

Start	End	Topic	Speakers
11:00	11:10	Introduction – Context for Neurologic Pelvic Pain	Elise De
11:10	11:25	Pudendal and other Pelvic Nerve Entrapment	Nucelio Lemos
11:25	11:30	Questions	All
11:30	11:45	Distinguishing Hip vs Spine vs Pelvic / Pudendal Nerve	Andrew Dubin
11:45	11:50	Questions	All
11:50	12:05	What to Offer People with Systemic Neuropathic Pain	Charles Argoff
12:05	12:30	Questions	All

### **Description**

#### Description:

An estimated 6-30% of people worldwide experience chronic pelvic pain (CPP). CPP is responsible for numerous surgical procedures, is a major risk factor for disability and depression, and has a tremendous burden on society. CPP patients have among the poorest QOL scores in chronic disease.

Whereas most who practice pelvic medicine are versed in treating organ-based pain specific to their subspecialty, neurologically-mediated pain represents a learning gap - involving a separate set of diagnostic and interventional skills.

This workshop provides diagnostic advice and tools for management relevant to pudendal neuropathy or other nerve entrapment, hip confounders, central nervous system diagnoses such as herniated disc, radiculopathy, Tarlov cyst, tethered cord, and peripheral neuropathy such as small fiber neuropathy, neuroinflammatory disease (e.g. Lyme, MS) and central sensitization.

The talks will bring participants through the following 3 scenarios (discrete peripheral nerves, central nervous system, and diffuse peripheral / multifocal neuropathies) and educate pelvic providers on how to find and treat specific neurologic diagnoses.

**PERIPHERAL NERVE INJURY ASSOCIATED WITH PELVIC PAIN AND DYSFUNCTION.** Nerve Involved and presentation  
Ilioinguinal Nerve (T12, L1)

---Groin pain with radiation to vagina, labia majora, root of penis or upper scrotum, mons pubis, lateral waist

Iliohypogastric nerve (T12, L1)

---Lateral gluteal and suprapubic pain

Obturator Nerve (L2,3,4)

---Pubic pain radiating to the inner thigh and knee. Weakness of adduction (adductors) and lateral rotation of the hip (gracilis muscle). Injury can occur during pelvic lymphadenectomy, deep endometriosis, dissection of the paravesical fossa, retzius space, or ilio-lumbar fossa.

Anterior Abdominal Cutaneous nerves

---Abdominal pain usually lateral to the rectus sheath

Lateral Femoral Cutaneous nerve (L2, L3)

---Pain and numbness of the lateral thigh. Injury can occur secondary to obesity, tight pants or belts, or with impingement secondary to prolonged hip flexion.

S1 nerve root

---Pain and numbness on the external aspect of the posterior thigh, calf, and leg and the exterior aspect of the foot. S1 nerve root entrapments can cause gait disturbances and loss of ankle stability.

S2 Nerve Root

---Pain and numbness on the internal half of the posterior thigh, calf, and leg, internal surface of the foot, vulva, and clitoris (female), penis and scrotum (male). Usually associated with urinary urgency and frequency. Genital arousal disorders, erectile dysfunction and/or lack of vaginal lubrication may be present.

S3/4 nerve root (usually together)

---Pain and numbness on the buttock, anus, perineum, vulva and clitoris (female), penis and scrotum (male). Usually associated urinary and bowel urgency and frequency, pain on passing urine or stool. Often associated with vaginal and/or rectal foreign-body sensation.

Sciatic nerve (L4, L5, S1, S2, S3)

---Buttock, posterior thigh, calf, lateral leg, and foot pain. Impact on muscles of the posterior anterior and lateral compartments of the lower leg, foot drop. Lies 2 cm from the sacrospinous ligament and can be injured during sacrospinous ligament vault fixation. Hip replacement, and even improperly performed buttock injections.

### Genitofemoral nerve (L1,L2)

---Genital branch: Pain in the inguinal fold, mons pubis, base of penis, labia majora, anterior vulva, clitoris, and urethra  
Femoral branch: superomedial thigh. Injury can occur during e.g. pelvic lymphadenectomy or psoas hitch.

### Pudendal nerve (S2,3,4)

---Pain and dysfunction in the S2, S3, and S4 nerve distributions (which includes the rectum, genitalia and urinary tract, urethra),  
---Urgency or pain associated with urination or bowel movement, sexual and sphincter dysfunction (erectile dysfunction, lack of lubrication), and pain that is typically worse with sitting.

---It can be injured during e.g. sacrospinous ligament vault fixation, due to infection (e.g. herpes) or entrapped by a hypertonic muscle.

### Posterior femoral cutaneous nerve and inferior cluneal nerves

---Inferior gluteal (buttocks) pain

### Autonomic nerves

Sympathetic: superior hypogastric plexus, hypogastric nerves, inferior hypogastric plexus

---Injury to the sympathetic nerves can lead to urinary incontinence and urgency. The hypogastric nerves can be encountered during sacral dissection.

Parasympathetic: pelvic splanchnic nerves, inferior hypogastric plexus, visceral nerve branches

---Injury to the parasympathetics can lead to atonic bladder, reduced bladder and rectal sensation, decreased vaginal blood flow and lubrication.

(Abdominoperineal resection or application of mesh for prolapse can injure the inferior hypogastric plexus and rectal plexus visceral nerve branches, respectively.)

### CNS CAUSES OF PELVIC PAIN:

#### Diagnosis, Symptoms, and Physical Exam Findings

Herniated disc –disc protrusion causes spinal cord or nerve root compression

--Sx: Back pain, shooting pain or numbness that follows a specific dermatomal pattern (e.g., a T10 through L1 disc herniation may radiate into the skin of the groin or abdomen), or sciatic symptoms in the leg; persistent genital arousal disorder has also been attributed to the spine.

--PE: Abnormal gait, pain with provocative maneuvers (e.g., pain with low back flexion, positive straight leg test that radiates pain with spine range of motion), possible increased or decreased reflexes.

Tarlov cysts - fluid-filled nerve root cysts found most often at the sacral level of the spine; small cysts may be a normal variant and are present in 5% - 10% of people.

--Sx: Symptoms vary but may present with pain over the buttocks and sacrum or with bowel, bladder, or sexual dysfunction. Pain with sitting, standing, or walking.

--PE: May have increased sensitivity or loss of sensitivity to touch over the sacrum and buttock; may present with lower extremity weakness

Spina bifida occulta - Typically asymptomatic but may cause lower extremity symptoms, including weakness, as well as urinary, sexual, or bowel symptoms, pelvic pain and impaired sensation of the genitals, bladder, or bowels.

--Sx: Sometimes symptoms begin during growth spurts due to associated tethered spinal cord.

--PE: May present with lower extremity weakness; skin over spine may present with an abnormal tuft of hair, dimple or birthmark.

Tethered spinal cord -- caused by tissue attachments that limit the movement of the spinal cord within the spinal column; these attachments cause an abnormal stretching of the spinal cord and therefore upper and lower motor neuron findings can be present; associated with spina bifida.

--Sx: Back pain or shooting pain in the legs, weakness or numbness in the legs, lower extremity spasms, bowel or bladder dysfunction (over or underactive).

--PE: Lower extremity weakness, abnormally low or high reflexes, diminished lower extremity sensation. Gluteus or calf atrophy.

Cauda equina syndrome - caused by central spine nerve compression, such as stenosis in the lumbar region from a large herniated disc or tumor.

--Sx: Symptoms may include severe lower extremity weakness and/or pain, decreased sensation in the legs and/or the lower pelvic region ("saddle anesthesia"), new-onset difficulty urinating or sudden urinary incontinence, and stool incontinence. If the above symptoms are acute, they require emergency evaluation.

--PE: Lower extremity weakness, reduced or absent reflexes in the legs, gluteus or atrophy if chronic

Sacral tumor – benign or malignant growths around the sacral nerve roots.

--Sx: May present with symptoms similar to Tarlov cysts and herniated discs, such as back pain, lower extremity pain, lower extremity weakness, numbness or tingling, rectal dysfunction, urinary retention or incontinence, erectile dysfunction.

--PE: May present with tenderness over the sacrum or lower extremity weakness. A mass may be felt in the sacral area. Gluteal and calf atrophy may be present

## DIFFERENTIAL DIAGNOSIS- WIDESPREAD OR DIFFICULT TO DIAGNOSE LOCALIZED PAIN

### RHEUMATOLOGIC

- Arthritis (OA, RA)
- Polymyalgia Rheumatica
- Osteomalacia
- Myopathy
- Spondyloarthropathies
- Systemic Lupus Erythematosus

### ENDOCRINE

- Hypothyroidism

- Diabetes

### NEUROLOGIC

- Multiple sclerosis
- Chiari malformation
- Spinal stenosis
- Radiculopathy
- Polyneuropathy
- Fibromyalgia
- Small fiber polyneuropathy

### **Aims of Workshop**

Aims: This workshop provides a more in-depth focus on neurological causes of pelvic pain – diagnosis and intervention. Anchored in a key talks, the differential diagnosis, diagnosis, and treatment will be presented then discussed interactively. Clinical materials (patient educational, websites, questionnaires, and other) will be shared.

The lectures are designed for a deeper, more intermediate course with a full 90 minutes committed to neurologically mediated pelvic pain. It builds on prior ICS workshops presenting an overview of the differential diagnosis of pelvic pain.

Given that many in the ICS understand organ (IC, Endo) and muscle-based drivers of pain, this course targets the knowledge gap many of us reach in this clinical entity.

### **Educational Objectives**

Neuropathic pelvic pain represents a learning gap for most pelvic health specialists. This workshop - in response to audience feedback from a more broad pelvic pain workshop in 2022 - aims to address this learning need with faculty from NeuroUrology, NeuroGynecology (neuropelvicology), Physical Medicine and Rehabilitation (Neuromuscular and Electrodiagnostic Medicine) and Neurology (Pain Management). These faculty are all experienced in working and teaching across disciplines.

Interaction - Brief time for questions during and long swatch of time at the end for discussion and interaction (35 minutes of the 90 minutes).

Outline - Lectures will instill key approaches to neuropathic pelvic pain, with ample time for interaction.

The Key Learning Points Are:

1. How to identify pelvic nerve entrapment and localise the site
2. How to distinguish central versus peripheral source of pain, upper versus lower motor neuron, diffuse versus localized
3. How to rule out orthopedic mimics of pudendal nerve entrapment
4. Discussion of specific treatments for entrapment, central, peripheral, and systemic pain.
5. At the beginning, throughout, and end of the session, interaction will occur to highlight application of the strategies taught during the workshop.

### **Learning Objectives**

1. How to diagnose different types of neuropathic pelvic pain
2. How to differentiate neuropathic pelvic pain from organ-based pain
3. Management options for localised and diffuse neuropathic pelvic pain

### **Target Audience**

Urology, Urogynaecology and Female & Functional Urology, Bowel Dysfunction, Pure and Applied Science, Conservative Management

### **Advanced/Basic**

Intermediate

### **Suggested Learning before Workshop Attendance**

Prior Pelvic Pain Workshops for ICS:

<https://www.ics.org/live/26June20>

<https://www.ics.org/live/1June20>

1. <https://www.glowm.com/section-view/heading/Neurophysiologic%20Testing%20of%20the%20Pelvic%20Floor/item/57#.Y6XQA3bMluU>
2. Zakhari A, Mabrouk M, Raimondo D, Mastronardi M, Seracchioli R, Mattei B, Papillon-Smith J, Solnik MJ, Murji A, Lemos N. Keep Your Landmarks Close and the Hypogastric Nerve Closer: An Approach to Nerve-sparing Endometriosis Surgery. *J Minim Invasive Gynecol.* 2020 May-Jun;27(4):813-814. doi: 10.1016/j.jmig.2019.08.001. Epub 2019 Aug 3. PMID: 31386912.
3. Pelvic Pain. Chapter 42 in: *The Practical Management of Pain*, 6th edition. Editors: Benzon, HT, Turk D, Rathmell J, Wu C, Argoff C, Hurley R, and Nicol A. Paredes. By: Mogica JA, Bochkur Dratver M, De EJB: Elsevier, 2021.
4. Facing Pelvic Pain. A Guide For Patients And Their Families. De EJB, Stern TA, Eds: Massachusetts General Hospital Psychiatry Academy, Boston MA. 2021. ISBN-13: 978-1-951166-22-9 (Print) [www.facingpelvicpain.org](http://www.facingpelvicpain.org)