AGL 2022

51st GLOBAL CONGRESS ON MIGS

December 1–4, 2022 | Gaylord Rockies Resort and Convention Center | Aurora, Colorado

SYLLABUS

NERV-603: Didactic - Nerve Sparing - Part I

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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).

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Adrian C. Balica, MD – Institutional Contract Research: AbbVie Pharmaceuticals
Marcello Ceccaroni, MD, PhD*
Gustavo L. Fernandes, MD, PhD*
Nucelio Lemos, MD, PhD*
Resad P. Pasic, MD, PhD – Speakers Bureau: CooperSurgical; Medtronic; Olympus
B. Rabischong, MD, PhD*

NERV-603: Nerv Sparing – Part I

Chair: *Nucelio Lemos, MD, PhD, Adrian C. Balica, MD*

Faculty: *Marcello Ceccaroni, MD, PhD, Gustavo L. Fernandes, MD, PhD, Resad P. Pasic, MD, PhD, Benoit Rabischong. MD, PhD*

Course Description

This didactic and cadaveric workshop is designed to help the advanced pelvic surgeon to implement nerve-sparing techniques in their day-to-day procedures. This course will focus on the nerves that are commonly injured while performing radical pelvic surgery and female pelvic reconstructive procedures, their anatomy, and strategies to avoid injury.

Learning Objectives

At the conclusion of this course, the participant will be able to: 1) Review the anatomy of the nerve bundles crossing the pelvis; 2) Recognize the main steps where nerve damage can occur during pelvic surgery; and 3) Implement standardized steps for nerve-sparing laparoscopic reconstructive surgery and endometriosis.

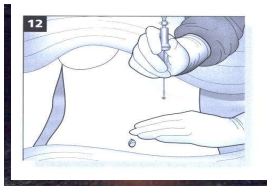
Course Outline

7:00 am	Welcome, Introduction and Course Overview	N. Lemos/A.C. Balica
7:05 am	Nerve-Sparing Begins with Proper Port Placement: Anatomy of Ilioinguinal, Iliohypogastric, Genitofemoral and Lateral Femoral Cutaneous Nerves and How to Avoid Them	R.P. Pasic
7:25 am	What Happens if You Mess with the Wrong Guys: Functional Pelvic Anatomy and Neurophysiology	N. Lemos
7:45 am	Parametrial Anatomy and Neuroanatomy	B. Rabischong
8:05 am	Pelvic Fasciae and Avascular Spaces: Nerve-Sparing with a “Non-Touch” Techniques	G.L. Fernandes
8:25 am	Incorporating Nerve Sparing Procedures in My Daily Practice. How I Did it and What Happened	A.C. Balica
8:45 am	Keeping an Eye on Nerve-Sparing by Direct Visualization of Nerve Bundles	M. Ceccaroni
9:05 am	Questions & Answers – Faculty Discussion	All Faculty
9:30 am	Adjourn	

Nerve-Sparing Begins with Proper Port Placement: Anatomy of Genitofemoral Lateral Femoral Cutaneous Ilioinguinal, Iliohypogastric Nerves and How to Avoid them

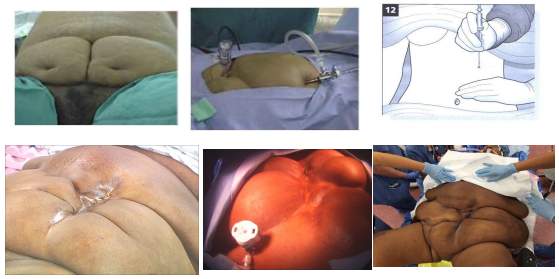
Alternative Insufflation Techniques

- Transumbilical
- Direct
- Open laparoscopy (Hasson)
- Transuterine insufflations
- Subcostal insufflation (Palmers point)



No Patient is too Big!

No Abdomen is Inaccessible! Choose the right Insufflation technique



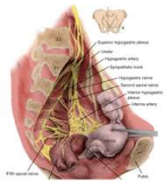
Nerves of the Pelvis

Somatic innervation (motor and sensory) of the skin and skeletal muscle

+

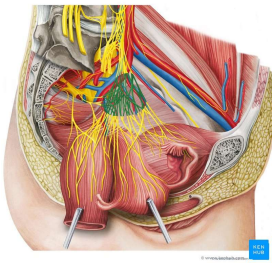
Autonomic (visceral) innervation of the pelvic organs and glands

Both sympathetic and parasympathetic innervation

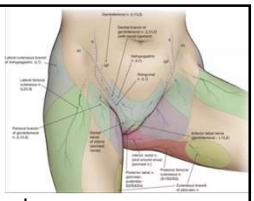


Autonomic Innervation

- Regulate
  - Bladder emptying
  - Control of the internal urethral sphincter
  - Motility in the rectum
  - Sexual function



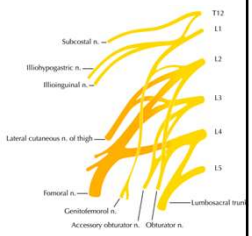
Somatic nerves



- Innervate voluntary skeletal muscles
- Originate in the ventral roots of the spinal nerves.
- Main somatic pelvic nerves involved in pelvic organ functions originate from the sacral plexus and its branches.

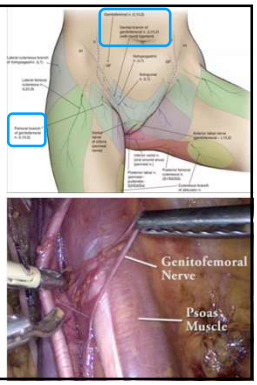
Lumbar plexus

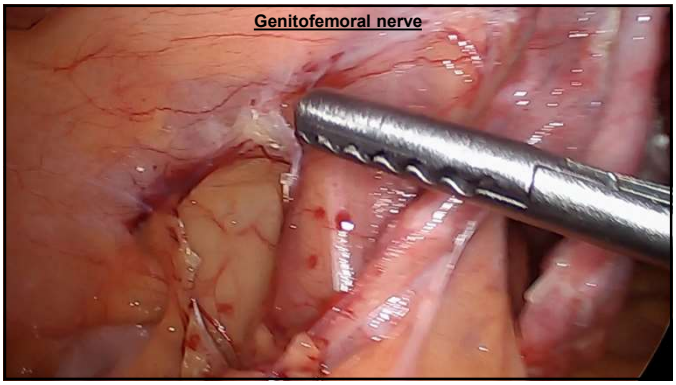
- Divisions of the first four lumbar nerves (L1–L4) and contributions of the subcostal nerve (T12)
- Ventral rami of the 4th lumbar nerve pass communicating branches, the lumbosacral trunk, to the sacral plexus.
- Several branches of the lumbar plexus run into the pelvis.



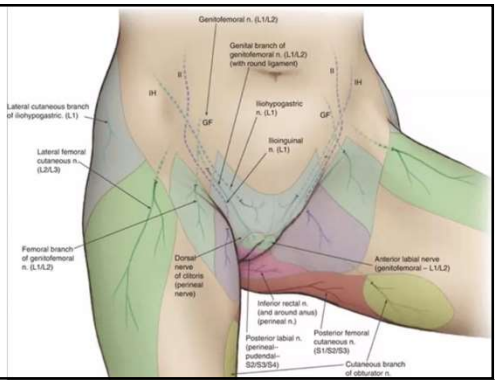
Lumbar plexus-
Genitofemoral nerve L1-L2

- Pierces the psoas major anteriorly lateral to the external iliac artery.
  - Lateral femoral branch is purely sensory and supplies the skin below the inguinal ligament and proximal lateral aspect of the femoral triangle
  - Genital branch runs in the inguinal canal together with the round ligament. Sensory branches to the skin of the mons pubis and the labia majora.



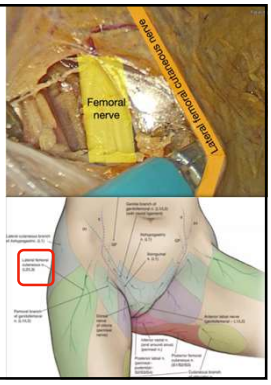


Dermatomes



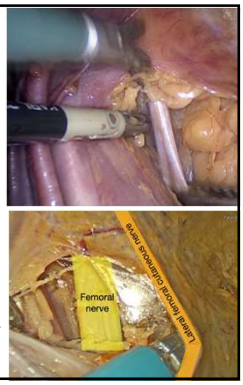
Lumbar plexus-
Lateral femoral cutaneous nerve L2-L4

- pierces the psoas major on its lateral side. Medial to the anterior superior iliac spine, it leaves the pelvic area through the lateral muscular lacuna.
- Supplies the skin of the anterior and lateral aspects of the thigh.
- Injury can cause anterior and lateral thigh burning, tingling, and/or numbness that increase with standing, walking, or hip extension.



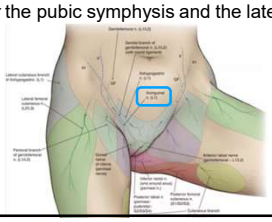
Lumbar plexus-Femoral nerve L2-L4

- Sensory innervation to the anterior aspect of the thigh and knee and motor innervation to the quadriceps muscles.
- Between the psoas major and iliacus, giving off branches to both muscles, and exits the pelvis through the medial aspect of muscular lacuna.
- Femoral neuropathy is the most common lumbosacral nerve injury> fall when attempting to get out of bed after surgery & sensory loss over the anteromedial thigh.



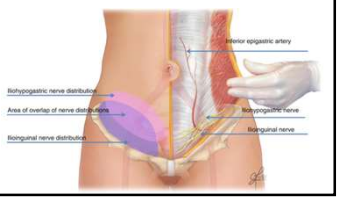
Lumbar plexus-Ilioinguinal nerve L1

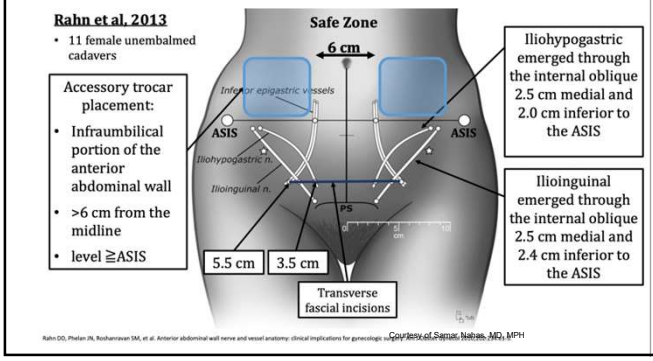
- Lies on the quadratus lumborum. At the level of iliac crest, it pierces the lateral abdominal wall and runs medially at the level of the inguinal ligament
- Motor branches to the transverse abdominis
- Sensory branches to the skin over the pubic symphysis and the lateral aspect of the labia majora.



Lumbar plexus-Iliohypogastric nerve L1

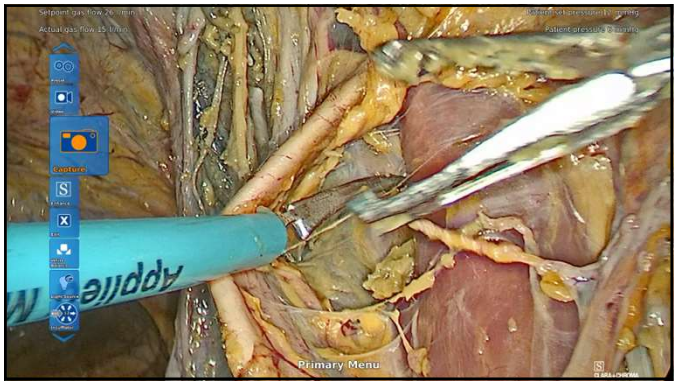
- Lies on the proximal lateral border of the psoas major and quadratus lumborum & pierces the transversus abdominis to run above the iliac crest.
- Motor branches to these muscles
- Sensory to skin of lateral hip and skin above the inguinal ligament





Lumbar plexus-Obturator nerve L2-L4

- Travels behind the Psoas major then follows the linea terminals into the lesser pelvis lateral to the external vessels, and then finally leaves the pelvis through the obturator canal.
  - Motor branches to the adductor muscles.
  - Sensory supplies skin on the medial thigh


Capture1
Primary Menu

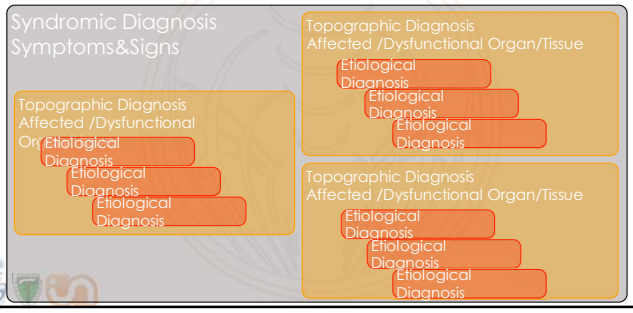
What happens if you mess with the wrong guys? Pelvic Neuroanatomy and Nerve-Sparing

Nucelio Lemos, MD, PhD
Associate Professor of Obstetrics and Gynecology, University of Toronto
Head of the Pelvic Neurodysfunctions Division, Dept. of Gynecology, Federal University of São Paulo, Brazil
Chief of the Dept. of Gynecology and Neuropelveology if the Increasing, São Paulo, Brazil
Vice-President of the International Society of Neuropelveology

Financial Disclosures

- No Conflicts to Declare

Medical Diagnostic Sequence

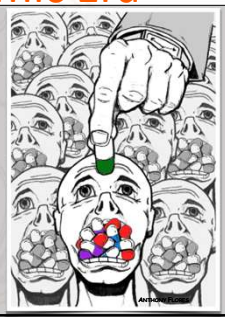


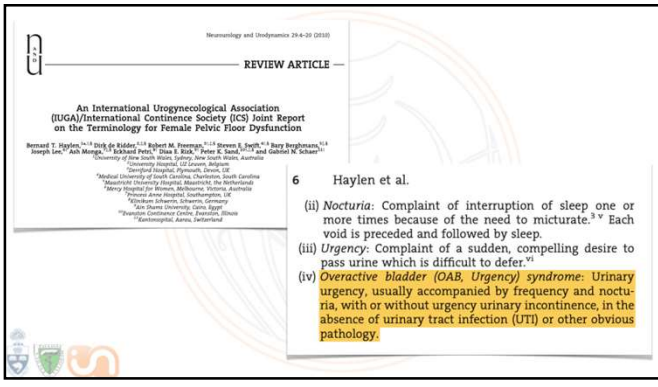
The "Syndromic Era"

The "Syndromic Era"

Syndromic Diagnosis
Symptoms&Signs

- OAB Syndrome
- Chronic Pelvic Pain Syndrome
- Bladder Pain Syndrome
- Irritable Bowel Syndrome
- Chronic Fatigue Syndrome
- Fibromyalgia (Syndrome)
- Pudendal Neuralgia





REVIEW ARTICLE

An International Urogynecological Association (IUGA)/International Continence Society (ICS) Joint Report on the Terminology for Female Pelvic Floor Dysfunction

6 Haylen et al.

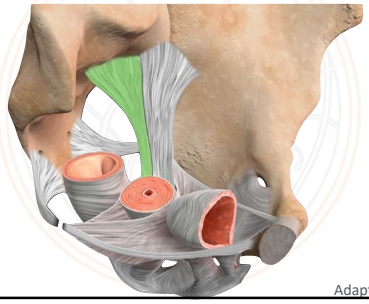
(ii) *Nocturia*: Complaint of interruption of sleep one or more times because of the need to micturate.[3,V] Each void is preceded and followed by sleep.
(iii) *Urgency*: Complaint of a sudden, compelling desire to pass urine which is difficult to defer.[VI]
(iv) *Overactive bladder (OAB, Urgency) syndrome*: Urinary urgency, usually accompanied by frequency and nocturia, with or without urgency urinary incontinence, in the absence of urinary tract infection (UTI) or other obvious pathology.

Objectives

- Review the Neuro-anatomo-physiology of bladder signalling
- Discuss a multi-system / multi-layer approach to chronic pelvic pain
- Describe the specific symptoms and signs of the most frequent causes refractory urgency

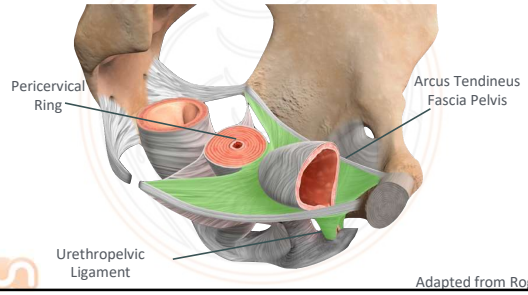
Continence and Bladder Signaling Mechanisms

Cardinal-Uterosacral Complex



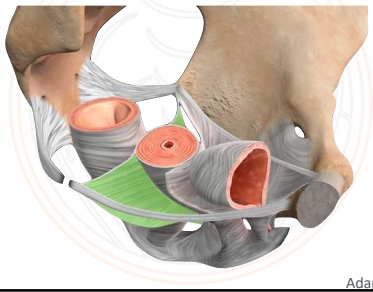
Adapted from Rogers, RM.

Pubocervical Fascia



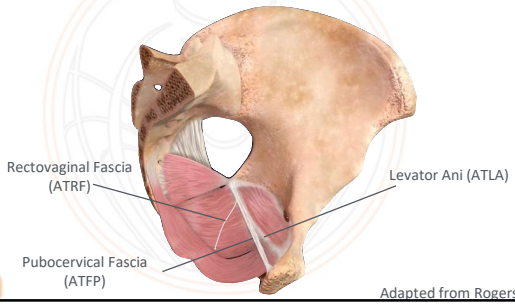
Adapted from Rogers, RM.

Rectovaginal Fascia



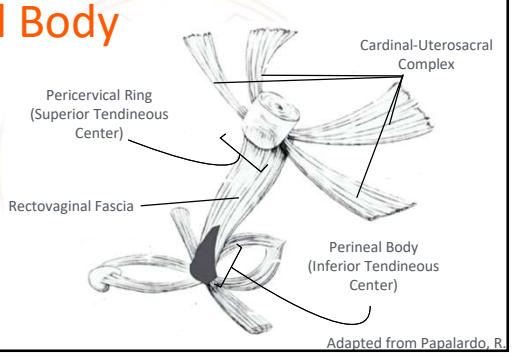
Adapted from Rogers, RM.

Arci Tendinei



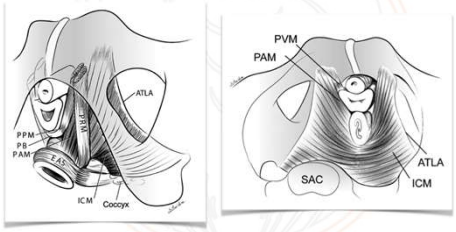
Adapted from Rogers, RM.

Perineal Body



Adapted from Papalardo, R.

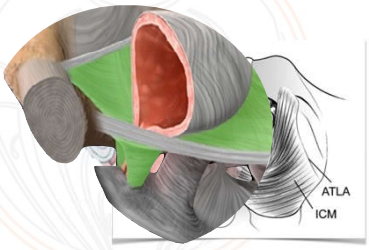
Levator Ani Muscles



DeLancey, 2003

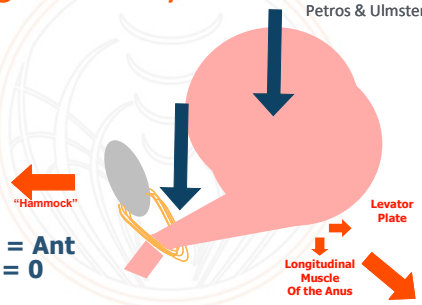
"Hammock"

DeLancey, 1994



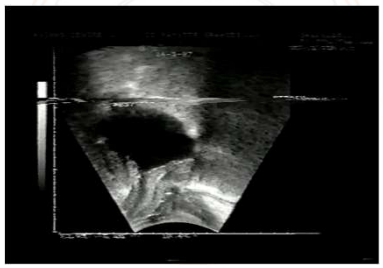
Integral Theory - Continence

Petros & Ulmsten, 1993

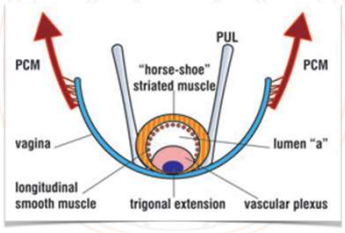


Integral Theory

Petros & Ulmsten, 1993



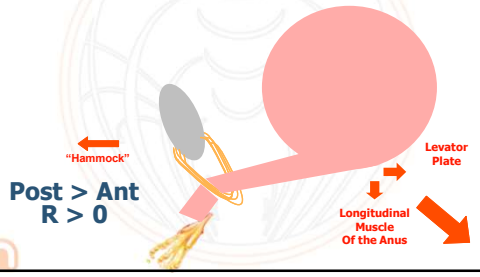
Urethra & Suburethral "Hammock"



Petros et al.

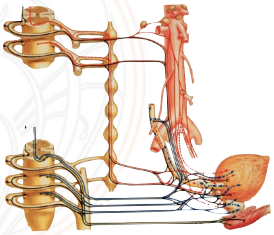
Micturition

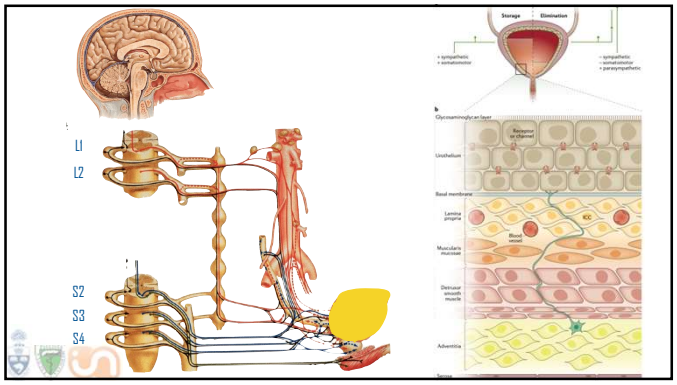
Petros & Ulmsten, 1993

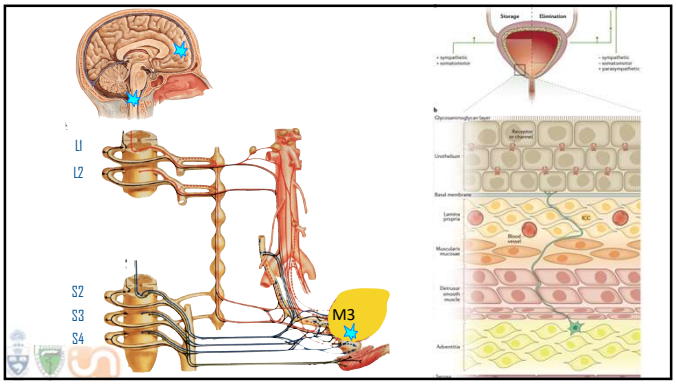


Neurophysiology of the Pelvic Floor

- T10-L3 - Sympathetic
  - Internal Urethral Sphincter Contraction (α1)
  - Detrusor Relaxation (β2)
- S2-S4 - Parasympathetic (M3)
  - Detrusor Contraction
  - Internal Urethral Sphincter Relaxation
- S2-S4 - Somatic Nervous System
  - Ext. Urethral Sphincter Control
  - Levator Ani Muscle Control



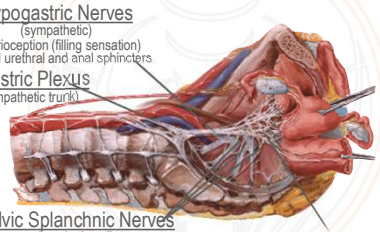




Autonomic Nerves

Hypogastric Nerves
(sympathetic)
Proprioception (filling sensation)
Internal urethral and anal sphincters

Sup. Hypogastric Plexus
(derived from sympathetic trunk)



Pelvic Splanchnic Nerves
(nervi erigenti)
Detrusor contraction
Colon descendens, sigmoid and rectum
Nociception

Inf. Hypogastric Plexus

Image from Netter

Pelvic Splanchnic Nerves

Lemos N et al. Laparoscopic anatomy of the autonomic nerves of the pelvis and the concept of nerve-sparing surgery by direct visualization of autonomic nerve bundles. Fertil Steril. 2015 Nov;104(5):e11-2.

Int Urogynecol J
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 Tsoumpoukis · Ana Maria Lima · Sonia Baratta · Gerlinde Lang-Avérous · Arnaud Wattiez

Results The prevalence of urinary retention was 4.6% (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

Discoid or segmental rectosigmoid resection for deep infiltrating endometriosis: a case-control study

Francesco Fanfani, M.D.,[a] Anna Fagotti, M.D.,[a] Maria Lucia Gagliardi, M.D.,[a] Giacomo Ruffo, M.D.,[b] Marcello Ceccaroni, M.D.,[c] Giovanni Scambia, M.D.,[a] and Luca Minelli, M.D.[c]

[a] Division of Gynecologic Oncology, Catholic University of the Sacred Heart, Rome; [b] Division of General Surgery; and [c] Division of Obstetrics and Gynecology, "Sacro Cuore" Hospital, Negrar, Italy

Late bladder and rectal nerve dysfunction			
Urinary retention after 30 days	0 (0.0%)	13 (14.7%)	.04
Constipation after 30 days	1 (2.1%)	4 (4.5%)	NS

Fanfani, Rectosigmoid endometriosis, discoid resection, Fertil Steril 2009.

JMIG The Journal of Minimally Invasive Gynecology

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Predictive factors for voiding dysfunction after surgery for deep infiltrating endometriosis

Sara Imboden, MD · Yaelle Bollinger · Kirsi Härmä, MD · ... Stefan Mohr, MD · Annette Kuhn, Prof MD · Michael D. Mueller, Prof MD · Show all authors

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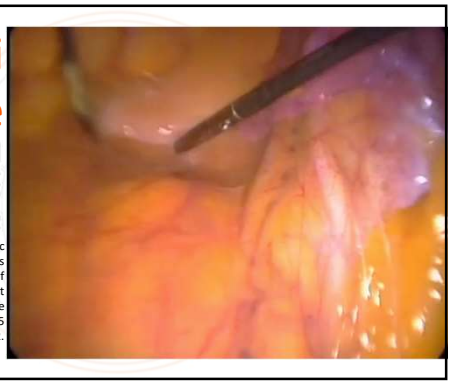
Measurements and main results

After surgery, 41% of patients initially experienced voiding dysfunction (defined as >100ml PVR at second bladder scan). The number decreased to 11% by the time of hospital discharge. Among those with a need for self-catheterization after discharge(n=17), voiding dysfunction lasted for a median of 41 days before a return to normal bladder function, with a residual urine of <100 ml. The preoperative presence of deep infiltrating endometriosis nodules in the ENZIAN compartment B was associated with postoperative voiding dysfunction (p=0.001). The hazard ratio for elevated residual urine was highest when the disease stage was B3 (HR 6.43; CI, 2.3-18.2; p < 0.001), describing a nodule diameter of > 3 cm in lateral distension. ROC curve analyses showed that a first residual urine volume > 220 ml has a good predictive value for the risk of intermittent self-catheterization (AUC 0.893, p <0.001).

Hypogastric Nerve



Lemos N et al. Laparoscopic anatomy of the autonomic nerves of the pelvis and the concept of nerve-sparing surgery by direct visualization of autonomic nerve bundles. Fertil Steril. 2015 Nov;104(5):e11-2.

Pathophysiologic explanation for bladder retention in patients after laparoscopic surgery for deeply infiltrating rectovaginal and/or parametric endometriosis

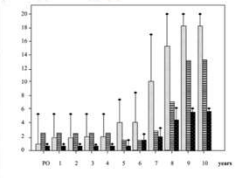
Marc Possover, M.D., Ph.D.
Possover International Medical Obstetrics, University of Aarhus,

Correlation between type of procedure for DIE and type of bladder dysfunction.

Laparoscopic procedure	PMBA	ANBA	CNBA
Segmental colorectal resection			
Without parametric dissection/resection	3	1	2
With parametric dissection/resection	7	2	4
"Nerve-sparing" segmental colorectal resection	2	0	4
Discoid resection/shaving of the rectum			
Without parametric dissection/resection	0	0	5
With parametric dissection/resection	4	1	3
Radical resection of a rectovaginal DIE without rectum/parametric dissection	0	0	3
Radical parametric resection without rectum or rectovaginal dissection	2	1	3
Total	18	5	24

Note: PMBA = paralytic motor bladder atony, ANBA = acute neurogenic bladder atony, CNBA = chronic neurogenic bladder atony.

Possover. Bladder atony after endometriosis surgery. Fertil Steril 2014.



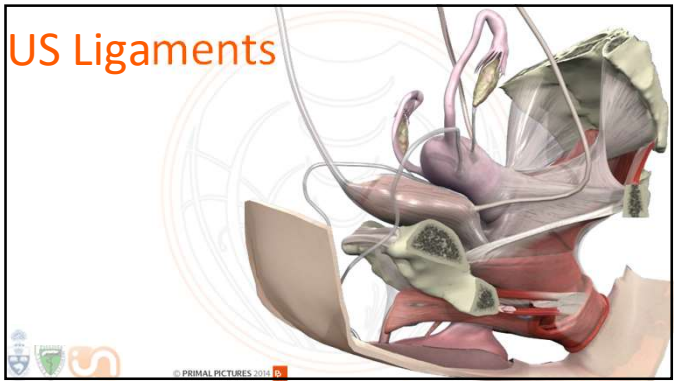
The data represent mean values; bars indicate standard deviations for voiding and stress dysfunctions.

Scores for voiding symptoms (0-20) Scores for storage symptoms (0-15).

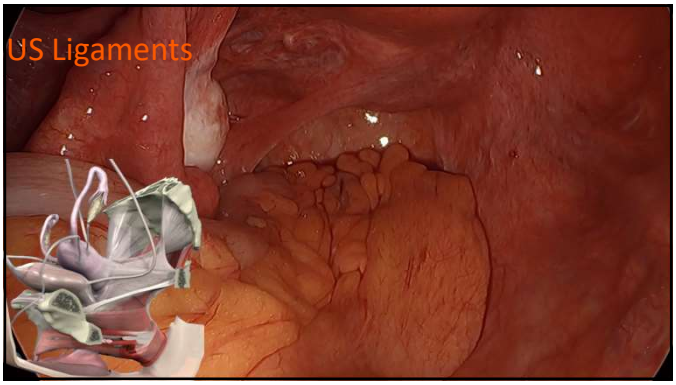
Scores for stress symptoms (0-6).

US Ligaments

US Ligaments



US Ligaments



Hipogastric Nerve

ELSEVIER

JMIG The Journal of Minimally Invasive Gynecology

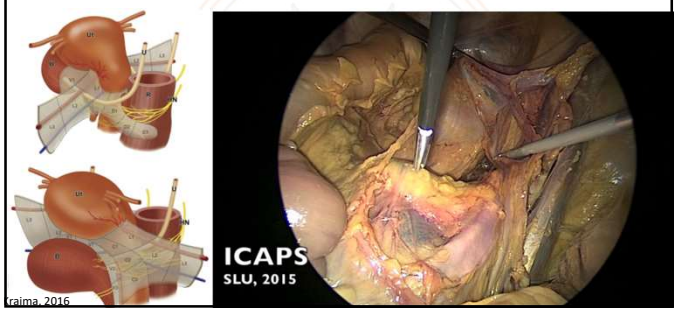
VIDEO ARTICLE

Keep Your Landmarks Close and the Hypogastric Nerve Closer: An Approach to Nerve-sparing Endometriosis Surgery

Andrew Zakhari, MD, Mohamed Mabrouk, MD, PhD, Diego Raimondo, MD, Manuela Mastronardi, MD, Renato Seracchioli, MD, Benedetta Mattei, Jessica Papillon-Smith, MD, M. Jonathon Solnik, MD, Ally Murji, MD, MPH, and Nucelio Lemos, MD, PhD

From the Mount Sinai Hospital (Drs. Zakhari, Papillon-Smith, Solnik, Murji, and Lemos), University of Toronto, Toronto, Ontario, Canada, Gynecology and Human Reproduction Physiopathology, Dipartimento di Scienze Mediche e Chirurgiche, S. Orsola Hospital (Drs. Mabrouk, Raimondo, Mastronardi, and Seracchioli) and Biomedical and Neuromotor Sciences, Dissecting Unit (Dr. Mastronardi and Ms. Mattei), University of Bologna, Bologna, Italy, and Department of Obstetrics and Gynecology, Faculty of Medicine (Dr. Mabrouk), University of Cambridge, Cambridge, United Kingdom

Parametrial Innervation



Kraima, 2016

In Conclusion…

In Conclusion...

Thorough understanding of the deeper structures of the pelvic sidewalls is essential for increasing radicality and reducing morbidity on the treatment of endometriosis and other pelvic neoplasms, as well as for safely performing FPR procedures

In Conclusion...

The hypogastric nerves are often mistaken for the uterosacral ligament.

The lesion to these nerves may cause loss of bladder proprioception and neurogenic stress urinary incontinence.

In Conclusion...

The inferior hypogastric plexi lie in the pararectal fossae and any damage to it will cause urinary, sexual and anorectal dysfunction.

Changes may not become clinically relevant immediately. Be vigilant with preoperative urodynamics and postoperative uroflowmetry and PVR.

UNIVERSITY OF TORONTO
WCHH WOMEN'S COLLEGE HOSPITAL
Mount Sinai Hospital
UNIFESP
increasing

Thank you!

nucelio.lemos@increasing.com.br

Parametrial Anatomy and Neuroanatomy

B. Rabischong M.D Ph.D, R. Botchorishvili M.D, M. Canis M.D Ph.D,
M. Possover M.D Ph.D, A. Forman M.D Ph.D, V. Chiantera M.D Ph.D, N. Lemos M.D Ph.D,
N. Bourdel M.D Ph.D, J.L. Pouly M.D Ph.D, G. Mage M.D

The authors declare that they have:

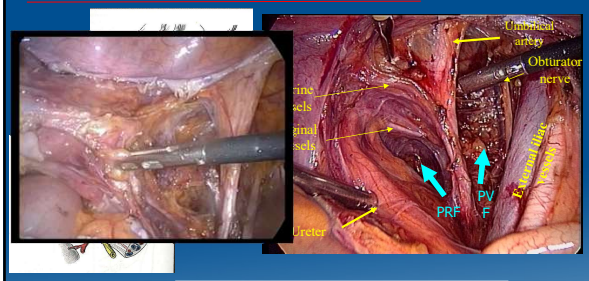
No conflict of interest

No financial relationships to disclose

B. Rabischong M.D Ph.D, R. Botchorishvili M.D, M. Canis M.D Ph.D,
N. Bourdel M.D, G. Mage M.D

Topographic Anatomy

Lateral Spaces and parametrial anatomy



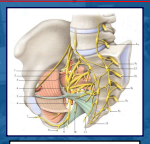
Remarkable Interconnection of connective tissue

Pelvic Neuroanatomy and Topographic Anatomy

An incomparable truncular neural network throughout the body…

Somatic Nerves

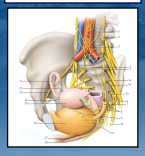
Genito-Femoral, Femoral , Lumbar-sacral, Obturator, Sciatic and Pudendal Nerves



- ✓ Paravesical Fossa
- ✓ Ilio-Lumbar Fossa

Autonomic Nerves

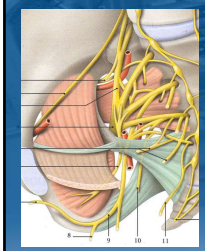
Superior Hypogastric Plexus
Hypogastric Nerves,
Pelvic Splanchnic Nerves,
Inferior Hypogastric Plexus,
Visceral branches…



- ✓ Pararectal Fossa
- ✓ Yabuki Space

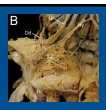
Obturator, Lumbar-Sacral, Sciatic and Pudendal Nerves

Ilio-Lumbar Fossa, right side, above parametrium

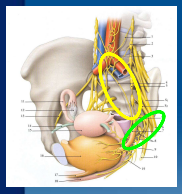


Pelvic Autonomic Innervation

***Pararectal fossa**, Visceral ligaments*



- ✓ Sympathetic system
  - Superior hypogastric plexus
  - Hypogastric nerves
- ✓ Paraympathetic system
  - ✓ Pelvic splanchnic nerves
- ✓ Inferior Hypogastric Plexus
- ✓ Visceral nerve branches

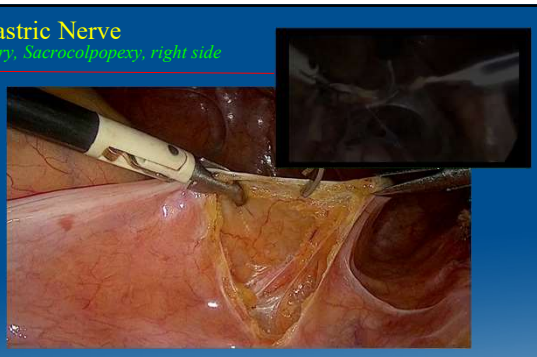


- ✓ Latzko space (B)
- ✓ Okabayashi space (C)
- ✓ Yabuki space (D)

« Paravaginal and pararectal space »

Hypogastric Nerve

Promontory, Sacrocolpopexy, right side

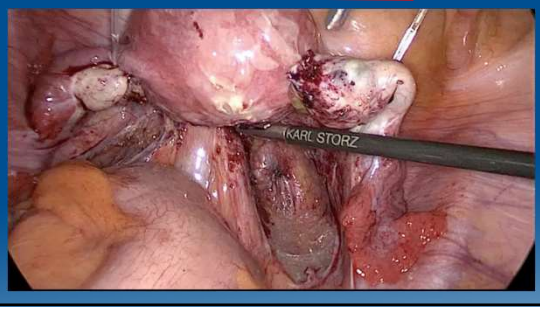


Revaz Botchorishvili

Hypogastric Nerve

Okabayashi Space, Deep Endo, below parametrium

L

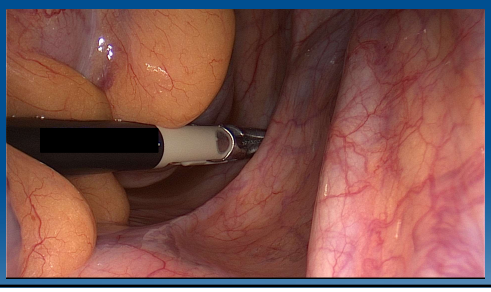


R

Pay attention to the peritoneum!!

Hypogastric Nerve, the new « star »

L

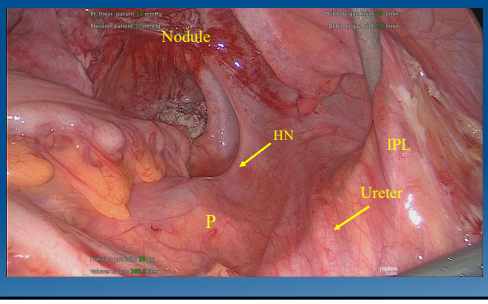


R

Learn to read the screen...

Hypogastric Nerve, Right Side

L

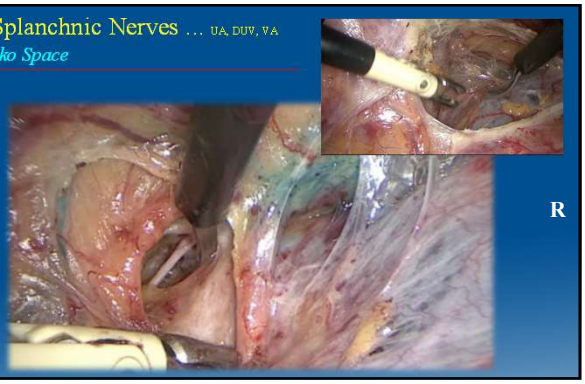


R

Pelvic Splanchnic Nerves … UA, DUV, VA

Left Latzko Space

L



R

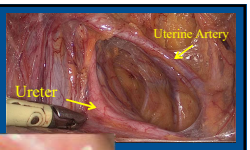
Pelvic Splanchnic Nerves … UA, DUV, Vaginal arteries

Left LatzkoSpace

L

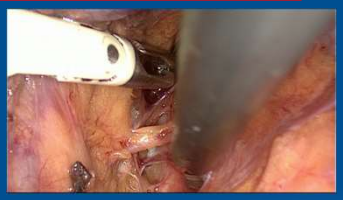
R

Pelvic Splanchnic Nerves
by Right Latzko Space

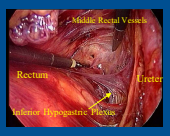


L R

Inferior Hypogastric Plexus
Latzko space

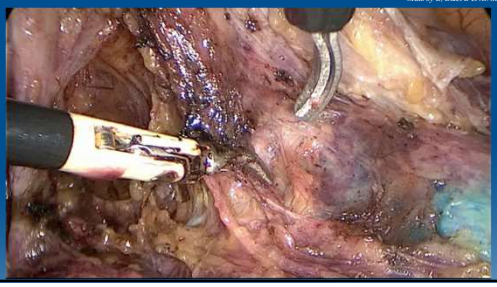


L R



Bladder Innervation
by Yabuki and Vesicovaginal Spaces

Ercoli A, Delmas V et Al. Surg Radiol Anat 2003
Maurey B, Bizet B et Al. Surg Radiol Anat 2007



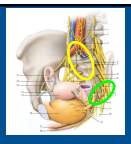
L R

Bladder Innervation
by Yabuki and Vesicovaginal Spaces

L R

Revaz Botchorishvili

Pelvic Autonomic Innervation
What happens if I injure nerves ?



- ✓ Sympathetic system / Adrenergic
  - Compliance and storage
  - Stimulation of urethral smooth sphincter
  - Inhibition of detrusor muscle

  Urinary incontinence,Urgency
- ✓ Paraympathetic system / Cholinergic
  - Voiding
  - Stimulation of detrusor
  - Inhibition of urethral smooth sphincter,*Vaginal lubrification and swelling*

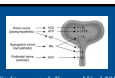
  Bladder atonia, Disorders of bladder sensitivity,Decreasing blood flow to vagina, lubrification
- ✓ The chance of the surgeon:

  Consequences seem to be more limited if unilateral injury

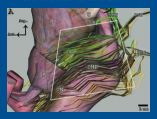
But is it always so simple in the real life ? Probably No...

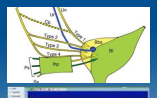
Due to a possible dominant side and anatomical variations

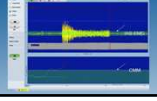
Perspectives: intraoperative neurostimulation



Yoshimura et al. Korean J Urol 2014





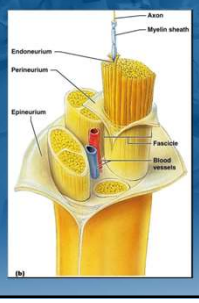


From a new surgical neuroanatomy...
... To new clinical and surgical applications

- ✓ Nerve sparing surgeries
  - > 300 publications in Gynecology
  - 238 in radical hysterectomy, 4 RCTs, 4 Meta-Analysis
  - 65 in DIE surgery, No RCT, 10 pro or retrospective regarding feasibility and effectivness
  - ...12 in prolaps (sacrocolopexy)
  - ➢ Always the same prerequisite: a perfect knowledge of pelvic neuroanatomy
  - ➢ Questions adressed: *Is it Feasible? Is there a Standardized Technique? Is it Effective and safe?*
- ✓ Laparoscopic neurolysis
  - Deep Endometriosis
  - Vascular entrapment
- ✓ Laparoscopic Implantation of Neuroprosthesis (LION)
  - Paraplegic, Bladder and Rectal Dysfunctions, Chronic Pelvic Pain
- ✓ ... Neuropelveology

But... Beyond our Surgical Vision, a microanatomy!!

Need to improve our knowledge about peripheral nerves

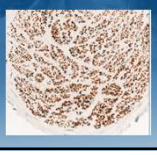


But... Beyond our Surgical Vision, a microanatomy!!

Internal fascicular architecture

Hypogastric nerve at the promontory:

- ✓ 3-21 middle sized fascicles:
  between 0,05-0,2 mm in diameter, with 450-570 nerve fibers (axons)
- ✓ More than 50 fascicles
  less than 0,05 mm in diameter, with 40-100 nerve fibers



Beyond our surgical dissection

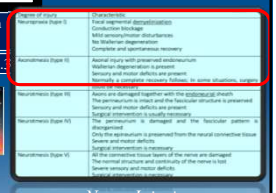
Effects of Mechanical Compression on Peripheral Nerve

Effects of graded mechanical compression of rabbit sciatic nerve on nerve blood flow and electrophysiological properties

Takafumi Yayama[a,c], Shigeru Kobayashi[a], Yoshitaka Nakanishi[b], Kenzo Uchida[a], Yasuo Kokubo[a], Tsuyoshi Miyazaki[a], Kenichi Takeno[a], Kosuke Awara[c], Erisa S. Mwaka[a], Yukihide Iwamoto[a], Hisatoshi Baba[a]

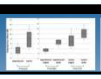
Cessation of intraneural blood flow was noted at a mean compressive force of 0.457 ± 0.022 N (±SEM)

Complete Conduction Blockage by a compression force > 0.2



Comparison of the performance of experienced and novice surgeons: measurement of gripping force during laparoscopic surgery performed on pigs using forceps with pressure sensors

Azumi Araki[1], Kazuhide Makiyama[1], Hiroyuki Yamanaka[1], Daiki Ueno[1], Kimito Osaka[1], Manabu Nagaoka[2], Takahiro Yamada[2], Masahiro Yao[1]



GRIPPING FORCES
NOVICES: 8 N
EXPERIENCED: 3N

Nerve Injuries

Knowledge of Principles of Peripheral Nerve Dissection, Neurolysis

Learn from neurosurgery, plastic or orthopedic surgeons...

Type of neurolysis	Description
Exploration	Dissection around the nerve Exposition of normal/undamaged segments of the nerve proximal and distal to the lesion
External neurolysis	The nerve is liberated from all the adhesions in the paraneurial space Fibrotic tissue/structures exerting compression on the nerve are excised The epifascicular epineurium stays intact
Epifascicular epineriotomy	Incisions are made on the thickened part of the nerve where fibrotic tissue is still present If there are signs of decompression (fascicles start to spurt out from the incision sites) the procedure is complete
Epifascicular	
Interfascic	

Facts Views Vis Obgyn, 2022, 14 (1): 17-29 Review

How to dissect the pelvic nerves: from microanatomy to surgical rules. An evidence-based clinical review

Milesi A. Aleksandrov[1,2], A.V. Smith[1,2], R. Botchorishvili[1], B. Rabischong[1]

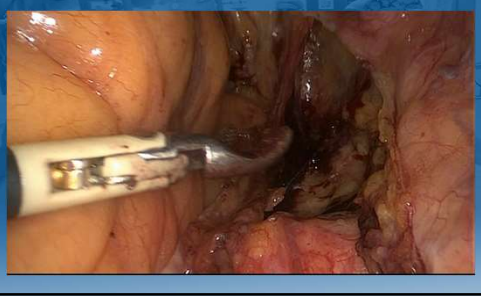
Mazal PR et Milesi H. Acta Neurochirurgica 2005

Peripheral Nerve Dissection in Laparoscopy

Learn to read pictures and use instrumentation...

Peripheral Nerve Dissection in Laparoscopy

Avoid excessive and prolonged traction, right Hypogastric Nerve...

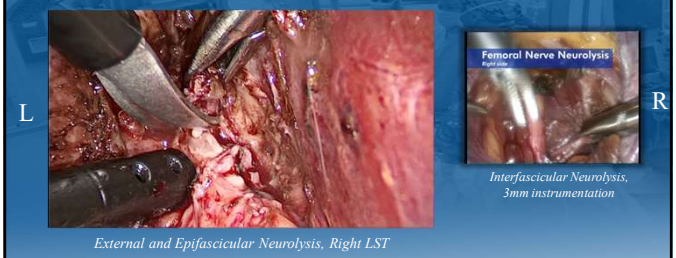


Peripheral Nerve Dissection in Laparoscopy

Atraumatic Dissection, Pelvic Splanchnic Nerves…

Peripheral nerve dissection in laparoscopy, Neurolysis

External, Epifacicular, Interfascicular… microinstrumentation



External and Epifascicular Neurolysis, Right LST

Interfascicular Neurolysis, 3mm instrumentation

Conclusions

Where we go with the nerves ?

- ✓ *To major perspectives for patients and an exciting future for pelvic surgeons*
- ✓ *But we need…*
  - *To learn from our mistakes*
  - *To continue to work on functional neuroanatomy*
  - *To follow surgical rules… Education and training*
  - *To develop a suitable instrumentation and new methods of nerves identification*

Pelvic Fasciae and Avascular Spaces: Nerve-Sparing With A “Non-Touch" Technique.

Gustavo Leme Fernandes, MD, PhD
Chief of the Gynecology oncology team at Santa Casa SP
Faculty of the neuropelveology team at UNIFESP
Faculty of the neuropelveology team at INCREASING

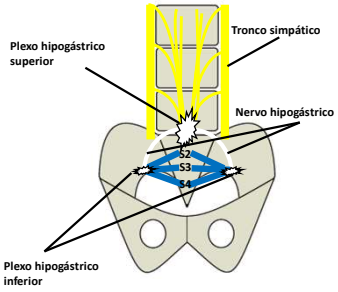
Conflicts of Interest

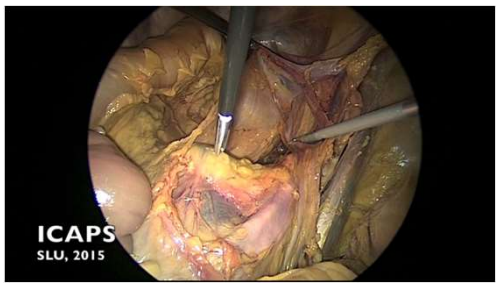
I do not have any conflicts of interest.

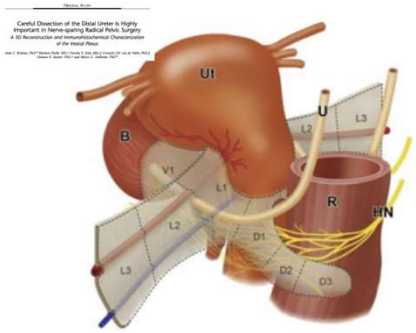
Objectives

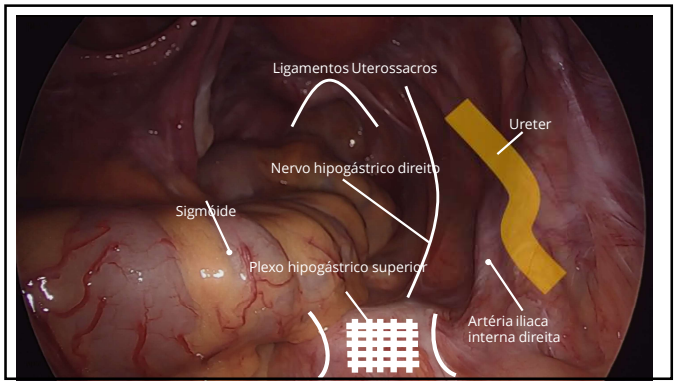
- To describe avasculares spaces
- Relation with the pelvic autonomic plexus
- How to identify the hypogastric plexus

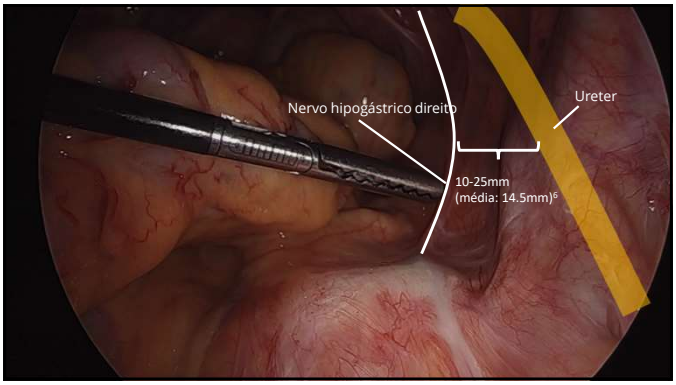
Remembering the autonomic plexus

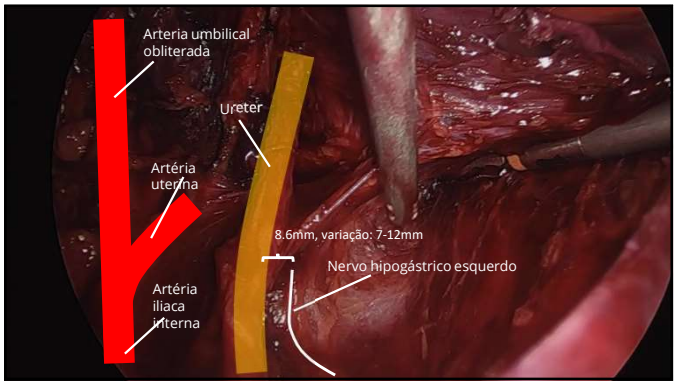


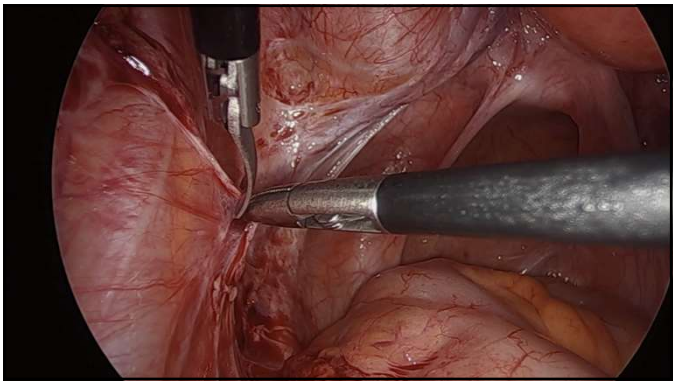












Latsko

- Latzko's space boundaries: ventrally-cardinal ligament; dorsally-presacral fascia, ventrolateral aspect of the sacrum, laterally-internal iliac artery (hypogastric artery); medially–ureter, mesoureter.

Okabayashi

- Okabayashi's space boundaries: ventrally-cardinal ligament; dorsally–presacral fascia, sacrum; laterally–ureter, mesoureter; medially-rectum.
- Falar do nervo hipogástrico. Colocar videos

Yabuki (4th space)

- The Yabuki space, also called the fourth place, was first described in 2000 by Yoshihiko Yabuki. It is located between the cranial portion of the vesicouterine ligament and the ureter. The Yabuki space is dissected during nerve-sparing surgery as it contains the pelvic splanchnic nerves on the way for bladder innervation

Yabuki fourth Space

- Located between the cranial portion of the vesicouterine ligament and the ureter.

EDITORS' CHOICE

Discrepancies between classic anatomy and modern gynecologic surgery on pelvic connective tissue structure: Harmonization of those concepts by collaborative cadaver dissection

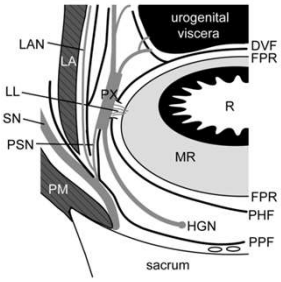
Yoshihiko Yabuki, MD, DMSc,[a,*] Hiromasa Sasaki, MD, DMSc,[b] Noboru Hatakeyama, MD, DMSc,[c] Gen Murakami, MD, DMSc[c]

doi:10.1016/j.ajog.2005.02.108

Retrorectal space

Topology of the Fascial Structures in Rectal Surgery: Complete Cancer Resection and the Importance of Avoiding Autonomic Nerve Injury

Yusuke Kinugasa, MD, PhD,* and Kenichi Sugihara, MD, PhD†



doi:10.1053/j.scrs.2010.01.006

Presacral space

MR imaging of the retrorectal–presacral tumors: an algorithmic approach

Hooman Hosseini-Nik,[1] Keyanoosh Hosseinzadeh,[2] Rajesh Bhayana,[3] Kartik S. Jhaveri[1,3]

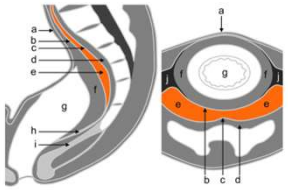


Fig. 1. Mid-sagittal and axial section schematics of pelvic cavity. *a* Peritoneum, *b* mesorectal fascia, *c* presacral fascia, *d* presacral space, *e* retrorectal space, *f* mesorectal space, *g* rectum, *h* rectosacral fascia, *i* levator ani, and *j* lateral ligaments.

DOI: 10.1007/s00261-015-0404-1

Presacral/Retrorectal Space

- Presacral/retrorectal space boundaries: ventrally—mesorectal fascia/rectum; dorsally—longitudinal anterior vertebral ligament, sacral promontory, anterior aspect of the sacrum; laterally—right (right common iliac artery/right ureter), left (left common iliac vein/left ureter), hypogastric fascia, which is formed by the medial fibers of the uterosacral ligaments; cranially—peritoneal reflection of the rectosigmoid colon; caudally—pelvic floor

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THE STATE UNIVERSITY OF NEW JERSEY

Incorporating Nerve Procedures in My Daily Practice
How I Did It and What Happened

Adrian Balica MD

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Disclosures

- Institutional Contract Research : ABBVIE Pharmaceuticals

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Objectives

- Review of anatomy of peripheral pelvic nerves
- Describe peripheral nerve blocks in gynecology
- Ultrasound use in peripheral nerve blocks

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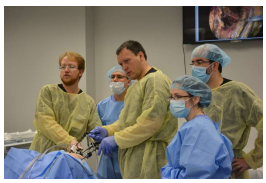
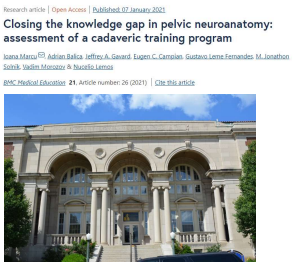
Learn the Anatomy





Research article | Open Access | Published: 07 January 2021

Closing the knowledge gap in pelvic neuroanatomy: assessment of a cadaveric training program

Ioana Marcu, Adrian Balica, Jeffrey A. Gavard, Eugen C. Campian, Gustavo Leme Fernandes, M. Jonathon Solnik, Vadim Morozov & Nucelio Lemos

BMC Medical Education **21**, Article number: 26 (2021) | Cite this article

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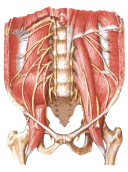
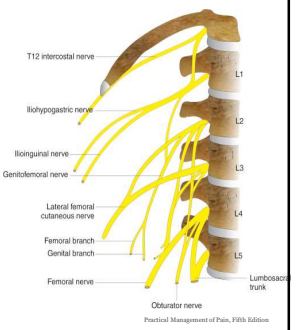
Lumbar and Sacral Plexus : Just 7 SOMATIC NERVES to Learn

- Iliohypogastric, Ilioinguinal N.(IHN,IIN)
- Lateral Femoral Cutaneous N.(LCFN)
- GenitoFemoral N.(GFN)
- Femoral N.
- Obturator N.
- Sciatic N.
- Pudendal N.





Practical Management of Pain, Fifth Edition

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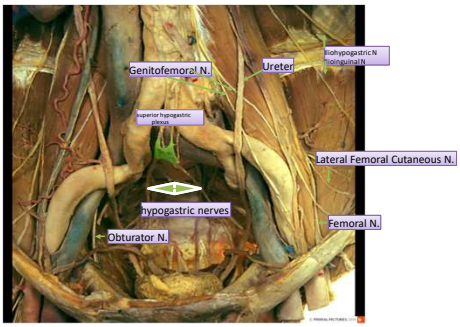
Psoas Muscle



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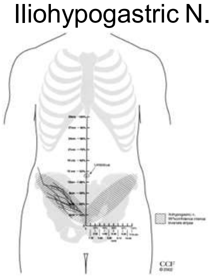
Iliohypogastric N. Ilioinguinal N.

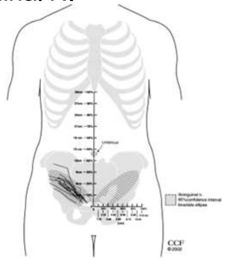


Most common neuropathy after gyn surgery, open, laparoscopy

3.7% Phannenstiel incision

4.2% laparoscopic hernia repair

5.0% laparoscopic port closure



Dot plot and line graphs of 13 individual iliohypogastric nerve data points across the anterior abdominal wall. Bivariate fit ellipses of the 95% CI are displayed around a fitted line. The distance from the PS to the xyphoid (y-axis) and distance from the PS to the ASIS (x-axis) are displayed in both centimeters and percentage distance scales.

Dot plot and line graphs of 16 individual ilioinguinal nerve data points across the anterior abdominal wall. Bivariate fit ellipses of the 95% CI are displayed around a fitted line. The distance from the PS to the xyphoid (y-axis) and distance from the PS to the ASIS (x-axis) are displayed in both centimeters and percentage distance scales.

December 2003
Am J Obstet Gynecol
Volume 189, Number 6
Am J Obstet Gynecol

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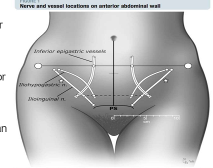
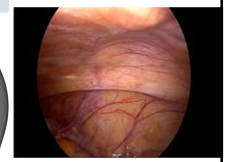
Iliohypogastric and Ilioinguinal Nerves

- Rahn, 2010
  - **Iliohypogastric** pierced abdominal wall
  - 2.5 cm medial and 2.0 cm inferior to ASIS
  - **Ilioinguinal** pierced abdominal wall
  - 2.5 cm medial and 2.4 cm inferior to ASIS
  - **inferior epigastric vessels** 3.7 cm to ASIS
  - Lateral trocar below the ASIS can lead to nerve injury
  - Lateral trocar 6 cm from midline and above ASIS minimizes the risk of injury to both *vessels* and *nerves*

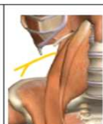
FIGURE 1
Nerve and vessel locations on anterior abdominal wall



Mean location of ilioinguinal and iliohypogastric nerves and inferior epigastric vessels are shown relative to anterior superior iliac spine (*large open circles*); pubic symphysis (PS); point 2 cm superior to PS, common starting site for Pfannenstiel incisions (*dashed line*); and point 5 cm superior to PS and 8 cm from midline (*stars*), common landmark for accessory trocar placement.
Reproduced, with permission, from Mr Corbyn Beach, Dallas, TX.
Rahn. Anterior abdominal wall nerve and vessel anatomy. Am J Obstet Gynecol 2010.



Anatomic Variations of IHN and IIN

		
Type A	Type B	Type C
n = 20 (47%)	n = 10 (26%)	n = 11 (28%)

Clinical Anatomy
Volume 28, Issue 7, pages 903-909, 16 JUL 2015 DOI: 10.1002/ca.22592
http://onlinelibrary.wiley.com/doi/10.1002/ca.22592/full#ca22592-fig-0002

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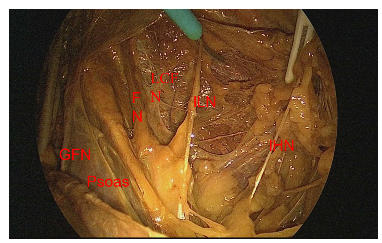
Laparoscopic cadaveric view IHN and IIN



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Laparoscopic View of the Nerves

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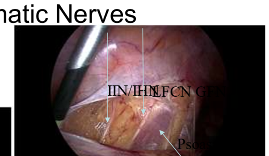
Laparoscopic View Somatic Nerves



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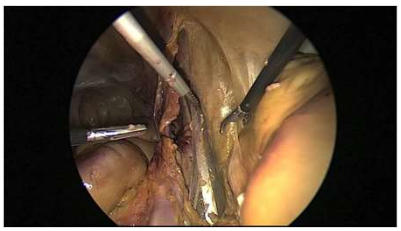
Iliohypogastric and Ilioinguinal Nerves



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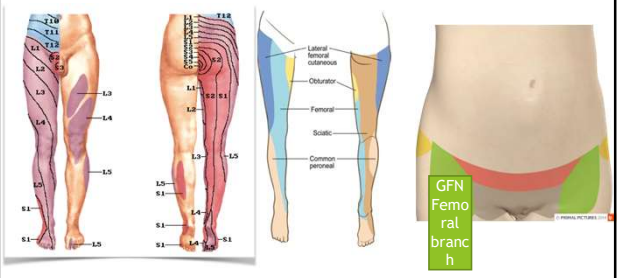
Sensory Function Lumbar and Sacral Plexus/Somatic Nerves



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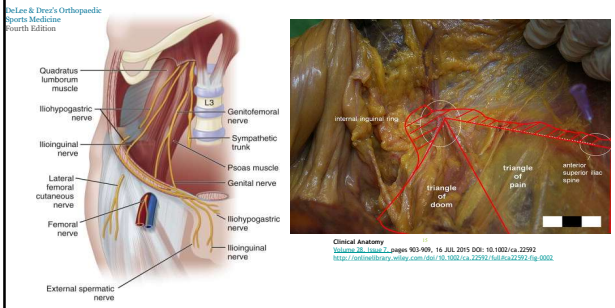
Peripheral Nerves and Inguinal Area : Exit Points



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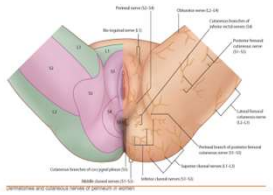
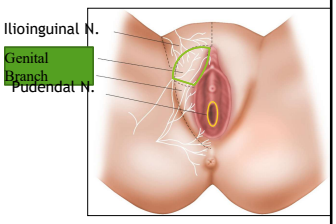
Dermatomes Sensory Distribution

- **Femoral branch**: femoral area, triangle
- **Genital branch**:Labia Majora,medial thigh





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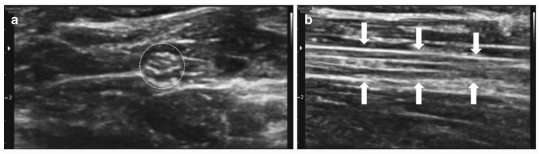
Ultrasound Anatomy of the Nerve



Ultrasound anatomy of normal nerve : (a) short axis; (b) long axis

Martino, F., Sconfienza, L.M., Muda, A., Orlandi, D. (2018). Normal US Anatomy and Scanning Technique. In: Silvestri, E., Martino, F., Puntillo, F. (eds) Ultrasound-Guided Peripheral Nerve Blocks. Springer, Cham. https://doi.org/10.1007/978-3-319-71020-4_2

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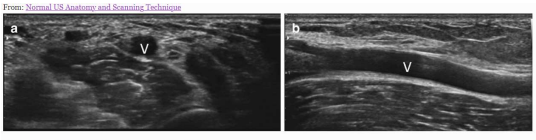
Ultrasound Anatomy of the Vessels

From: Normal US Anatomy and Scanning Technique



Ultrasound anatomy of normal vessel : (a) short axis; (b) long axis

Martino, F., Sconfienza, L.M., Muda, A., Orlandi, D. (2018). Normal US Anatomy and Scanning Technique. In: Silvestri, E., Martino, F., Puntillo, F. (eds) Ultrasound-Guided Peripheral Nerve Blocks. Springer, Cham. https://doi.org/10.1007/978-3-319-71020-4_2

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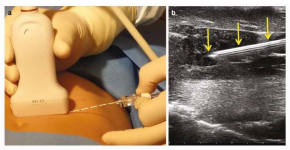
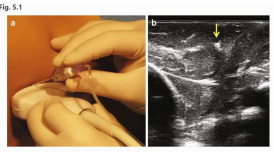
Needle Techniques



(a) The needle is inserted using an in-plane approach (the needle-beam angle is almost 90°) in a shallow trajectory. (b) Both the shaft and tip (yellow arrows) are clearly visible, with maximal reflection back to the transducer

Fig. 5.1



(a) The needle is inserted using an out-of-plane approach. (b) It is relatively easy to confuse the shaft that appears as an echogenic dot (indicated by yellow arrow)

Puntillo, F., Bertini, L., Bosco, M., Tedesco, M., Baciarello, M. (2018). US-Guided Nerve Blocks: Procedure Technique. In: Silvestri, E., Martino, F., Puntillo, F. (eds) Ultrasound-Guided Peripheral Nerve Blocks. Springer, Cham. https://doi.org/10.1007/978-3-319-71020-4_5

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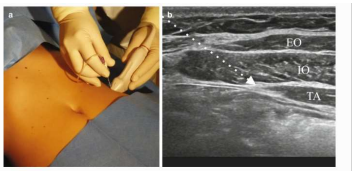
TAP block



(a) Patient position and needle entry point. (b) Sonoanatomy. *EO* external oblique muscle, *IO* internal oblique muscle, *TA* transverse abdominis muscle, *IH* iliohypogastric nerve, *II* ilioinguinal nerve, Long white arrow needle direction and target point

Puntillo, F., Bertini, L., Bosco, M., Tedesco, M., Baciarello, M. (2018). US-Guided Nerve Blocks: Procedure Technique. In: Silvestri, E., Martino, F., Puntillo, F. (eds) Ultrasound-Guided Peripheral Nerve Blocks. Springer, Cham. https://doi.org/10.1007/978-3-319-71020-4_5

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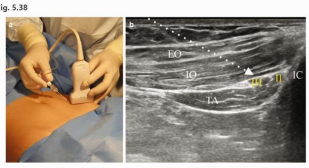
Iliohypogastric and Ilioinguinal Nerve Blocks

Fig. 5.38



(a) Patient position an d needle entry point. (b) Sonoanatomy. *EO* external oblique muscle, *IO* internal oblique muscle, *TA* transverse abdominis muscle *IH* iliohypogastric nerve, *II* ilioinguinal nerve IC Iliac Crest. Long white arrow needle direction and target point

Puntillo, F., Bertini, L., Bosco, M., Tedesco, M., Baciarello, M. (2018). US-Guided Nerve Blocks: Procedure Technique. In: Silvestri, E., Martino, F., Puntillo, F. (eds) Ultrasound-Guided Peripheral Nerve Blocks. Springer, Cham. https://doi.org/10.1007/978-3-319-71020-4_5

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Ultrasound Guided Nerve Blocks

Figure 3. In-plane ultrasound imaging and "toeing" of the ultrasound transducer with the patient in the left lateral decubitus. The abdominal pannus has been shifted medially away from the target area.

Jonathan Mathers, Chris Haley, Michael Gofeld
Ilioinguinal Nerve Block in Obese Patients: Description of New Technique
Journal of Medical Ultrasound, Volume 23, Issue 4, 2015, 185–188
http://dx.doi.org/10.1016/j.jmu.2015.11.002

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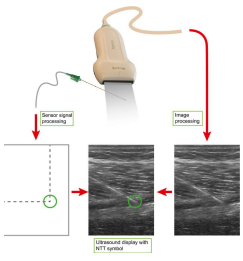
Needle tracking concept and technology



Kåsine T, Romundstad L, Rosseland LA, et al. Needle tip tracking for ultrasound-guided peripheral nerve block procedures—An observer blinded, randomised, controlled, crossover study on a phantom model. *Acta anaesthesiologica Scandinavica*. 2019;63(8):1055-1062. doi:10.1111/aas.13379

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- Thank you

24

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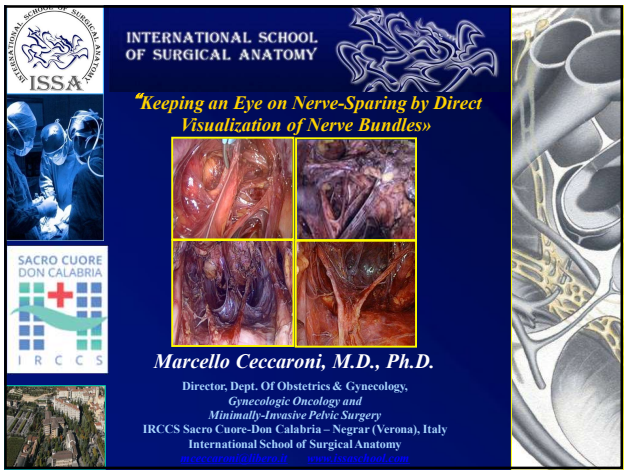
Kåsine T, Romundstad L, Rosseland LA, et al. Needle tip tracking for ultrasound-guided peripheral nerve block procedures—An observer blinded, randomised, controlled, crossover study on a phantom model. *Acta anaesthesiologica Scandinavica*. 2019;63(8):1055-1062. doi:10.1111/aas.13379

Laparoscopic Neuronavigation for Deep Lateral Pelvic Endometriosis: Clinical and Surgical Implications Chiantera, Vito ; Petrillo, Marco ; Abesadze, Elene ; Sozzi, Giulio ; Dessole, Margherita ; Catello Di Donna, Mariano ; Scambia, Giovanni ; Sehouli, Jalid ; Mechsner, SylviaJournal of minimally invasive gynecology, 2018-11, Vol.25 (7), p.1217-1223

- Kale A, Basol G, Usta T, Aytuluk HG. Laparoscopic evaluation of female pelvic neuroanatomy and autonomic plexuses in terms of gynecologic perspective. *Journal of Endometriosis and Pelvic Pain Disorders*. 2018;10(4):216-221. doi:10.1177/2284026518798331
- Closing the knowledge gap in pelvic neuroanatomy: assessment of a cadaveric training program Marcu, Ioana ; Balica, Adrian ; Gavard, Jeffrey A ; Campian, Eugen C ; Fernandes, Gustavo Leme ; Solnik, M Jonathon ; Morozov, Vadim ; Lemos, NucelioBMC medical education, 2021-01-07, Vol.21 (1), p.26-26



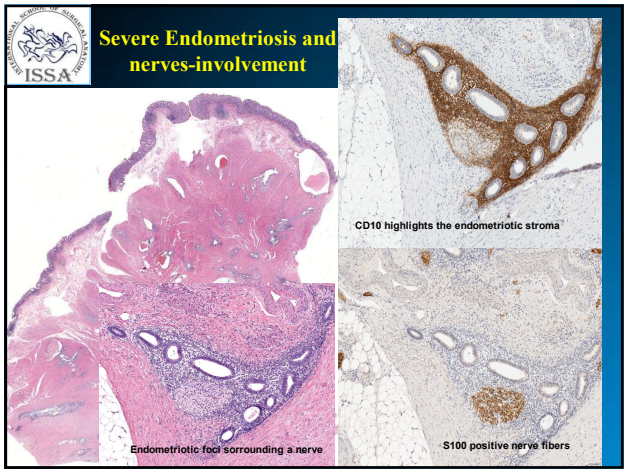
I have no financial relationship to disclose

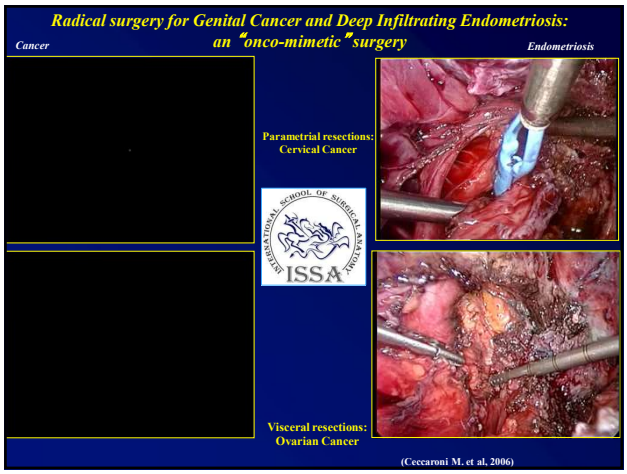
Objectives

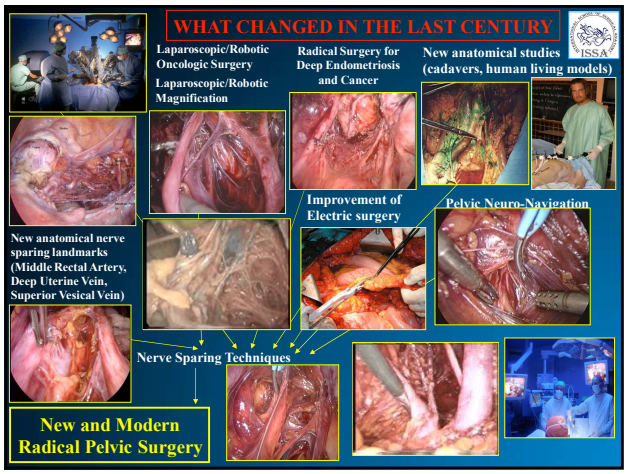
to highlight surgical anatomy of the visceral and somatic innervation of the female pelvis

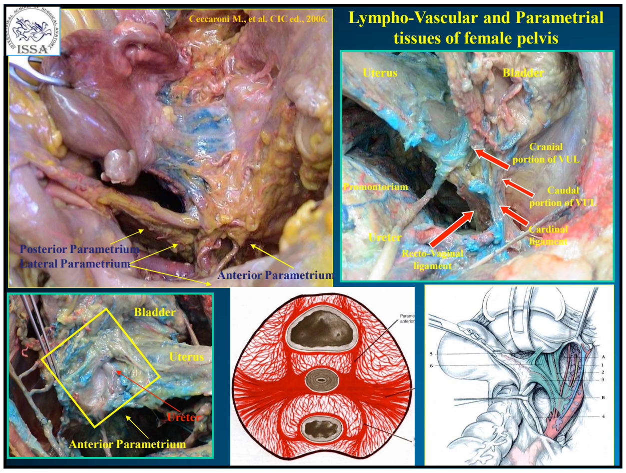
to show how to avoid damages to these structures during endometriosis surgery

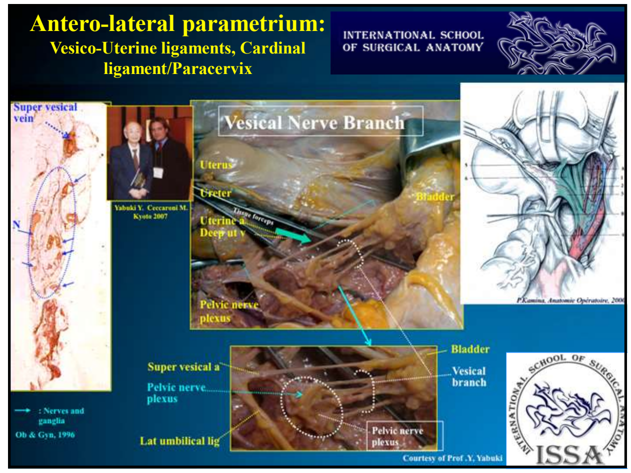
to describe tips and tricks and surgical steps for a totally laparoscopic nerve-sparing and nerve-preserving radical pelvic surgery

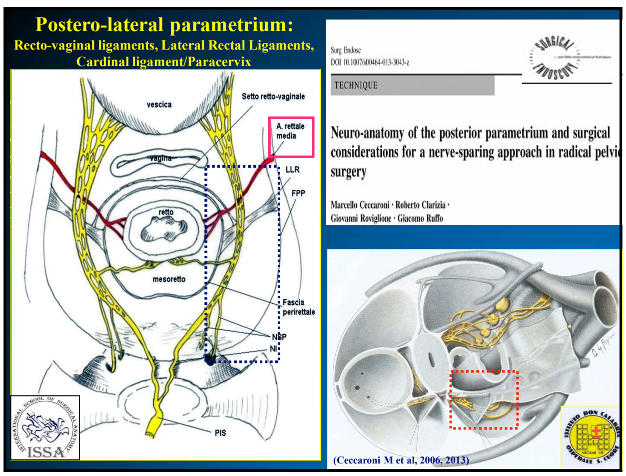


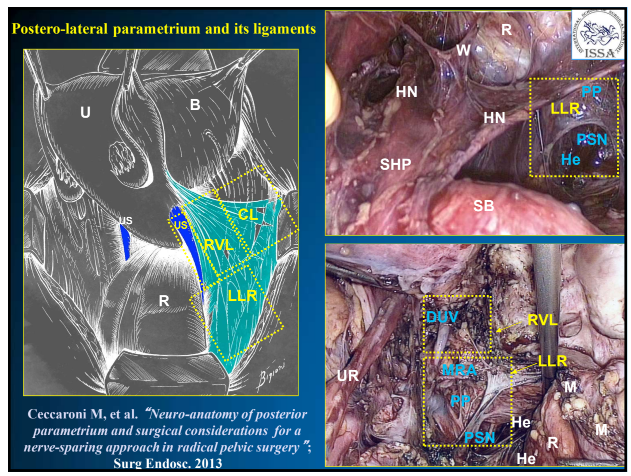





Ceccaroni M., et al. CIC ed., 2006.
Lympho-Vascular and Parametrial tissues of female pelvis
ISSA
Uterus
Bladder
Cranial portion of VUL
Caudal portion of VUL
Cardinal ligament
Ureter
Recto-vaginal ligament
Posterior Parametrium
Lateral Parametrium
Anterior Parametrium
Bladder
Uterus
Ureter
Anterior Parametrium


Antero-lateral parametrium:
Vesico-Uterine ligaments, Cardinal ligament/Paracervix
INTERNATIONAL SCHOOL OF SURGICAL ANATOMY
Super vesical vein
Yabuki Y. Ceccaroni M. Kyoto 2007
Vesical Nerve Branch
Uterus
Ureter
Uterine a
Deep ut v
Bladder
Pelvic nerve plexus
: Nerves and ganglia
Ob & Gyn, 1996
Super vesical a
Pelvic nerve plexus
Lat umbilical lig
Bladder
Vesical branch
Pelvic nerve plexus
Courtesy of Prof .Y. Yabuki
P.Kamina, Anatomie Opératoire, 2000
INTERNATIONAL SCHOOL OF SURGICAL ANATOMY
ISSA


Postero-lateral parametrium:
Recto-vaginal ligaments, Lateral Rectal Ligaments, Cardinal ligament/Paracervix
vescica
Setto retto-vaginale
A. rettale media
vagina
LLR
FPP
retto
mesoretto
Fascia perirettale
NsP
NI
PIS
ISSA
Surg Endosc
TECHNIQUE
Neuro-anatomy of the posterior parametrium and surgical considerations for a nerve-sparing approach in radical pelvic surgery
Marcello Ceccaroni · Roberto Clarizia · Giovanni Roviglione · Giacomo Ruffo
(Ceccaroni M et al, 2006, 2013)


Postero-lateral parametrium and its ligaments
U
B
US
US
CL
RVL
LLR
R
Ceccaroni M, et al. "Neuro-anatomy of posterior parametrium and surgical considerations for a nerve-sparing approach in radical pelvic surgery"; Surg Endosc. 2013
R
W
HN
HN
PP
LLR
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SHP
SB
ISSA
DUV
RVL
MRA
LLR
UR
PP
PSN
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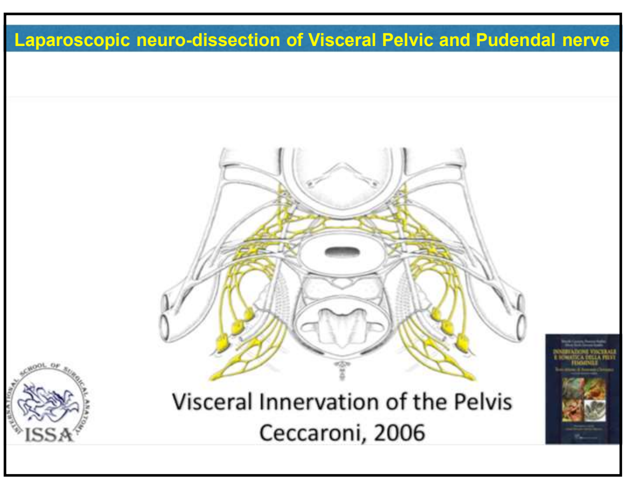
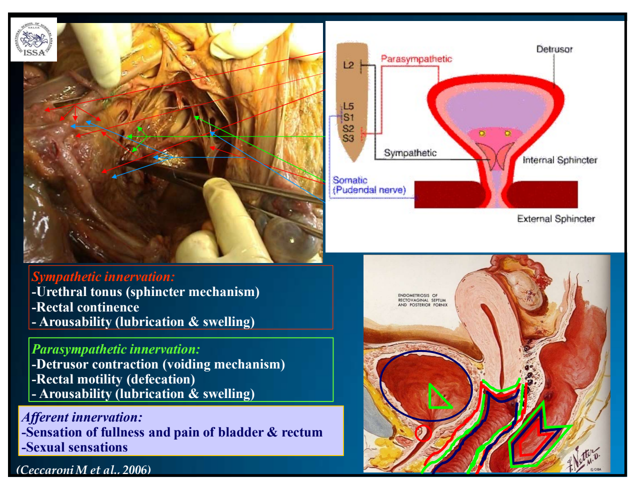
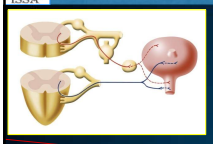
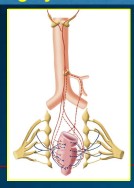
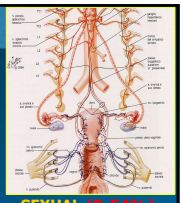
M
R
He


Laparoscopic neuro-dissection of Visceral Pelvic and Pudendal nerve
Visceral Innervation of the Pelvis
Ceccaroni, 2006
ISSA


ISSA
L2
Parasympathetic
Detrusor
L5
S1
S2
S3
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)

Bladder and Ano-Rectal dysfunctions following Radical Pelvic Surgery for endometrioisis



BLADDER (0-20%)

- Sensory loss
- Compliance loss
- Urgency
- Difficulty initiating stream
- Strain to empty bladder
- Stress incontinence
- Hypo/Hypertonic bladder
- Vesicoureteral reflux

ANO-RECTAL (7-27%)

- Urgency
- Soiling
- Withstand urgency
- Constipation
- Incontinence
- Sensory loss / Rectal sensation
- Discrimination btw faeces & flatus
- Rectal sens. Volume RAIR

(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)

SEXUAL (8-54%)

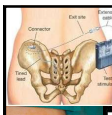
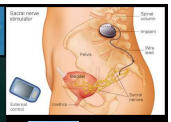
- Quality of sexual life improved after one year of laparoscopic surgery. (Kössi et al 2012)
- Improvement after laparoscopic + vaginal excision of endometriosis (Setälä 2012)
- Improvement after laparoscopic excision + COC therapy (Mabrouk 2012)
- Improvement after laparoscopic excision + triptorelin (Ferrero 2007)

Arousability in female sexuality: ability to attain and mantain a lubrication-swelling response during sexual activity.
(Diagnostic and Statistical Manual of Mental Disorders, 4th ed., American Psychiatric Association, Washington, D.C., p. 494)

Sexual vascular responses in females:
- Swelling and erection of the clitoris.
- Neurogenic vasocongestion of the lower third of the vagina, with transudation of fluids on the vaginal surface, vaginal lubrication and lenghtening.

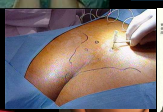
(Masters-Johnson, 1970; Bell, 1972; Weisberg 1984; Vachon et al, 2000; Bergmark K, N Engl J Med, 1999)

The "dark side" of radical pelvic surgery

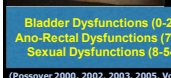



Unrecoverable neurologic damage, Sacral neuromodulation, Psycho-social burden

Emptying the bladder

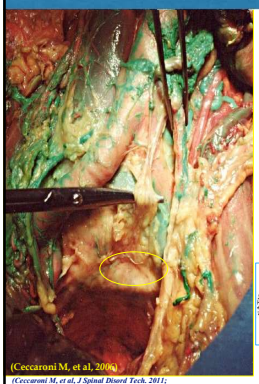


Bladder Dysfunctions (0-20%)
Ano-Rectal Dysfunctions (7-27%)
Sexual Dysfunctions (8-54%)

(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)

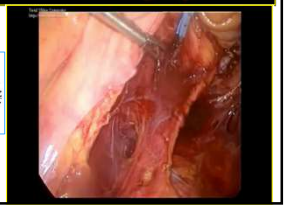
Iatrogenic lesions of visceral nerves



(Ceccaroni M, et al, 2006)

(Ceccaroni M, et al, J Spinal Disord Tech, 2011; Ceccaroni M, et al, Eur J Ob & Gyn Reprod Biol; Ceccaroni M. et al, IMIG 2010, Ceccaroni M. et al, Surg Rad Anat 2010; Ceccaroni M, et al, AJOG 2010; Landi S,Ceccaroni M, et al, Hum Reprod 2006)

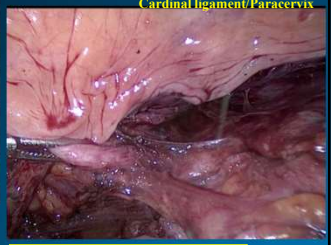
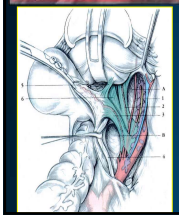
Superior Hypogastric Plexus and Hypogastric Nerves injury



Preserving nerves in Antero-Lateral parametrium:

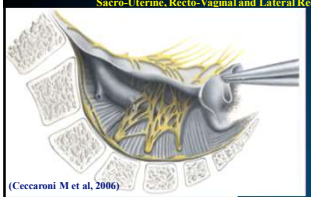
Cranial and Caudad Vesico-Uterine Ligaments, Cardinal ligament/Paracervix

Development of left Okabayashi's space

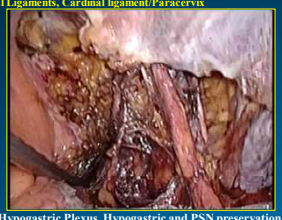




Preserving nerves in Postero-Lateral parametrium:

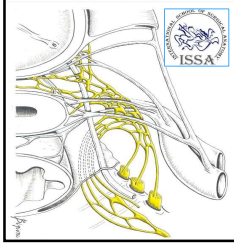
Sacro-Uterine, Recto-Vaginal and Lateral Rectal Ligaments, Cardinal ligament/Paracervix



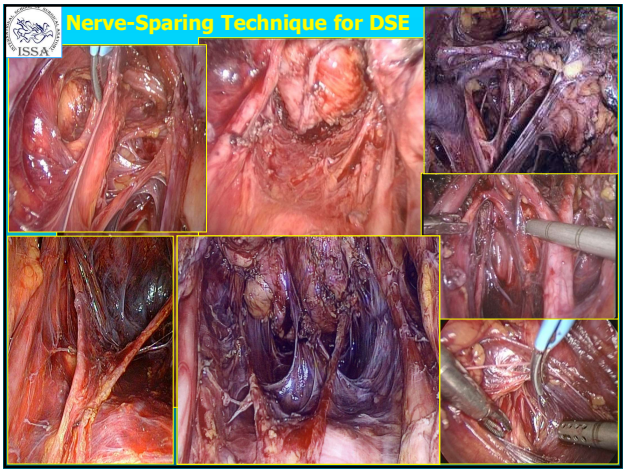
(Ceccaroni M et al, 2006)

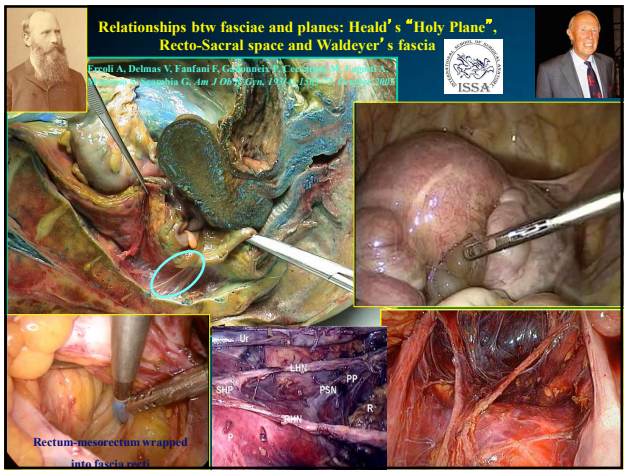


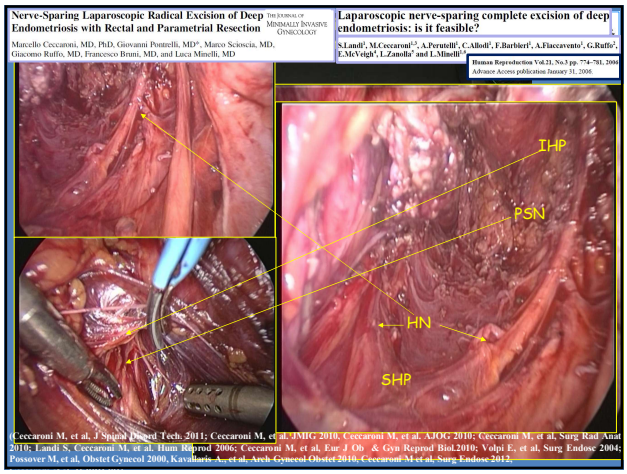
Superior Hypogastric Plexus, Hypogastric and PSN preservation



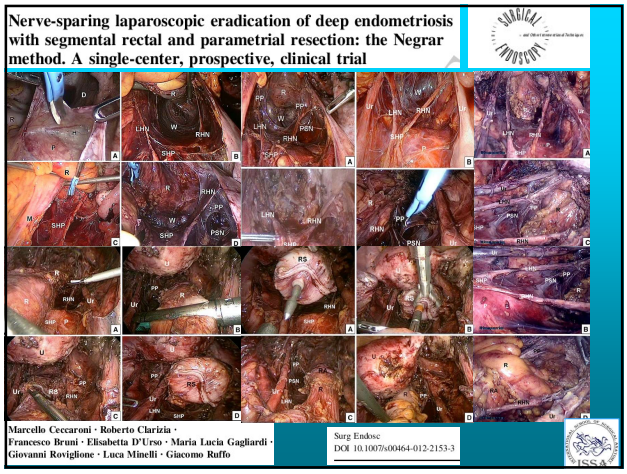
Nerve-Sparing Technique for DSE

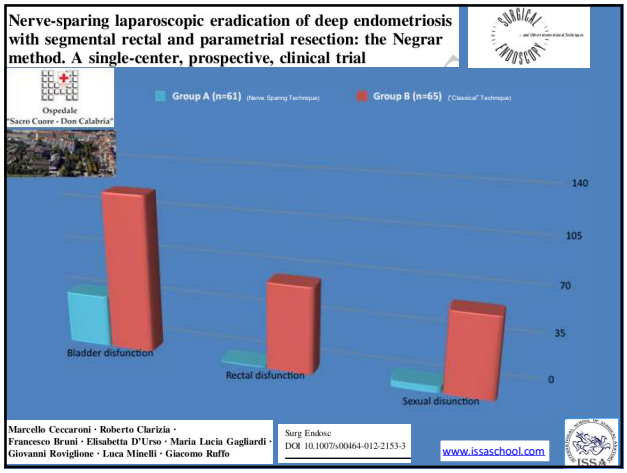



Relationships btw fasciae and planes: Heald's "Holy Plane", Recto-Sacral space and Waldeyer's fascia
Rectum-mesorectum wrapped into fascia recti
Ur
LHN
PP
SHP
PSN
R
RHN


Nerve-Sparing Laparoscopic Radical Excision of Deep Endometriosis with Rectal and Parametrial Resection
Laparoscopic nerve-sparing complete excision of deep endometriosis: is it feasible?
IHP
PSN
HN
SHP
(Ceccaroni M. et al. J Spinal Disord Tech. 2011; Ceccaroni M. et al. JMIG 2010; Ceccaroni M. et al. AJOG 2010; Ceccaroni M. et al. Surg Rad Anat 2010; Landi S. Ceccaroni M. et al. Hum Reprod 2006; Ceccaroni M. et al. Eur J Ob & Gyn Reprod Biol.2010; Volpi E. et al. Surg Endosc 2004; Possover M. et al. Obstet Gynecol 2000, Kavallaris A., et al. Arch Gynecol Obstet 2010, Ceccaroni M et al. Surg Endosc 2012.


Laparoscopic eradication of DIE with nerve-sparing rectal resection
Classical Technique
VS
Nerve-Sparing Technique the "Negrar Method"
Nerve-sparing laparoscopic radical excision of deep endometriosis with rectal and parametrial resection
M. Ceccaroni, M.D., Ph.D.
Gynecologic Oncology Division
International School of Surgical Anatomy
Sacred Heart Hospital
Negrar, Verona
ISSA
(Ceccaroni M. et al, J Spinal Disord Tech. 2011; Ceccaroni M, et al, Eur J Ob & Gyn Reprod Biol.2010; Ceccaroni M, et al. JMIG 2010; Ceccaroni M, et al. AJOG 2010; Ceccaroni M, et al, Surg Rad Anat 2010; Landi S, Ceccaroni M, et al. Hum Reprod 2006; Volpi E, et al, Surg Endosc 2004; Possover M, et al, Obstet Gynecol 2000, Kavallaris A., et al, Arch Gynecol Obstet 2010, Ceccaroni M et al, Surg Endosc 2012 Ceccaroni M et al, JEPPD 2016)
Endometriosis and women's reproductive life
7-9 May 2015
Paris, France
12th WORLD CONGRESS ON ENDOMETRIOSIS
WCE 2011


Nerve-sparing laparoscopic eradication of deep endometriosis with segmental rectal and parametrial resection: the Negrar method. A single-center, prospective, clinical trial
Marcello Ceccaroni · Roberto Clarizia · Francesco Bruni · Elisabetta D'Urso · Maria Lucia Gagliardi · Giovanni Roviglione · Luca Minelli · Giacomo Ruffo
Surg Endosc
DOI 10.1007/s00464-012-2153-3


Nerve-sparing laparoscopic eradication of deep endometriosis with segmental rectal and parametrial resection: the Negrar method. A single-center, prospective, clinical trial
Ospedale "Sacro Cuore - Don Calabria"
Group A (n=61) (Nerve Sparing Technique)
Group B (n=65) ("Classical" Technique)
140
105
70
35
0
Bladder disfunction
Rectal disfunction
Sexual disunction
Marcello Ceccaroni · Roberto Clarizia · Francesco Bruni · Elisabetta D'Urso · Maria Lucia Gagliardi · Giovanni Roviglione · Luca Minelli · Giacomo Ruffo
Surg Endosc
DOI 10.1007/s00464-012-2153-3
www.issaschool.com


"The Negrar Method": Nerve-Sparing laparoscopic radical excision of deep endometriosis with segmental rectal and parametrial resection
Endometriosis and women's reproductive life
7-9 May 2015
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12th WORLD CONGRESS ON ENDOMETRIOSIS
WCE 2011
Nerve-sparing laparoscopic eradication of deep endometriosis with segmental rectal and parametrial resection: the Negrar method. A single-center, prospective, clinical trial
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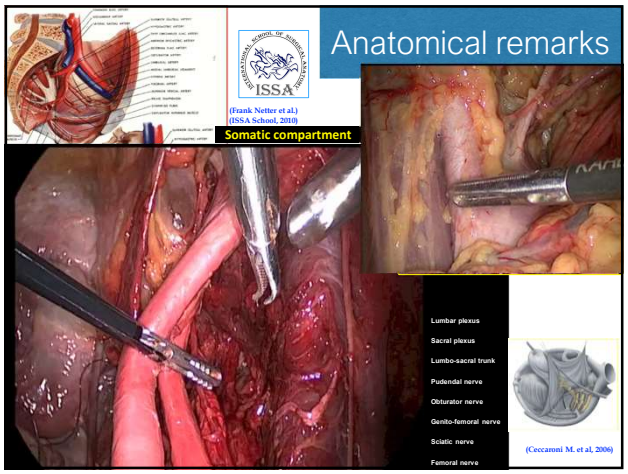
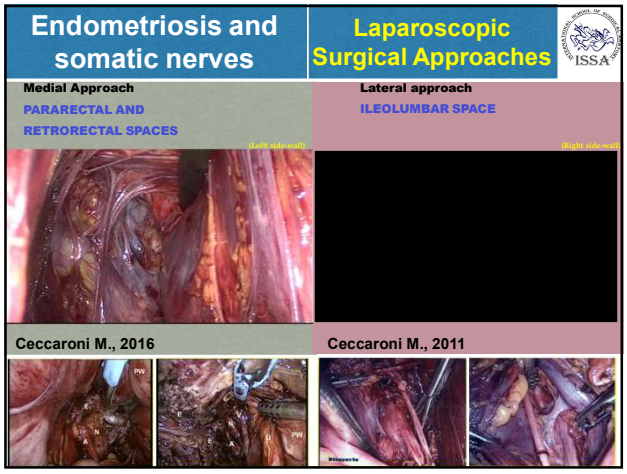
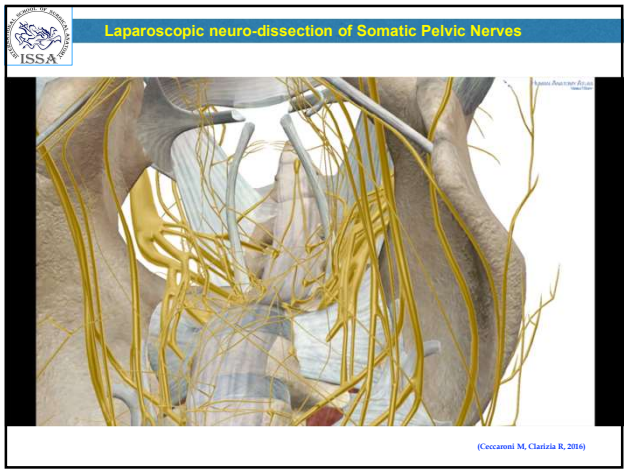
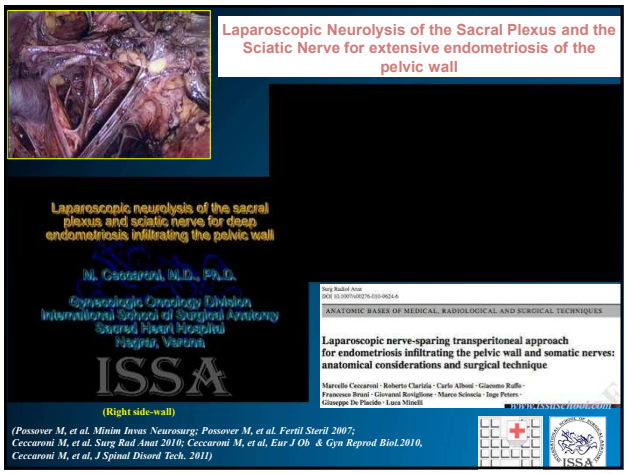
Surg Endosc
DOI 10.1007/s00464-012-2153-3

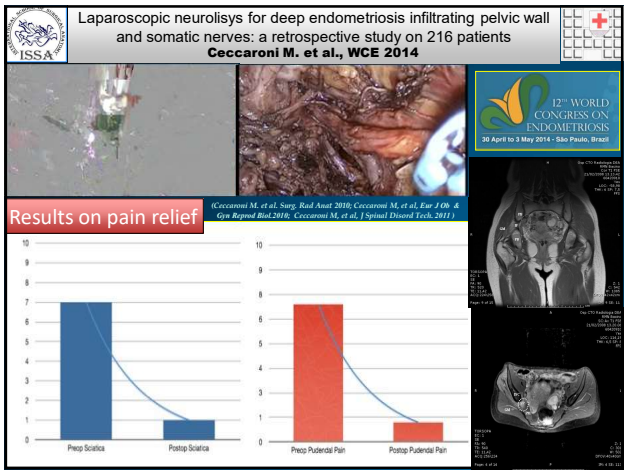

Endometriosis and somatic nerves
L5
S1
Management of Opioid Therapy for Chronic Pain

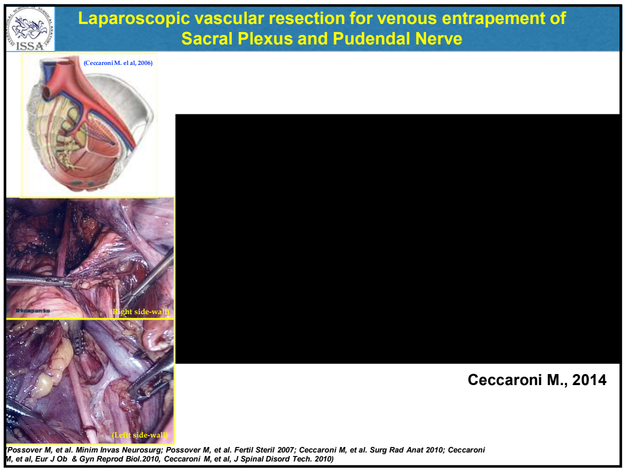

Anatomical remarks
(Frank Netter et al.)
(ISSA School, 2010)
Somatic compartment
Lumbar plexus
Sacral plexus
Lumbo-sacral trunk
Pudendal nerve
Obturator nerve
Genito-femoral nerve
Sciatic nerve
Femoral nerve
(Ceccaroni M. et al, 2006)

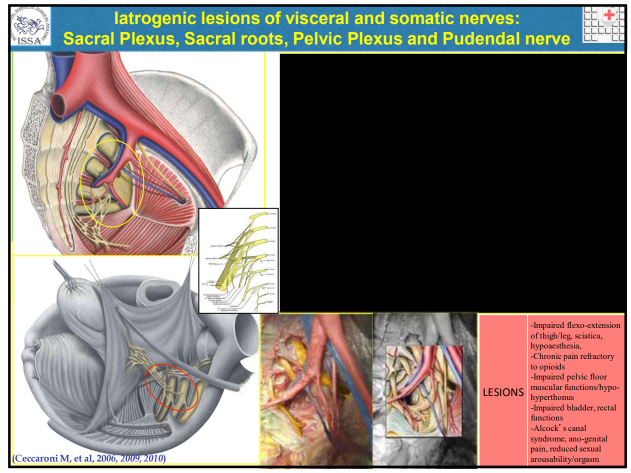

Endometriosis and somatic nerves
Laparoscopic Surgical Approaches
Medial Approach
PARARECTAL AND
RETRORECTAL SPACES
Lateral approach
ILEOLUMBAR SPACE
Ceccaroni M., 2016
Ceccaroni M., 2011

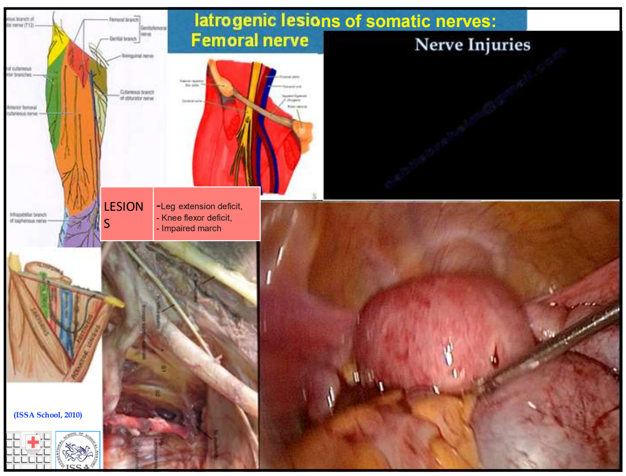

Laparoscopic neuro-dissection of Somatic Pelvic Nerves
(Ceccaroni M, Clarizia R, 2016)

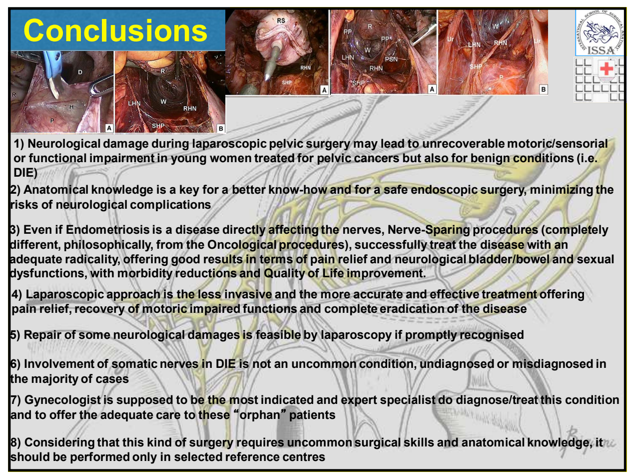

Laparoscopic Neurolysis of the Sacral Plexus and the Sciatic Nerve for extensive endometriosis of the pelvic wall
Laparoscopic neurolysis of the sacral plexus and sciatic nerve for deep endometriosis infiltrating the pelvic wall
M. Ceccaroni, M.D., Ph.D.
Gynecologic Oncology Division
International School of Surgical Anatomy
Sacred Heart Hospital
Negrar, Verona
ISSA
(Right side-wall)
Laparoscopic nerve-sparing transperitoneal approach for endometriosis infiltrating the pelvic wall and somatic nerves: anatomical considerations and surgical technique
(Possover M, et al. Minim Invas Neurosurg; Possover M, et al. Fertil Steril 2007; Ceccaroni M, et al. Surg Rad Anat 2010; Ceccaroni M, et al, Eur J Ob & Gyn Reprod Biol.2010, Ceccaroni M, et al, J Spinal Disord Tech. 2011)

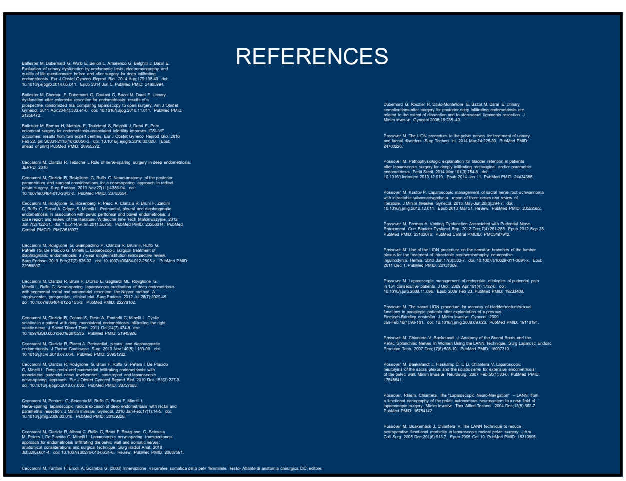

Laparoscopic neurolisys for deep endometriosis infiltrating pelvic wall and somatic nerves: a retrospective study on 216 patients
Ceccaroni M. et al., WCE 2014
12TH WORLD CONGRESS ON ENDOMETRIOSIS
30 April to 3 May 2014 - São Paulo, Brazil
Results on pain relief
(Ceccaroni M. et al. Surg. Rad Anat 2010; Ceccaroni M, et al, Eur J Ob & Gyn Reprod Biol.2010; Ceccaroni M, et al, J Spinal Disord Tech. 2011)
Precop Sciatica
Postop Sciatica
Precop Pudendal Pain
Postop Pudendal Pain


Laparoscopic vascular resection for venous entrapement of Sacral Plexus and Pudendal Nerve
(Ceccaroni M. et al, 2006)
Right side-wall
Left side-wall
Ceccaroni M., 2014
Possover M, et al. Minim Invas Neurosurg; Possover M, et al. Fertil Steril 2007; Ceccaroni M, et al. Surg Rad Anat 2010; Ceccaroni M, et al, Eur J Ob & Gyn Reprod Biol.2010, Ceccaroni M, et al, J Spinal Disord Tech. 2010)


Iatrogenic lesions of visceral and somatic nerves:
Sacral Plexus, Sacral roots, Pelvic Plexus and Pudendal nerve
LESIONS
-Impaired flexo-extension of thigh/leg, sciatica, hypoaesthesia,
-Chronic pain refractory to opioids
-Impaired pelvic floor muscular functions/hypo-hyperthonus
-Impaired bladder, rectal functions
-Alcock's canal syndrome, ano-genital pain, reduced sexual arousability/orgasm
(Ceccaroni M, et al, 2006, 2009, 2010)


Iatrogenic lesions of somatic nerves:
Femoral nerve
Nerve Injuries
LESIONS
-Leg extension deficit,
- Knee flexor deficit,
- Impaired march
(ISSA School, 2010)


Conclusions
1) Neurological damage during laparoscopic pelvic surgery may lead to unrecoverable motoric/sensorial or functional impairment in young women treated for pelvic cancers but 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


REFERENCES


INTERNATIONAL SCHOOL OF SURGICAL ANATOMY
ISSA
THANK YOU
AAGL
2015 GLOBAL CONGRESS
ONLY THOSE WHO WILL RISK GOING TOO FAR CAN POSSIBLY FIND OUT HOW FAR ONE CAN GO.
-T.S. ELIOT

CULTURAL AND LINGUISTIC COMPETENCY & IMPLICIT BIAS

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

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

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

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

Important Definitions:

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

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

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

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

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

CLC & IB Online Resources:

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