Hands on: Chronic Pelvic Pain in Women

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Beaumont Hospital, Royal Oak, MI
Botox, Ilioinguinal, and Pudendal Blocks for Chronic Pelvic Pain

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Background:

- Was approached by the Women’s Urology Center about 4 years ago to evaluate and perform interventional therapies/blocks on women with CFPP
- Have been doing Interventional Pain Management exclusively for 9 years
- Not much exposure in my training to this subset of patients
Background continued:

- Began re-educating/educating myself on the basic considerations, including; the anatomy of the pelvis, pelvic muscles and fascia, pelvic viscera, and neurology of the pelvis.
- Also reviewed the physiology of the Pelvis and Perineum
- Then reviewed the most common etiologies and the epidemiology
Background continued:

- For example: 9.2 million women in the U.S have pelvic pain
- Approximately 15% of women aged 18-50
- Accounts for 10% of all outpatient visits to the gynecologist
- Economic impact: Chronic Pelvic Pain costs approximately $881 million per year in U.S. alone
Once these considerations had been reviewed then had to address the clinical considerations of the patient with CPP.

Begins with developing a concerning rapport during the taking of the pain history.

Important to ascertain the chronological order of the pain, the physicians seen, the diagnostic tests, therapies instituted, and impact of the pain on function.
Background continued:

☐ Important to not only elucidate the location of the pain but the qualities and characteristics as well as the associated symptoms and signs

☐ For example a pudendal neuropathy is usually characterized by dull aching burning pain in the perineal/rectum region and hyperpathia/hyperalgesia and hyperesthesia (increased sensitivity and reaction to stimulus)
The physical examination should be focused primarily on the area of the patient’s complaint. Any noticeable structural changes as well as sensory and motor findings should be noted. The area of pain and the type of stimulation that reproduces the pain should be assessed. During the pelvic exam the clinician should attempt to elicit pain by superficial and deep pressure.
Ilioinguinal Nerve Blocks:

- Ilioinguinal neuralgia/neuropathy is pain and disturbance of function along the distribution of the ilioinguinal nerve.
- Manifests as paresthesias, burning pain over the lower abdomen that radiates into the labia
- Physical findings include a sensory deficit in the inner thigh and labia
Ilioinguinal Blocks continued:

- Patients with ilioinguinal neuropathy have past histories that often include surgery in the area of the lower abdominal wall.
- Many gynecologic patients have exposure to the Pfannenstiel incision which cross-cuts the ilioinguinal nerve.
- Others have had repeated abdominal exploration and the injury may be from retraction in the lower corners of the incision where the nerves are located.
Clinically Relevant Anatomy:

The ilioinguinal nerve is a branch of the L1 nerve root. The nerve follows a curvilinear course that takes it from its origin of the L1 somatic nerve to inside the concavity of the ilium.

The nerve continues anteriorly to perforate the transverse abdominis muscle at the level of the ASIS.

The nerve continues to course medially and inferiorly where it courses through the inguinal ring and into the inguinal canal.
Block Technique:

The patient is placed in the supine position. Place a pillow under the knees so not to put traction on the nerve. The Anterior Superior Iliac Spine (ASIS) is identified by palpation. A point 2 inches medial and 2 inches inferior to the ASIS is then identified and prepped. A 1.5 inch 25 gauge needle is then advanced at an oblique angle toward the pubic symphysis. After the needle pierces the fascia of the external oblique muscle 5 to 7 mL of solution is injected in a fan-like pattern. Typical solution is preservative-free local anesthetic (Lidocaine or Bupivicaine) with 40 mg of methylprednisolone.

Care must be taken not to place the needle too deep and possibly enter the peritoneal cavity and perforate the abdominal viscera.
Ultrasound Guided Ilioinguinal Nerve Block:

The technical development of ultrasound devices and of high frequency high-resolution transducers in recent years made a direct visualization of small nerves by ultrasound possible.

In regional anesthesia, ultrasound guidance for nerve blocks is being used with increased frequency.

Ultrasound has been shown to offer guidance for selective nerve block techniques for invasive pain therapy.
Technique for Ultrasound Guided Ilioinguinal Nerve Block:

Place a linear probe in the axial plane at the level of the anterior superior iliac spine. Visualization of the abdominal muscle layers at this level is particularly subject to the US beam being directly perpendicular to the target structures. For this reason, the optimal position for probe placement is often above/cephalad of the anterior superior iliac spine orientated in a slightly caudad direction and often facing the contralateral lower extremity.
Ultrasound Guided Ilioinguinal Nerve Block:

Ultrasound pictures of pre- and post-injection with needle tip visualization.
Pudendal Nerve Block:

- Pudendal neuralgia is one of the most common painful neuropathies seen in chronic pelvic pain
- Patients present with anoperineal pain, often exacerbated in the sitting position
- They may also present with sensory changes in the perineal area
Pudendal Blocks continued:

- The pudendal nerve takes origin from sacral nerve roots 2, 3, 4.

- It winds around the sacral spinous process and enters the pelvis via Alcock’s canal (formed by the fascia of the Obturator internus muscle).
Pudendal Block continued:

- Lateral view of the pudendal nerve from its origin at S2, S3, S4
- Relationship to the ischial spine prior to dividing into four distinct branches
The pudendal nerve then divides into four distinct branches; the clitoral, the superficial perineal, the deep perineal, and the posterior rectal branch.
Therefore, it innervates the skin of the perineum, the genitals, the labia, the clitoris, the bulbo- and ischiocavernosus muscles, the external anal and urethral sphincters, the rectum, and the superficial and deep transverse perineal muscles.
Ligaments of the pelvis

Two main ligaments in relation to the pudendal nerve; the sacrotuberous and the sacrospinous
Pudendal Nerve Block continued:

- Soft tissue overlying the ligaments and pudendal nerve

- For the most part the Gluteus maximus
Pudendal Nerve Block continued:

- **Clinically relevant anatomy:**
  - Soft tissue structures including the muscles and ligaments, most important are the sacrotuberous and sacrospinous ligaments
  - Bony Anatomy/Osseus structures, the most important being the ischial spine
  - Understand the course of Pudendal nerve through the pelvis in relation to these structures
Pudendal Nerve Block continued:

- Many approaches to blockade of the pudendal nerve
- Most common are the transperineal approach (seen here) in the lithotomy position and the CT, fluoroscopically and ultrasound-guided transgluteal approach.
Pudendal Nerve Block:

Transperineal block technique:

- Pt in the lithotomy position.
- Palpate the ischial tuberosity
- The area overlying the tuberosity is then prepared with antiseptic solution.
- At this point a skin wheal is raised with local anesthetic.
- The index finger is inserted into the vagina to identify the ischial spine.
- A 6-inch needle is then placed through the previously anesthetized area and directed toward the ischial spine.
- After careful aspiration for blood is negative, 5 mL of local anesthetic (lidocaine or bupivacaine) with methylprednisolone is injected.
Pudendal Nerve Block continued:

Transgluteal approach:

• Patient in the prone position
• Fluoroscopic scout films to identify the ischial spine
• Overlying area prepped/draped and anesthetized
Pudendal Nerve Block:

- Under fluoroscopic guidance a 22 gauge spinal needle (length depends on patient’s body habitus) is guided just medial to the ischial spine-multiple AP and lateral views (see images)
Pudendal Nerve Block:

- Once needle tip is confirmed just medial to ischial spine and lateral view shows proper depth of needle tip—just overlying IS then an Ultrasound probe is placed over the Posterior Superior Iliac Spine (PSIS) in a transverse plane.
Pudendal Nerve Block:

- Then, moving the ultrasound probe in a caudad fashion will visualize the IS (ischial spine) as an echogenic structure, just medial you will visualize the pudendal nerve.
- Advance your needle until resistance-this will be the sacrotuberous ligament, once resistance lessens you have passed through the sacrotuberous ligament.
Pudendal Block:

- Confirm needle tip in AP and lateral fluoroscopic views
- Confirm needle tip in transverse and longitudinal planes with ultrasound probe/images
Pudendal Nerve Block:

- After negative aspiration inject 1-2 cc’s of contrast. Confirm no intravascular or intraneural spread.

- Then inject 5-8 mLs of local anesthetic (lidocaine or bupivacaine) with methylprednisolone in an incremental fashion.
Botulinum Toxin/BOTOX

- Botulinum toxin type A is a sterile lyophilized form of purified botulinum toxin produced from a culture of a strain of *Clostridium botulinum*

- The toxin irreversibly binds to presynaptic cholinergic nerve terminals thus preventing the release of acetylcholine resulting in sustained muscle relaxation—a chemodenervation of the area injected.
Denervation by the toxin appears to occur via a 3 step process:

- Binding to the presynaptic membrane receptor molecule
- Translocation of the toxin into the nerve terminal by endocytosis
- Irreversible inactivation of acetylcholine release
Botulinum toxin continued:

- Botulinum has been shown to be effective for the treatment of various dystonic conditions such as spasmodic torticollis.
- The toxin has more recently been proposed as an alternative to the standard medicines used for trigger point injections in the treatment of myofascial pain syndrome.
Botulinum toxin continued:

- Myofascial pain syndrome is a pain disorder characterized by tender trigger points in a taut band of muscle.
- The pain is usually described as steady, deep, ache with occasional burning.
- Palpation of the painful area can reproduce the patient’s pain and elicit radiation and altered sensation such as a paresthesia or hyperesthesi.a
Botulinum toxin continued:

- Trigger point injection has become a commonly used technique for the treatment of myofascial pain syndromes; including pelvic myofascial pain
- Confirm trigger points on physical exam of the pelvic floor muscles
- Identify the muscles; such as the iliococcygeus or pubococcygeus muscles
- Perform transvaginal TPI for diagnostic answers and therapeutic relief
Botulinum toxin:

- If patient receives significant short-term relief then consider repeating the trigger point injections using botulinum toxin
- Duration of relief can be up to 12 weeks
"It’s our new method for determining who we should treat first. We take people in order of how loud they scream."