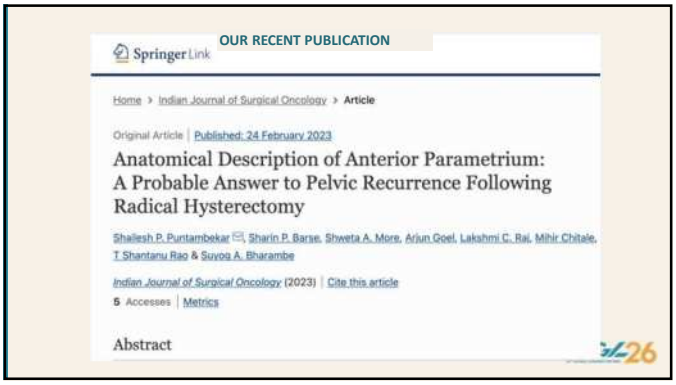
HOW IT HELPED US FROM WHAT WE LEARNT

- UTERINE ARTERY CLAMPING TO AVOID BLEEDING IN LARGE & CERVICAL FIBROID
- ADHESIOLYSIS IN GR -IV ENDOMETRIOSIS
- CAVE OF RETZIUS ENTRY-ANTERIOR EXENTERATION
- VASCULAR INJURY REPAIR
- URETERIC TUNNEL DISSECTION

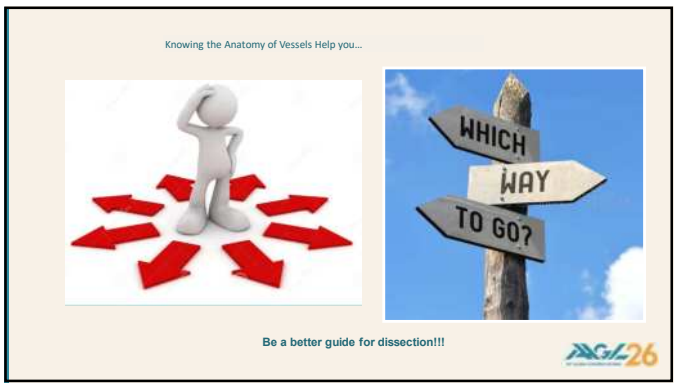
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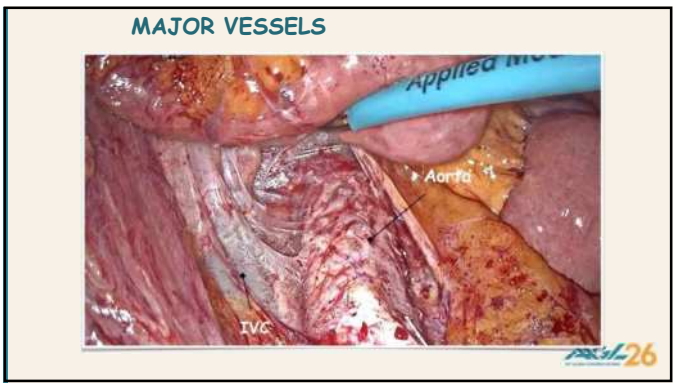
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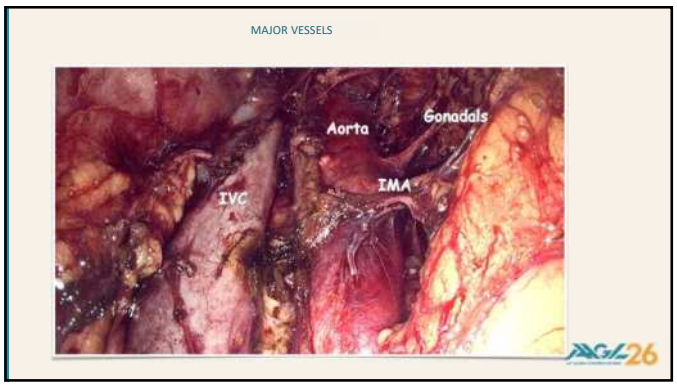
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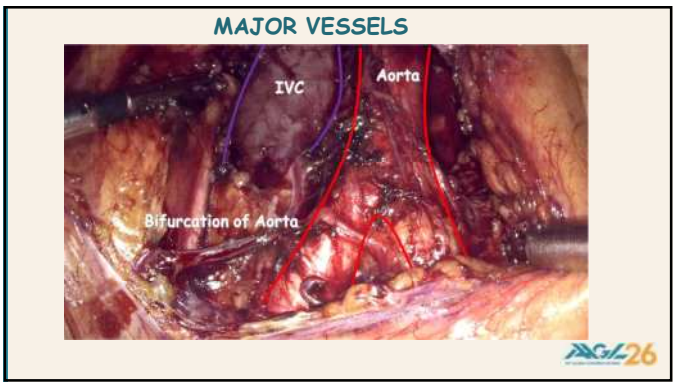
72



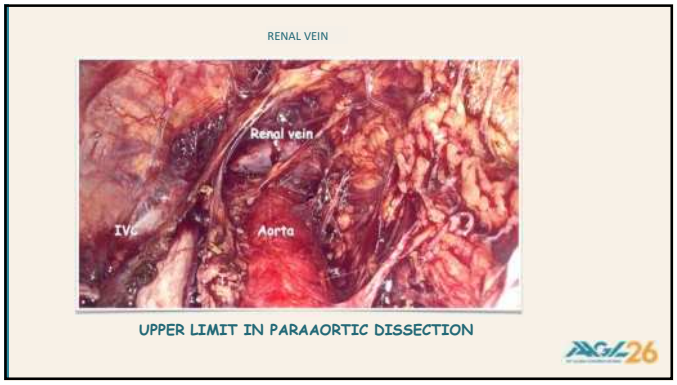
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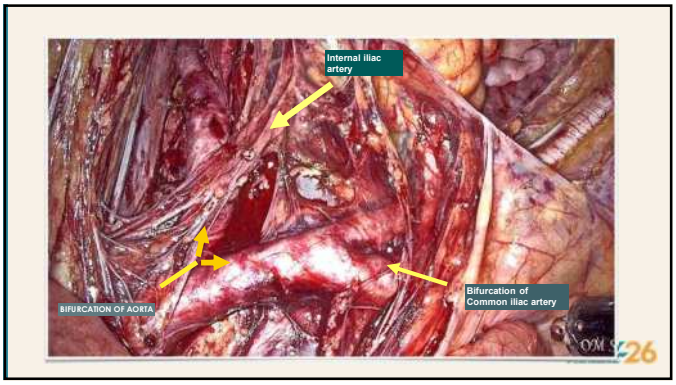
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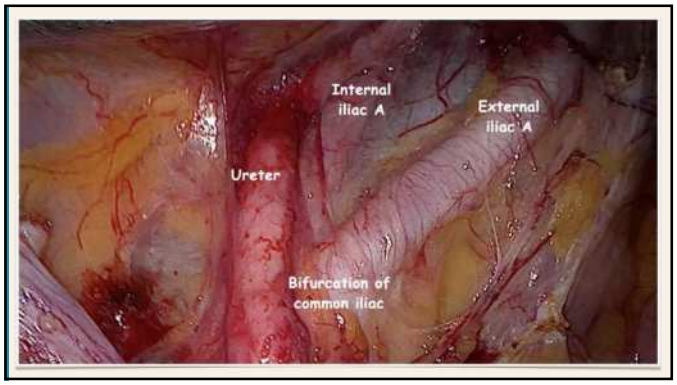
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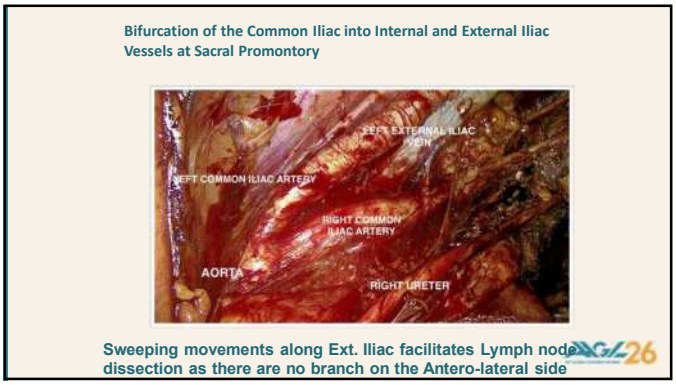
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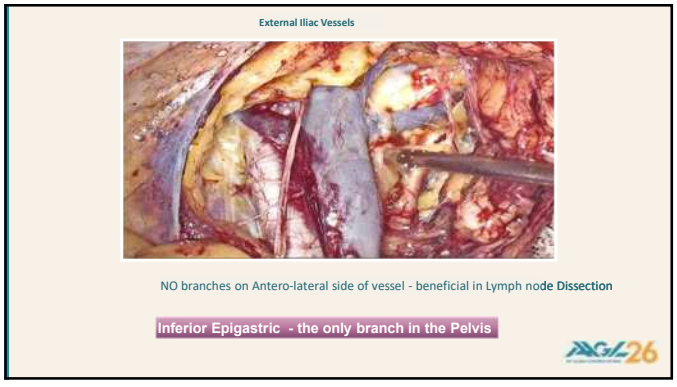
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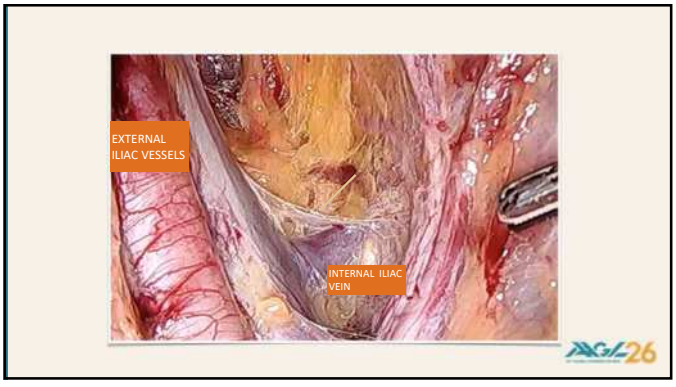
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79

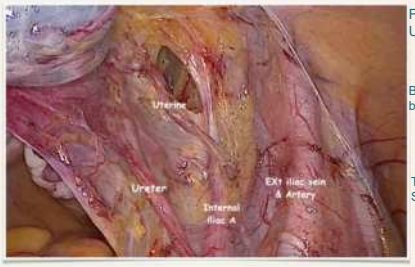


80



81

Internal Iliac Vessels



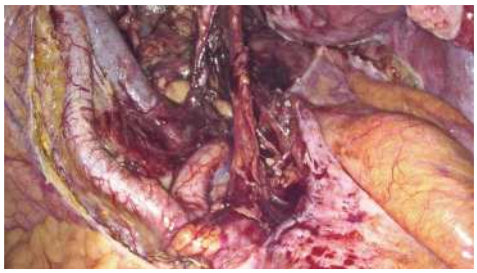
First branch arises at 6 cms Uterine Artery

Bifurcation of Int. Iliac artery is 2-3 cms below bifurcation of Common Iliac Artery

The next branch after Uterine artery - Superior Vesical Artery

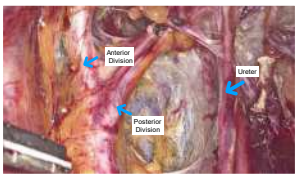
82

ABNORMAL DIVISION OF EXTERNAL ILIAC VEIN



83

Internal Iliac Vessels



First branch arises at 6 cms - Uterine Artery

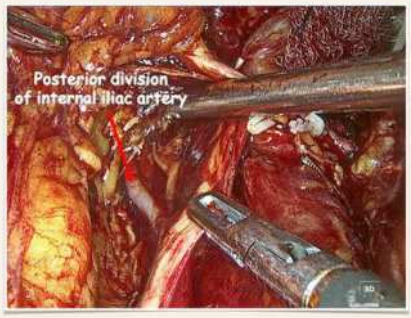
Bifurcation of Int. Iliac artery is 2-3 cms below bifurcation of Common Iliac Artery

The next branch after Uterine artery - Superior Vesical Artery

The ONLY lateral branch of Int. Iliac artery - Obturator artery

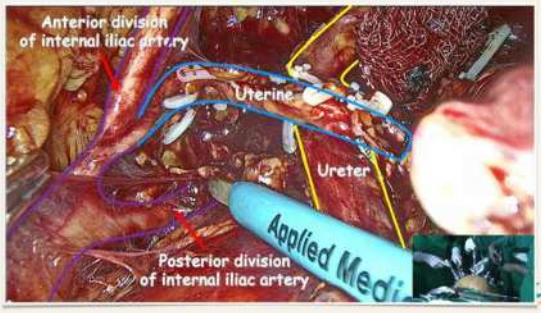
84

POSTERIOR DIVISION OF INTERNAL ILIAC



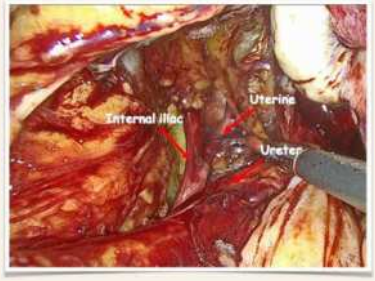
85

INTERNAL ILIAC ANTERIOR AND POST DIVISON



86

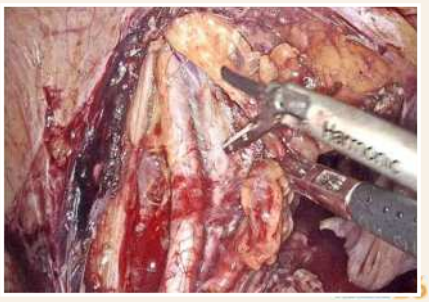
1ST BRANCH OF ANTERIOR DIVISON



87

Understanding of anatomy

- ALL BLOOD VESSELS COVER WITH FASCIAS
- APPLIED - ALWAYS REMAIN ANTERIOR TO FASCIA



88

KNOWLEDGE THAT EXTERNAL ILIAC VESSEL HAS NO TRIBUTARY ON ANTERIOR SIDE - HELPED US TACKLE BLEEDING DURING DISSECTION OF AN ENLARGED LYMPH NODE



89

Dissect remaining parallel to the major vessels : during lymphadenectomy

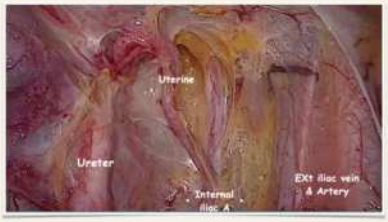


90

Uterine Artery

Clamping & Coagulation of Uterine artery at the level of the Int Os is considered better as dissecting any further low will DISSECT the Descending cervical branch leading to

INCREASED RISK OF INJURY TO THE URETER



91

Uterine artery



92

ENTIRE UTERINE PEDICAL



93

VARIOUS BRANCHES OF UTERINE



94

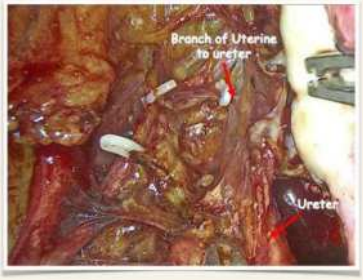
APPROACH TO UTERINE ARTERY IN HUGE FIBROID



Dissection remaining parallel to ureter the first structure crossing will be uterine artery

95

UTERINE ARTERY BRANCH SUPPLYING URETER



96

CHANGED CONCEPT IN UTERINE ARTERY UNDERSTANDING!!!!

BRANCHES OF UTERINE ARTERY



97

Avoid Using Energy sources for dissection of uterine artery preventing thermal damage to the ureter

Feeding vessel of fibroid lies at the base - enucleation easy!

The Main supply to the Uterus is the Ascending branch of the Uterine Artery - MOST FIBROIDS GROW

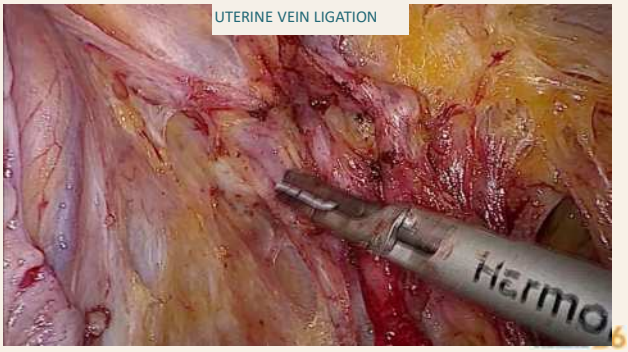
Best Place to dissect Uterine artery is at the PARARECTAL SPACE UPWARDS



Uterine Artery-Vein Complex

98

UTERINE VEIN LIGATION

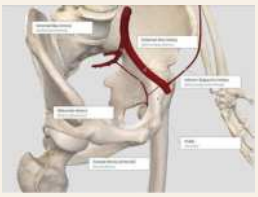


99

CORONA MORTIS

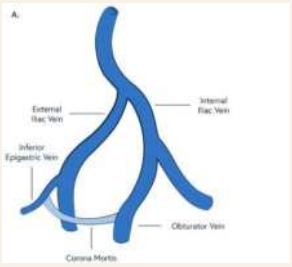
Corona mortis (Latin for "crown of death") is a clinically significant anatomical vascular variant characterized by a connection (anastomosis) between the internal iliac and external iliac vascular systems.





100

DOUBLE CORONA MORTIS





101

URETER

The Ureter has NO SEGMENTAL BLOOD SUPPLY

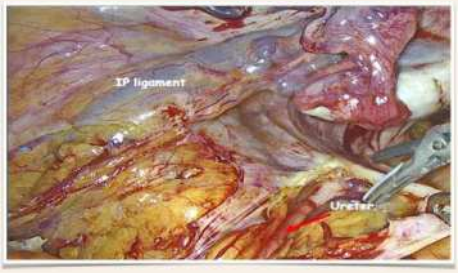
URETER CARRIES ITS OWN MESENTERY

The Ureter can be separated from the Pelvic Brim upto the Uretero-vesical Junction without hampering the blood supply



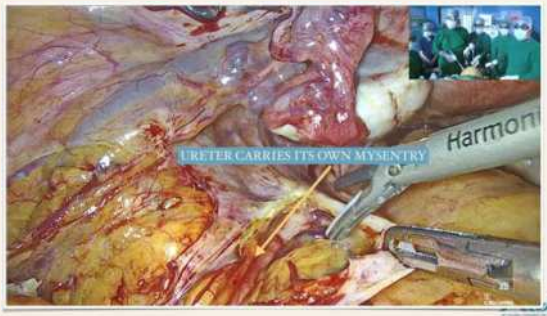
102

URETER IN RELATION WITH IP



103

URETER CARRIES ITS OWN MYSTENTRY



104

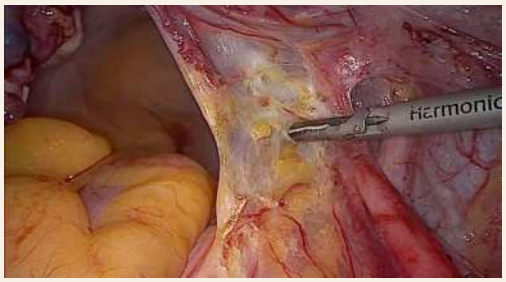
URETER IS ALWAYS LATERAL TO & AT BASE OF UTEROSACRAL LIGAMENT
ALWAYS REMAIN AT APEX OF UTEROSACRAL



The ureter lies 2.5 cms away from the Uterosacral Ligament

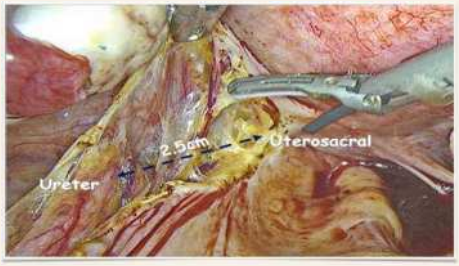
105

Correlation of Ureter & Uterine



106

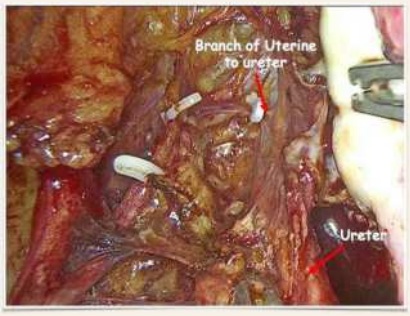
URETER IS ALWAYS LATERAL TO & AT BASE OF UTEROSACRAL LIGAMENT
ALWAYS REMAIN AT APEX OF UTEROSACRAL



The ureter lies 2.5 cms away from the Uterosacral Ligament

107

BRANCH OF UTERINE TO URETER



108

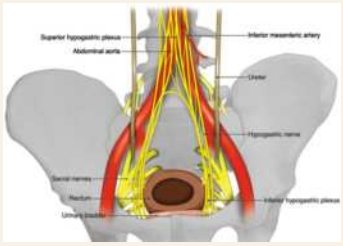
Principles of ureteric dissection

- DISSECTION LATERAL & ANTERIOR TO URETER TO PREVENT DAMAGE
- NO USE OF ENERGY SOURCES
- DISSECTION OF ANTERIOR & POSTERIOR CERVICOVESICAL LIGAMENT OF LATERALISE THE URETER

URETER IS ALWAYS LATERAL TO & AT BASE OF UTEROSACRAL LIGAMENT
ALWAYS REMAIN AT APEX OF UTEROSACRAL

109

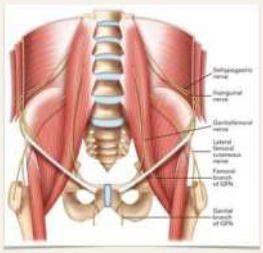
NEUROANATOMY



110

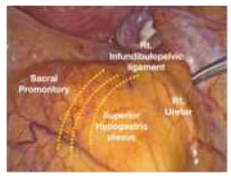
GENITOFEMORAL NERVE





111

HYPOGASTRIC PLEXUS



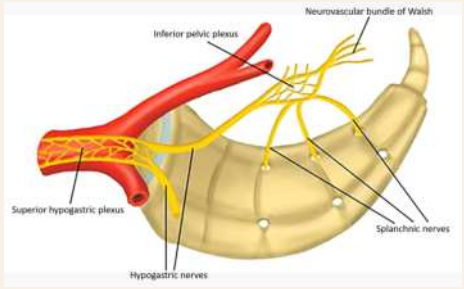


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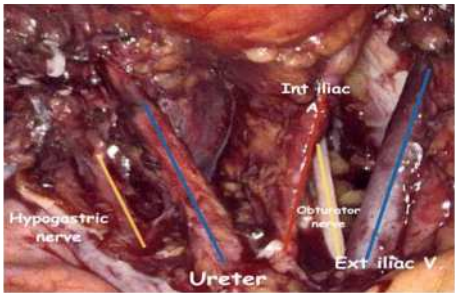
Superior Hypogastric plexus



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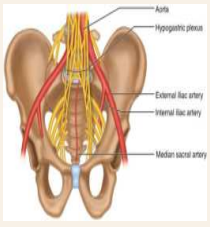


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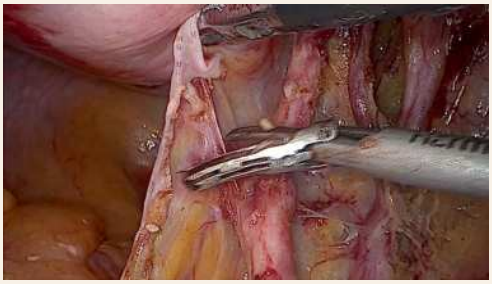


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Course of Hypogastric Nerve

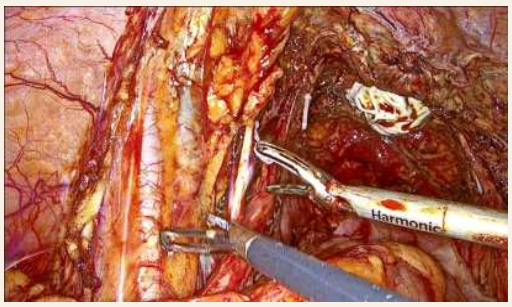


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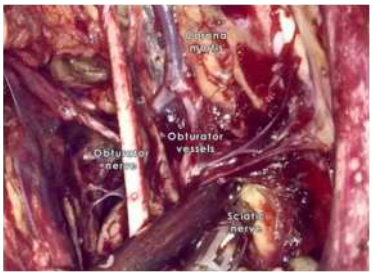
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Obturator Nerve Dissection in LRH



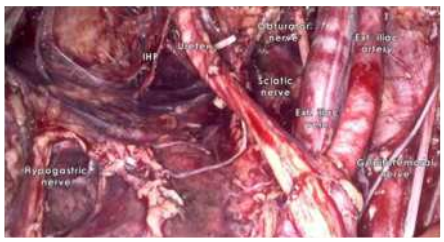
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OBTURATOR & SCIATIC NERVE



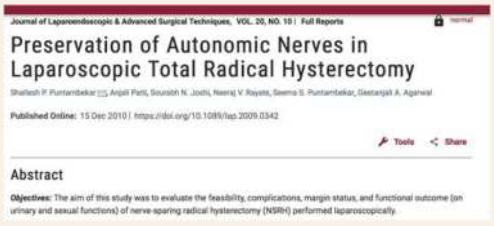
120

ALL PELVIC NERVE IN ONE FRAME



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Work We Publish



Journal of Laparoendoscopic & Advanced Surgical Techniques, VOL. 20, NO. 10 | Full Reports

Preservation of Autonomic Nerves in Laparoscopic Total Radical Hysterectomy

Published Online: 15 Dec 2010 | https://doi.org/10.1089/lap.2009.0342

Tools Share

Abstract

Objectives: The aim of this study was to evaluate the feasibility, complications, margin status, and functional outcome (on urinary and sexual functions) of nerve-sparing radical hysterectomy (NSRH) performed laparoscopically.

Laparoscopic NSRH was feasible in 85.7% of our study subjects

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Endometriosis Resection Using Nerve Sparing Versus Non-nerve Sparing Surgical Techniques

Abstract

Introduction: Endometriosis is the condition in which there are ectopic endometrial tissues outside the uterine cavity. The use of nerve sparing technique has been well established in the field of oncology, leading to better quality of life following radical oncologic procedures without compromising on the long-term survival. The objective of this study is to compare the quality of life in terms of sexual function and urinary function in women undergoing nerve sparing surgeries for endometriosis and those undergoing non-nerve sparing surgeries.

Conclusion: Laparoscopic nerve sparing approach for clearance of endometriosis has allowed better quality of life post surgery. Proper understanding and demonstration of pelvic neuroanatomy has made this approach feasible and achievable in carefully selected patients

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Significance of Neural Anatomy

- Preservation of superior and inferior hypogastric plexus with pelvic splanchnic nerves.
- Nerves preserved in nerve sparing radical hysterectomy [type - B and C1]
- nslrh helps prevents impaired bladder, rectal and sexual function
- during ilio-obturrator lymph node dissection remaining anterior to obturator nerve prevent damage to obturator vessels

125

Significance of Neural Anatomy

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- nslrh helps prevents impaired bladder, rectal and sexual function
- during ilio-obturator lymph node dissection remaining anterior to obturator nerve prevent damage to obturator vessels

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WHAT WE ACHIEVED…. .

- ONCOLOGICAL AND FUNCTIONAL RESULTS ARE COMPARABLE TO CONVENTIONAL LRH
- MAGNIFICATION IN LAPAROSCOPY HELPED IN BETTER DISSECTION AND PRESERVATION OF ANATOMY

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Total laparoscopic Hysterectomy



129

Principles of laparoscopy in Grade IV endometriosis:-
ADHESIOLYSIS



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Our Work in ENDOMETRIOSIS …



Endometriosis Resection Using Nerve Sparing Versus Non-nerve Sparing Surgical Techniques

Abstract

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LAPAROSCOPIC RADICAL TRACHELECTOMY



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Pune Technique

Step 1: posterior U cut

Step 2:dissection of rectovaginal space

Step 3:dissection of pararectal space

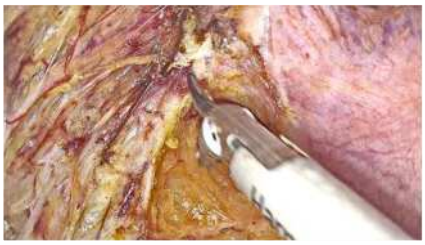
Step 4: anterior U cut

Step 5: dissection of ureteric tunnel

Step 6: lymph node dissection

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UTERINE VEIN LIGATION FOR NERVE PRESEVATION



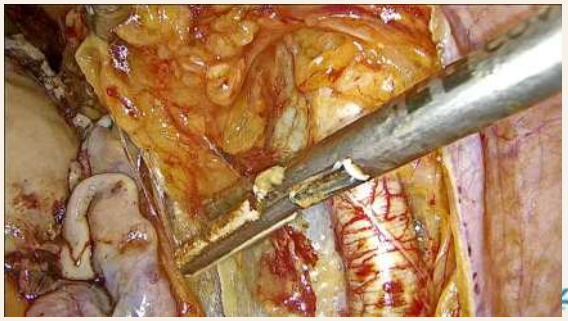
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NERVE SPARING RADICAL HYSTERECTOMY BY PUNE TECHNIQUE...



135

PELVIC LYMPH NODE DISSECTION



136

PARA-AORTIC



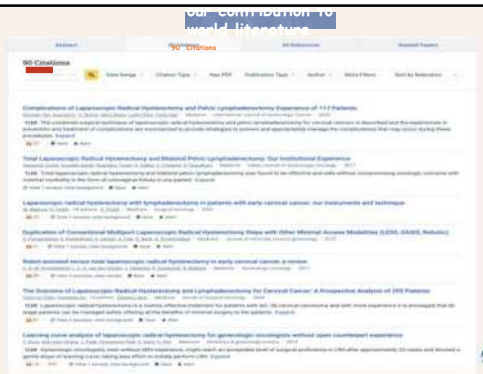
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SHARING OUR TECHNIQUE WITH THE WORLD, THROUGH JMIG (2007)


Journal of Minimally Invasive Gynecology

Laparoscopic total radical hysterectomy by the Pune technique: Our experience of 248 cases

138


90 Citations

139

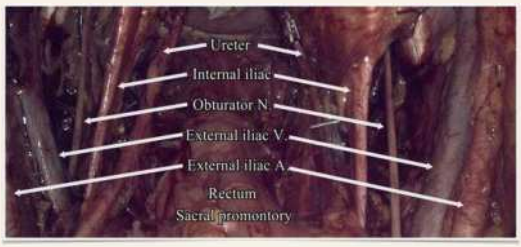
OUR PELVIC ANATOMY CONTRIBUTION IS CITATED

CONTRIBUTING TO LITERATURE

Avascular Spaces of the Female Pelvis—Clinical Applications in Obstetrics and Gynecology

140

ROAD MAP OF PELVIS



141

Take Home messages

- Uterine or Cervical Pathologies DO NOT reach upto the Sacral Promontory. So in case of difficult situations the Sacral Promontory can always be used as an Index for dissection.
- Dissection should always be done parallel to the tubular structures.
- Always identify the fascias and remain outside the fascias.
- Remaining Medial to the Ureter will avoid damage to the internal iliac artery.

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- Remaining medial to Hypogastric artery will avoid damage to Obturator and External Iliac Artery and Vein.

- Fat belongs to bladder anteriorly and rectum posteriorly.
- Ureter lies within the fork of artery and vein.

- Ureter carries its own mesentery and blood supply, the dissection of the ureter can be started from the pelvic brim and completed upto its insertion into bladder.
- There are no variations in Pelvic Anatomy
- During ilio-obturator lymph node dissection, remaining anterior to obturator nerve, will always prevent damage to obturator vessels.

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What has changed is our understanding of anatomy facilitating better surgery

From TLH-LRH -EXENTERATIONS- skills of Dissecting anterior parametrium with preserving vascular structure facilitated in Innovation of uterine transplant



144



DEMOSTRATION OF
UTERINE TRANSPLANT ON
29TH JULY 2026

USE OF SAPHENOUS VEIN GRAFT

145



146

''LAPARASCOPIC ERA" IS CHANGING WITH ADVANCE TECHNOLOGY FOR BETTER MAGNIFICATION & DEPTH PERCEPTION SO AS TO IMPROVE QUALITY OF SURGERY

BUT WHAT MATTERS IS
SURGEON SKILLS
KNOWLEDGE ABOUT ANATOMY
PREDECTIVE ANATOMY
GOOD SURGICAL
PRECISION



147

FOLLOWING GURUKUL PARAMPARA



148

OUR VISION



149


THERE ARE 3 'C's of success
COMPASSION
COURAGE
CRAZINESS

150


Thank you...

151



1

I have no financial relationships to disclose

2

Objectives

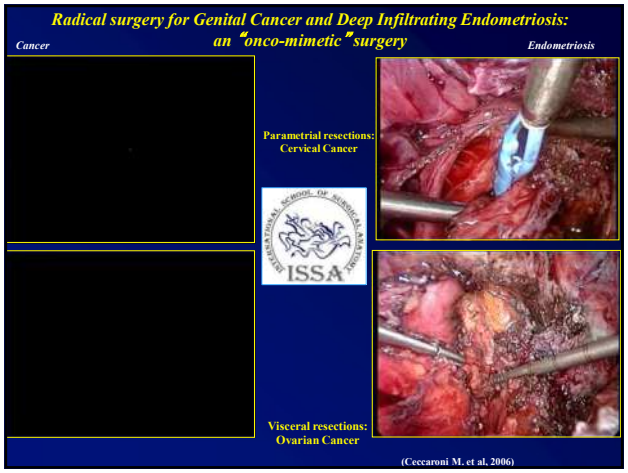
to explain concepts of endometriosis as a neurologiocal inflammatory disease

to highlight surgical anatomy of the visceral and somatic innervation of the female pelvis

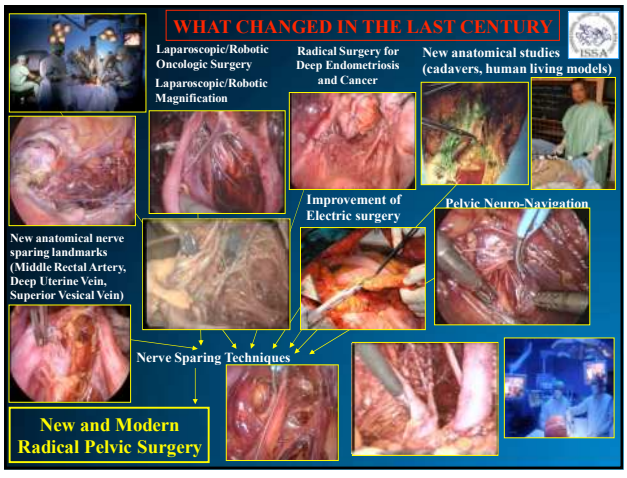
to show how to avoid damages to these structures during radical pelvic surgery

to describe tips and tricks and surgical steps for a totally laparoscopic nerve-sparing and nerve-preserving radical pelvic surgery in endometriosis and cancer

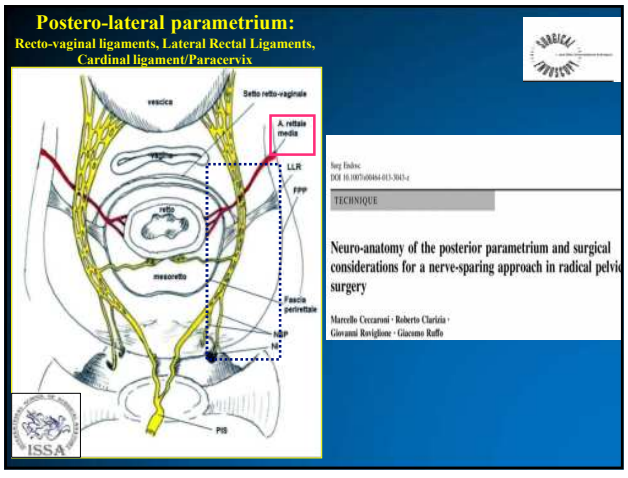
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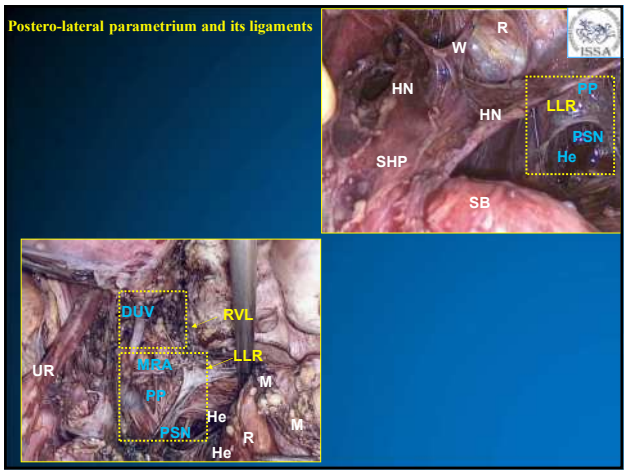
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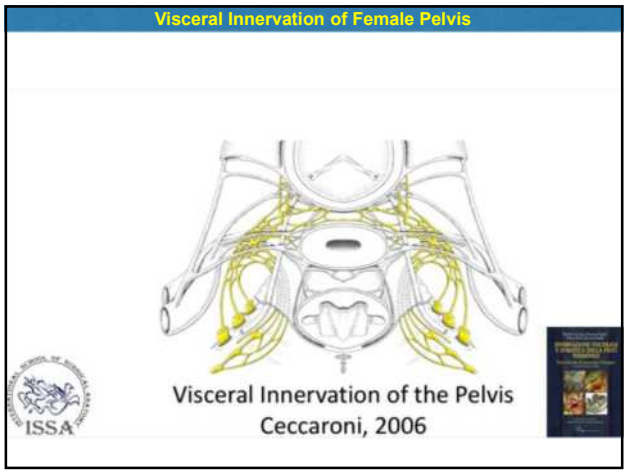
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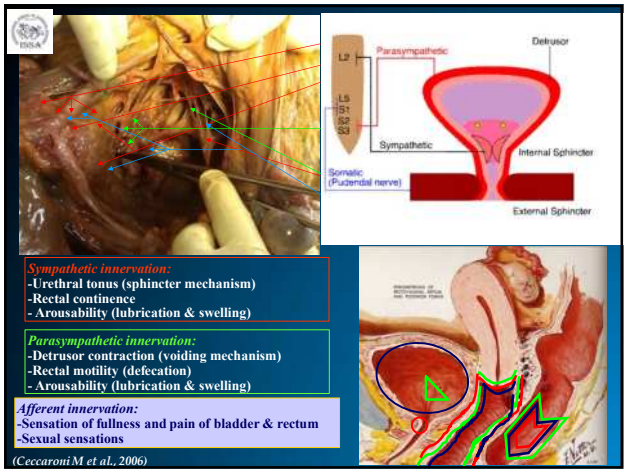
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Postero-lateral parametrium and its ligaments
R
W
HN
HN
PR
LLR
PSN
He
SHP
SB
DUV
RVL
LLR
UR
MEA
M
PP
He
PSN
R
M
He

7


Visceral Innervation of Female Pelvis
Visceral Innervation of the Pelvis
Ceccaroni, 2006
ISSA

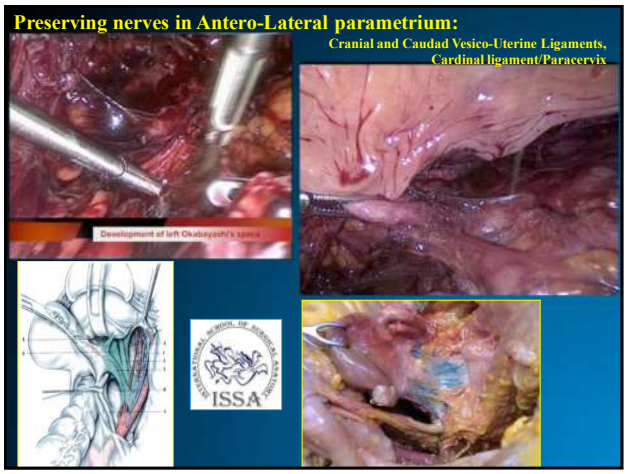
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Parasympathetic
Detrusor
Sympathetic
Internal Sphincter
Somatic (Pudendal nerve)
External Sphincter
Sympathetic innervation:
-Urethral tonus (sphincter mechanism)
-Rectal continence
- Arousability (lubrication & swelling)
Parasympathetic innervation:
-Detrusor contraction (voiding mechanism)
-Rectal motility (defecation)
- Arousability (lubrication & swelling)
Afferent innervation:
-Sensation of fullness and pain of bladder & rectum
-Sexual sensations
(Ceccaroni M et al., 2006)

9


The "dark side" of radical pelvic surgery
Unrecoverable neurologic damage,
Sacral neuromodulation,
Psycho-social burden
Emptying the bladder
Bladder Dysfunctions (0-20%)
Ano-Rectal Dysfunctions (7-27%)
Sexual Dysfunctions (8-54%)
(Possover 2000, 2002, 2003, 2005, Volpi 2004, Darai 2005, Fanfani 2009, Landi 2006, Dubernard 2006, 2007, 2008, Deffieux 2007, Ceccaroni , 2006, 2009, 2010, 2011, 2012, Roman , 2010, Kovoor, 2011)

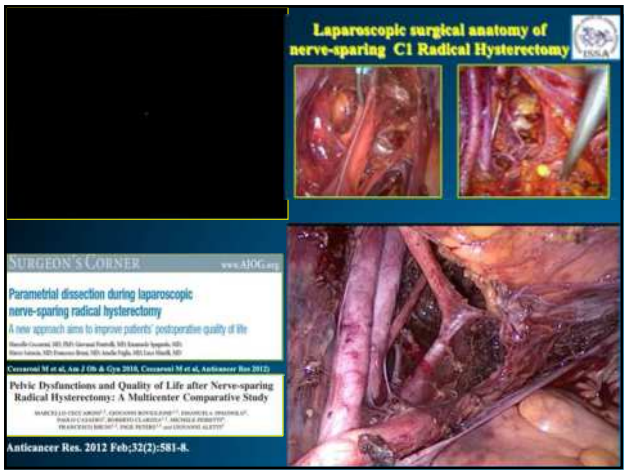
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Preserving nerves in Antero-Lateral parametrium:
Cranial and Caudad Vesico-Uterine Ligaments,
Cardinal ligament/Paracervix
ISSA

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Preserving nerves in Postero-Lateral parametrium:
Sacro-Uterine, Recto-Vaginal and Lateral Rectal Ligaments, Cardinal ligament/Paracervix
Superior Hypogastric Plexus, Hypogastric and PSN preservation
ISSA

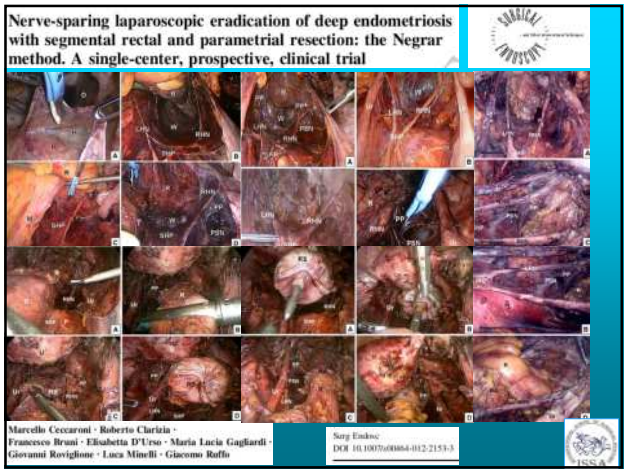
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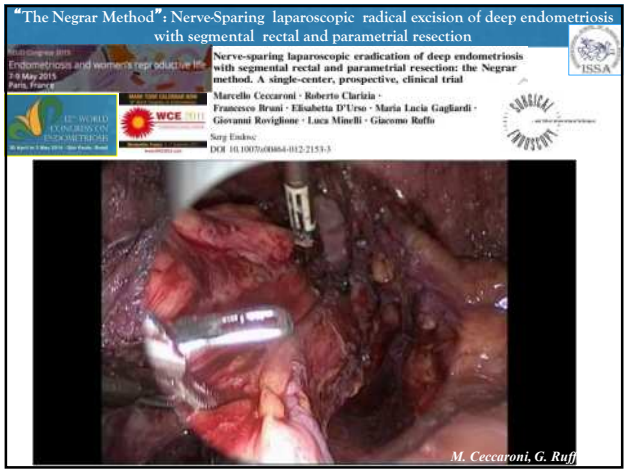
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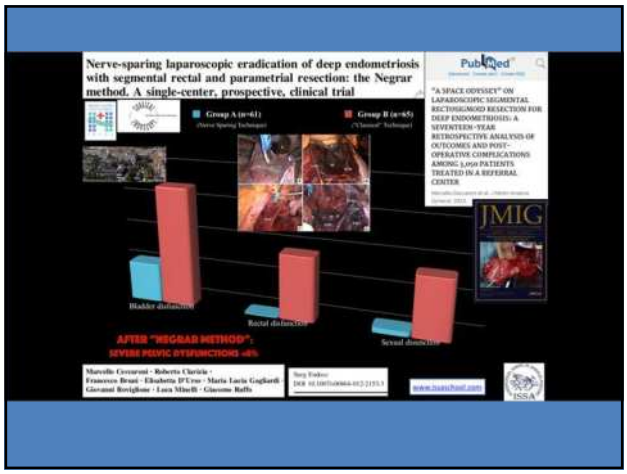
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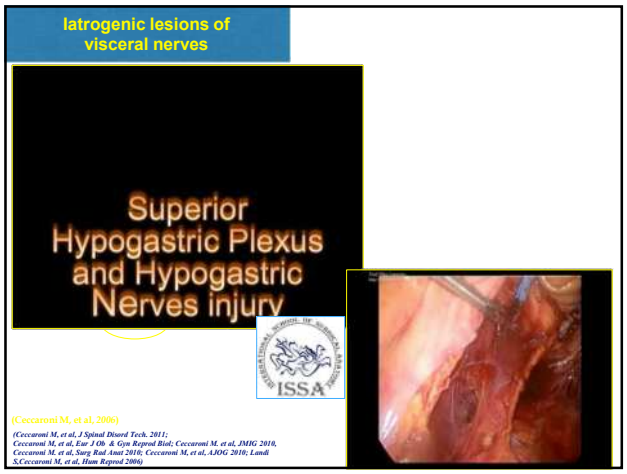
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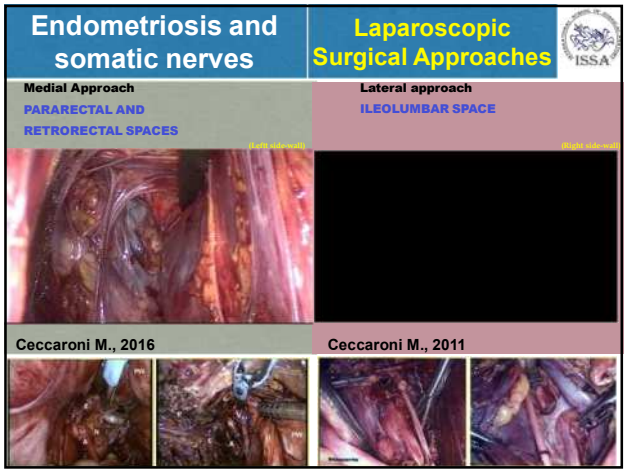
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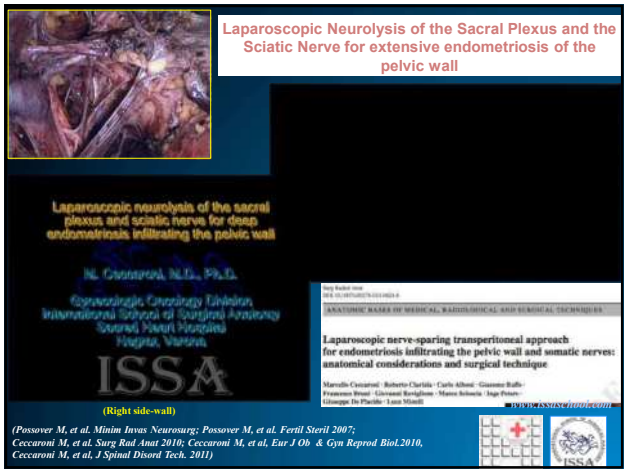
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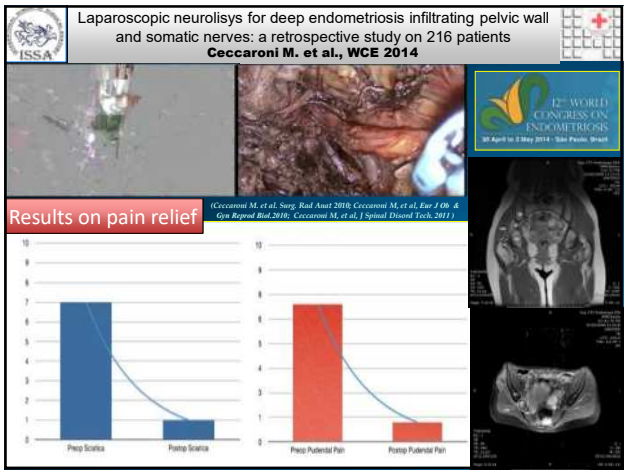
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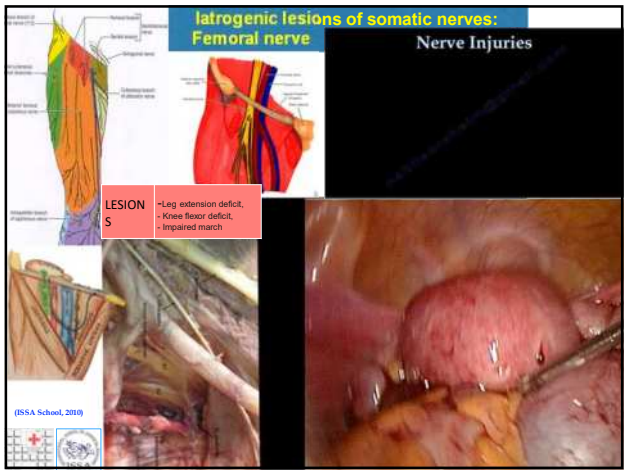
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24

Conclusions



1) Neurological damage during laparoscopic pelvic surgery may lead to unrecoverable motoric/sensorial or functional impairment in young women treated also for benign conditions (i.e. DIE)

2) Anatomical knowledge is a key for a better know-how and for a safe endoscopic surgery, minimizing the risks of neurological complications

3) Even if Endometriosis is a disease directly affecting the nerves, Nerve-Sparing procedures (completely different, philosophically, from the Oncological procedures), successfully treat the disease with an adequate radicality, offering good results in terms of pain relief and neurological bladder/bowel and sexual dysfunctions, with morbidity reductions and Quality of Life improvement.

4) Laparoscopic approach is the less invasive and the more accurate and effective treatment offering pain relief, recovery of motoric impaired functions and complete eradication of the disease

5) Repair of some neurological damages is feasible by laparoscopy if promptly recognised

6) Involvement of somatic nerves in DIE is not an uncommon condition, undiagnosed or misdiagnosed in the majority of cases

7) Gynecologist is supposed to be the most indicated and expert specialist do diagnose/treat this condition and to offer the adequate care to these "orphan" patients

8) Considering that this kind of surgery requires uncommon surgical skills and anatomical knowledge, it should be performed only in selected reference centres

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Conclusions

- Anatomical knowledge is a key for a safe classical and nerve-sparing safe endoscopic surgery
- Surgical anatomy should be understood with the specificity, advantages and limitation of the technology
- Utility of anatomical laparoscopic training on cadavers
- Retroperitoneum is always your best friend
- If you know the anatomy: what you expected will be what you will get

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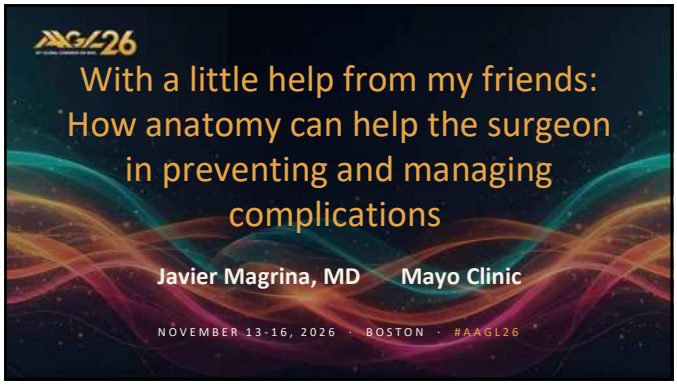
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28



1

Disclosure

Wolters Kluwer
Aspen Surgical
CAST Surgical

2

Objectives

1. Discuss the anatomy related to the prevention of injuries to major vessels
   . At entry
   . Intraoperative
2. Discuss What to do immediately

3

80% of Major Vessel Injuries are at ENTRY

80% are arterial

Mortality 10%

Frequency 1:2000

Clin Obstet Gynecol ; 2012; 32:401
Obstet Gynecol 2015; 125:1407
J Obstet Gynaecol. 2018; 38:598
Laparosc Endosc Surg Sci. 2018;25:130–131

4

7.6 million FIRST ENTRIES / yr USA
(4.8M lap + 2.8M robot)

MVI	1:2000
n=	3800

Deaths 380
1 DEATH A DAY

5

One issue is having a **Major Vessel Injury**

But another issue is having a **DEATH**

Two issues: preventing injury
preventing death

6

Have you ever heard or seen a MVI at entry resulting in death?

7



8

Prevention of Death

. What do you must ESTIMATE immediately

. What do you must DO immediately

9

MUST ESTIMATE BLEEDING RATE

5 mm hole in the aorta

Takes **2:46 min** to lose **5 L** of blood

Each minute you lose **1.8 L**

10

Estimated time of delayed action

1.4 min bleeding = **2.5 L** level IV

= **5 ½ units of blood**

11

Levels of hemorrhagic shock

	class I	class II	class III	class IV
Blood loss (mL)	750	1,500	2,000 40% death	> 2,000 Death

12

Causes of MVI

- Surgeon
- Anatomy

13

ANATOMY

Distance umbilicus – aorta

4 - 5 cm

Length of Verres and trocars 10 cm

14

Prevention of MVI

Two options

- Mini-incision: **Open entry** (Hasson)
- Increase distance to major vessels: **Levalap entry**

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Problems with Open Entry
Mayo Clinic Arizona n=2010

1. Loss of pneumo, extra suturing
2. Same % bowel injuries
3. Difficult in obese patients
4. Long learning curve
5. Closure time
6. Umbilical hernia risk

JSLS (2008) 12:372-5

16

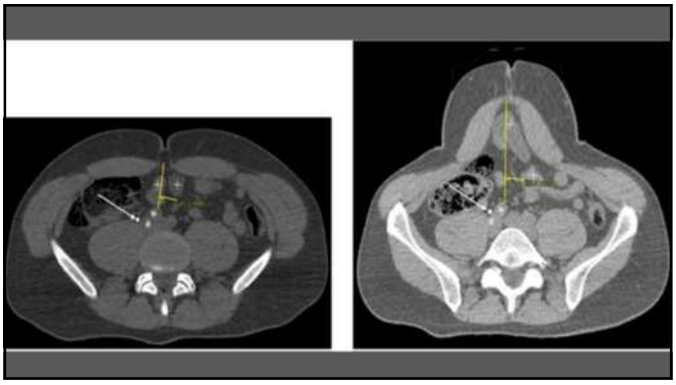
Levalap entry

Increases distance from umbilicus to:

	cm
Aorta	5.5 (4.4-6.9)
Vena cava	5.3 (4.1-6.5)

JMIG 2023; 30:748–756

17



18



19



20

Levalap user data EU
8 centers 9 surgeons 158 patients

. Learning curve: 5 cases
. Proficiency: 10 cases
. 99% agree easy to use
. Reduces 2nd try with Veress

J Obstet Gynaecol 2023; 160:742-753

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Preventing Death

You have a MVI at entry

. What's the bleeding rate

. Stop bleeding: rapid laparotomy?

22

What is a rapid laparotomy ?

What's happening at the bleeding site while you are doing a "rapid laparotomy" ?

23

Incision- Delivery Time in 5,850 emergency C-sections

<2 min

Am J Obstet Gynecol 2026; https://doi.org/10.1016/j.ajog.2025

24

Remember BLEEDING RATE aortic injury

1.8 L min

STOP THE BLEEDING !!

25

MUST DO IMMEDIATELY

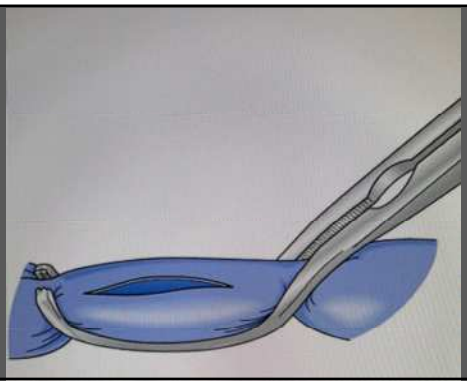
- EXTERNAL PRESSURE over bleeding site !!
- Midline incision while external pressure
- AS SOON AS incision allows DIRECT HAND PRESSURE!!
- Enlarge incision, place retractor
- Stop bleeding with VASCULAR clamps

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Satinsky

27



28

You can clamp the aorta, common, and ext. iliacs for 45 min

29

BLEEDING STOPPED

- WAIT !!! fluid and blood resuscitation
- While you are waiting: run entire bowel and colon 50% injuries
- When patient stable: vascular injury repair 25 min
- Consider cancelling planned surgery

30

2nd TROCAR ENTRY MVI

31



32



33

INTRAOPERATIVE MVI
20%

34

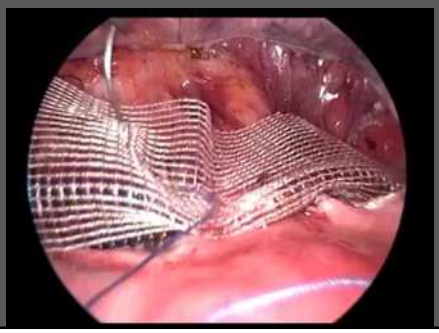
1 second decision:

Can I manage by MIS
or
do I need a laparotomy?

35



36



37

Manage by MIS

- **DON'T GRAB BLEEDING SITE** in large vessels:
  apply proximal and distal pressure with instruments' shaft
- DON'T clamp arteries with traumatic clamps
- Bulldog clamps, vessel loops
- Always consider a laparotomy

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Preparing for possible intraop MVI

- **PREOP**
  Tell anesthesiologist and OR of potential bleeding
  Ask for **14G needle,** blood products, Satinsky, bulldogs, vessel loops
- **INTRAOP**
  Think about MVI continuously when near major vessel
  Apply vessel loops or bulldog clamps proximal and distal before dissecting around major vessels
  Abnormal findings in surgery ? **T T T**

40

Fluid Resuscitation

14 G = 1L / 4 min

18G 1L / 11 min

41

Endoscopy vena cava



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In conclusion

- **Injury at Entry**
  Immediate external pressure, incision, vascular clamp
- **Injury Intraoperative**
  Must decide: manage by MIS or laparotomy a. bleeding rate
  b. injury site
  . By MIS: don't grab bleeding site in major vessels, don't use traumatic instruments, proximal and distal pressure with instrument's shaft, bulldog clamps
  , By laparotomy: do the same as an entry injury

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Laparosc Endosc Surg Sci. 2018;25:130–131

- JSLS (2008) 12:372-5
- JMIG 2023; 30:748–756
- J Obstet Gynaecol 2023; 160:742-753
- Am J Obstet Gynecol 2026; https://doi.org/10.1016/j.ajog.2025

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Thank you !!

jmagrina@mayo.edu

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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/