Introduction to
Chronic Pelvic Pain & Pudendal Neuralgia

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Disclosures

http://www.dailyrecord.co.uk/news/scottish-news/rangers-in-crisis-runaway-owner-craig-1116876

Learning Objectives

- Describe the most common chronic pelvic pain (CPP) syndromes
  … and the most common vulvar pain syndromes
- Outline the prevalence of pudendal neuralgia and list its therapeutic approaches

CPP – Definition

- Pain of at least 3-6 months duration
- Can be episodic or constant; usually does NOT include cyclical pain such as dysmenorrhea
- Located in the anatomic pelvis, anywhere between the umbilicus and inguinal ligaments
  - vulvar pain usually is categorized separately*
- Severe enough to cause functional disability
- Requires treatment
- Unrelated to pregnancy
- 4-16% of general population, female predominance

Table 2.1 Common causes of chronic pelvic pain and common coexisting conditions

Gynaecologic	Urologic	Gastrointestinal	Musculoskeletal	Psychological
Endometriosis	Interstitial cystitis	Irritable bowel syndrome	Myofascial pain (trigger points)	Depression
Endosalpingiosis	Urethral syndrome	Chronic appendicitis	Pelvic floor myalgia and spasms	Physical or sexual abuse (previous or current)
Adenomyosis	Chronic urinary tract infection	Constipation	Nerve entrapment syndromes	Sleep disturbance
Pelvic adhesions	Bladder stones	Inflammatory bowel disease	Mechanical low back pain	Psychological stress (marital, work)
Chronic pelvic infections			Disc disease	Substance abuse (alcohol, narcotics, other drugs)
Ovarian cysts			Hernias	
Residual ovary syndrome				
Ovarian remnant syndrome				
Post-hysterectomy pain				
Pelvic congestion syndrome				
Fibroids				
Vulvodynia*				

*Not dealt with in this consensus guideline.

SOGC Guidelines 2018

Table 1. System-based etiologies of chronic pelvic pain.

Organ system	Disease
Gynecologic	Endometriosis, adenomyosis, ovarian remnant, pelvic congestion/pelvic venous insufficiency, pelvic inflammatory disease, ovarian cysts, uterine leiomyomas, tubal pathology (hydrosalpinx, pyosalpinx), adhesive disease
Neurologic	Nerve entrapment/irritations/impingement, disc herniation, postherpetic neuralgia, visceral sensitivity
Gastrointestinal	Irritable bowel syndrome, inflammatory bowel disease, chronic appendicitis
Urologic	Bladder pain syndrome/interstitial cystitis, urethritis
Musculoskeletal	Fibromyalgia, abdominal wall myalgias, pelvic floor tension myalgias, sacroiliac joint dysfunction, symphysis pubis pain, coccydynia
Psychological	Anxiety/depression, somatization disorders, psychosexual dysfunction, sexual abuse, post-traumatic stress disorder

Carey & As-Sanie; New developments in the pharmacotherapy of neuropathic chronic pelvic pain; Future Sci. OA (2016) 2(4) FSO148

CPP – Co-morbidities

- We are used to thinking of a Dx by organ system
  - Gynecological, gastrointestinal, urological, musculo-skeletal, neurological etc

BUT…

- Concurrent pain conditions
  - High % of women with endometriosis and/or dysmenorrhea, also have IBS, bladder pain syndrome, myofascial pain of the abdominal wall or pelvic floor, vulvodynia, migraines, fibromyalgia, TMJD etc
- Psychiatric co-morbidity & abuse history common
  - Depression and/or anxiety; 31% of pts have PTSD
  - 47% history of physical or sexual abuse

Endometriosis

- Def: Implants of endometrial glands and stroma outside the uterus
  - Most commonly found on pelvic peritoneum, ovaries; can invade organs such as bladder, bowel, ureters etc
  - Causes significant inflammation and adhesions
- Affects women of reproductive age
  - Prevalence: 40-50% of pts with CPP
- Classic symptoms include:
  - Severe menstrual pain, deep sexual pain, chronic pelvic pain, painful voiding and bowel movt, infertility
- Pain NOT well correlated to extent of anatomic disease

Endometriosis

- Investigations: pelvic ultrasound or MRI
  - Will detect advanced stage disease, however can be normal in women with minimal lesions
  - Diagnostic gold standard is laparoscopic surgery and pathologic confirmation on biopsies
- Treatment:
  - Hormonal suppression: progestins, GnRH agonists & antagonists, aromatase inhibitors, Danazol
  - Surgery is reserved women with severe pain refractory to medical management; excision or ablation of all visible disease; can include hysterectomy if childbearing complete or not desired

Irritable Bowel Syndrome

- Def: Chronic or intermittent abdo pain, associated with altered bowel function, with no identifiable organic cause
- 10% of general population: most common cause of CPP overall
  - Women twice as likely to be Dx than men
  - 35% of women with CPP met Dx criteria
- Very common for women with endometriosis to meet criteria for IBS (up to 50%)

IBS - Treatments

- Dietary modifications
  - Exclusion of gas producing foods, low FODMAP, trial elimination of lactose and gluten
- Constip: psyllium fiber; PEG
- Anti-spasmodics:
  - Pinaverine, dicyclomine, peppermint oil
- Anti-depressants:
  - TCAs (Amitriptyline / Nortriptyline)
  - *(SSRI / SNRI NOT as effective)

Interstitial Cystitis / Painful Bladder Syndrome

- Def: persistent unpleasant sensation attributed to the bladder, > 6 weeks; worse with full bladder and some relief with voiding; urinary frequency (to avoid pain)
- Often history of multiple UTIs, sexual pain
- Often have tenderness to bladder and pelvic floor on pelvic exam
- Deficient GAG layer

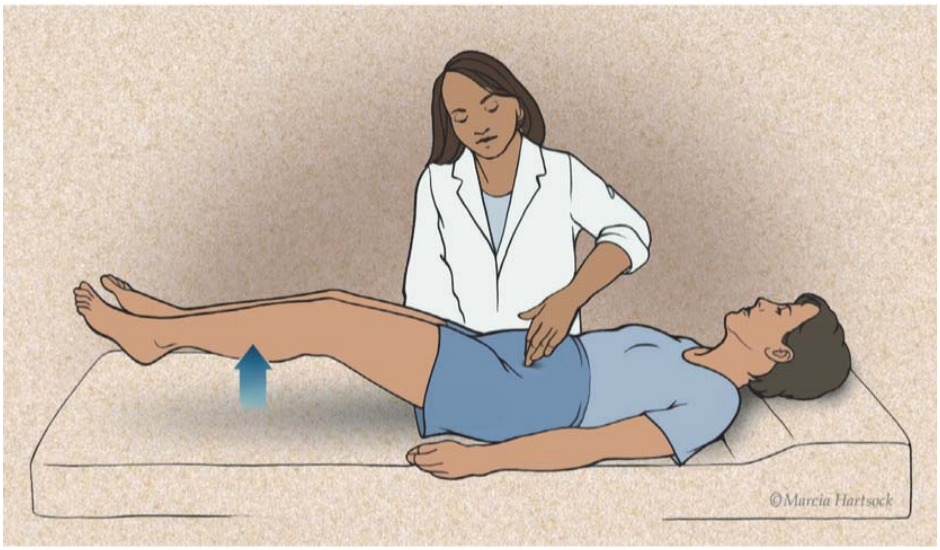
IC / PBS - Treatments

- Dietary modifications to avoid bladder irritants (ex caffeine, ROH, spices, acidic foods)
- Pelvic floor physiotherapy, TENS
- Meds:
  - Amitriptyline
  - Pentosan polysulfate sodium (Elmiron) – GAG
  - Hydroxyzine in atopic patients
- Local therapies:
  - Hydrodistension, intravescial therapy, botox
- Sacral neuromodulation

Myofascial pain

- Def: contracted bands of skeletal muscle that contain discrete, painful nodules, also called trigger points
- Can be found in the anterior abdominal wall and / or the pelvic floor musculature
- Dx = Carnett's test; pelvic floor palpation
- Very common in women with CPP
- Mainstay of Tx = pelvic physio
- Other Tx include: vaginal diazepam or baclofen, trigger point injections, botox

Carnett's test



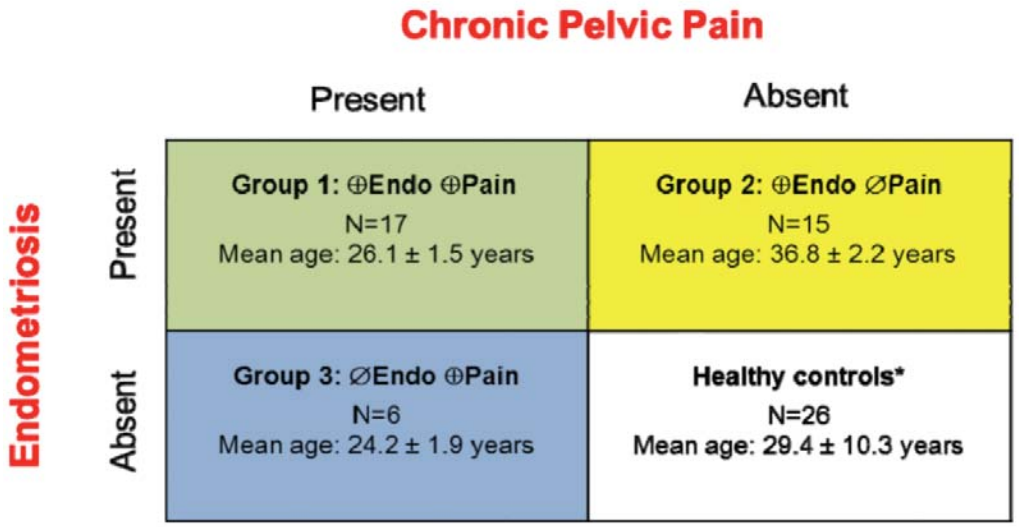
- Can be done by asking patients to raise head and shoulders or legs
- Positive if pain is same or worse with abdominal contraction

Pelvic Inflam Disease / Adhesions

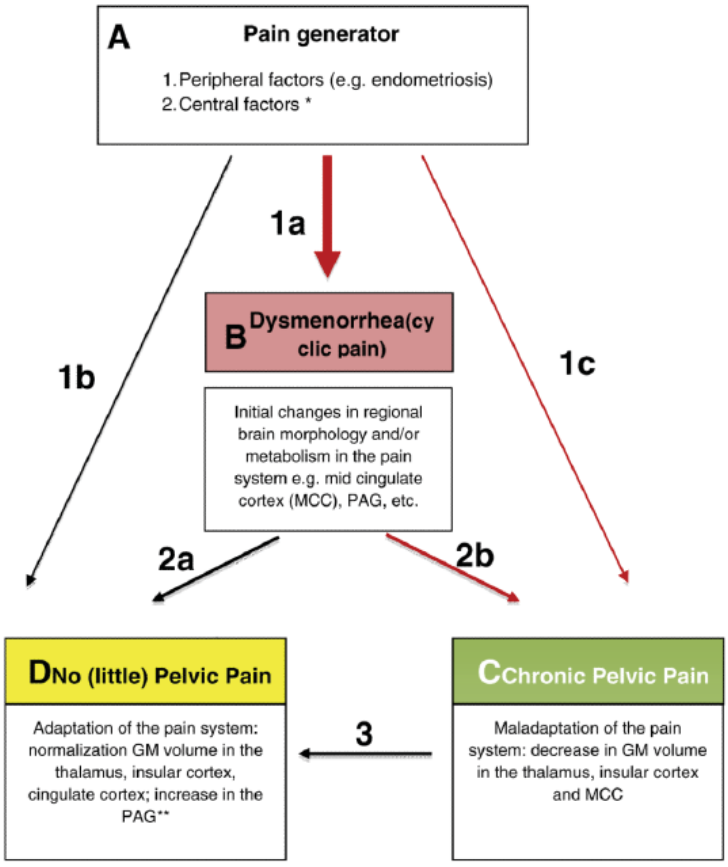
- PID lifetime prevalence = 3-10% of women, and as many as 30% of women with PID develop CPP
  - Predisposing factors to development of CPP: extent of adhesive disease / tubal damage and persistent tenderness on exam 30 days after Tx
- Adhesions develop in 90% of patients with abdo surgery; most clinically not significant
  - Dense adhesions that limit organ mobility may contribute to pain
- Several metanalyses demonstrated that lysis of adhesions does not significantly improve pain in the long term

Central Sensitization

- Persistence of pain from any underlying etiology = risk factor for developing a **chronic pain syndrome**
  - Result of central sensitization
  - Genetic makeup & individual sensory experience history
  - Explains why some pathological processes or sensory experiences do not result in pain in one woman, but cause dramatic pain in others
- Painful condition in one organ can influence dysfunction of another organ (cross-sensitization)
  - Viscero-visceral and viscero-somatic convergence
  - High prevalence of comorbid conditions in a single patient
    - Endometriosis, painful bladder syndrome, irritable bowel syndrome, myofascial pain of the pelvic floor etc

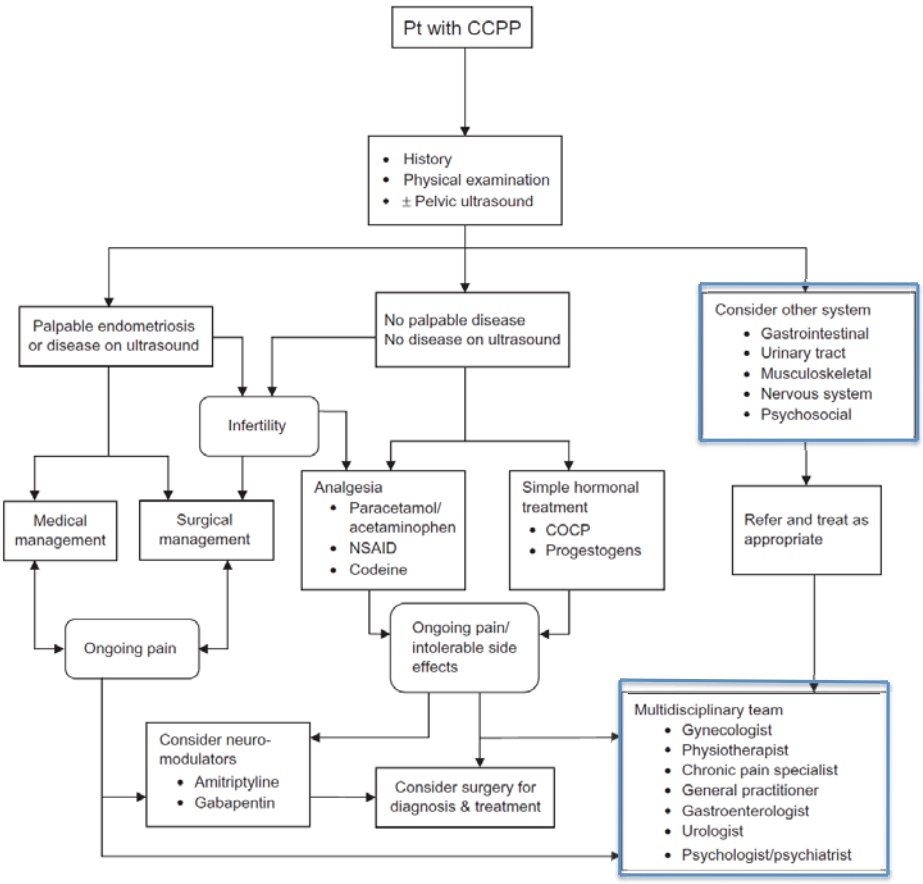


- Functional brain MRIs done on all patients
- Patients' brains were more similar based on presence or absence of pain, and NOT whether or not they had endometriosis
- Most interesting: PAG more extensively developed in patients with Endo and no pain…



Multidisciplinary treatment

- Must address all potential pain generators:
  - Endometriosis, IC/PBS, IBS, myofascial pain etc
- Consider use of neuromodulators
- Pelvic physio is key to address myofascial pain of the ant abdo wall & pelvic floor, and to help address sexual pain
- Psychologist specialized in pain
  - CBT, mindfulness meditation
- Acupuncture? TENS
- Interventional techniques



Interventional treatments for CPP

- Trigger point injections +/- Botox
- Peripheral nerve blocks (ex pudendal, ilio-inguinal / iliohypogastric / genitofemoral)
- TAP block
- Impar ganglion block
- Superior and inferior hypogastric plexus block
- (Neuromodulation)
- Surgical: Pre-sacral neurectomy

Vulvar Pain

- Most common cause: Vulvodynia
  - Can be localized to a specific area (ex vestibule / introitus, or clitoris), or generalized
  - Spontaneous or provoked by touch (ex intercourse, tampon insertion etc)
- Persistent > 3 months
- No identifiable etiology

Vulvodynia

- Approx 8-10% of women
- Peripheral and central sensitization
- Patients often have comorbid pain syndromes
  - Migraines, Fibromyalgia, IC/PBS, IBS, TMJ, Endometriosis etc
  - Psychiatric co-morbidities (anxiety, depression, PTSD) and childhood abuse Hx
- Often exists with associated factors such as hypertonicity of the pelvic floor

Table 3. 2015 Consensus Terminology and Classification of Persistent Vulvar Pain and Vulvodynia

A. Vulvar pain caused by a specific disorder*
- Infectious (eg, recurrent candidiasis, herpes)
- Inflammatory (eg, lichen sclerosus, lichen planus, immunobullous disorders)
- Neoplastic (eg, Paget disease, squamous cell carcinoma)
- Neurologic (eg, postherpetic neuralgia, nerve compression or injury, neuroma)
- Trauma (eg, female genital cutting, obstetrical)
- Iatrogenic (eg, postoperative, chemotherapy, radiation)
- Hormonal deficiencies (eg, genitourinary syndrome of menopause [vulvovaginal atrophy], lactational amenorrhea)

B. Vulvodynia—vulvar pain of at least 3 months' duration, without clear identifiable cause, which may have potential associated factors.

The following are the descriptors:
- Localized (eg, vestibulodynia, clitorodynia) or generalized or mixed (localized and generalized)
- Provoked (eg, insertional, contact) or spontaneous or mixed (provoked and spontaneous)
- Onset (primary or secondary)
- Temporal pattern (intermittent, persistent, constant, immediate, delayed)

* Women may have both a specific disorder (eg, lichen sclerosus) and vulvodynia.

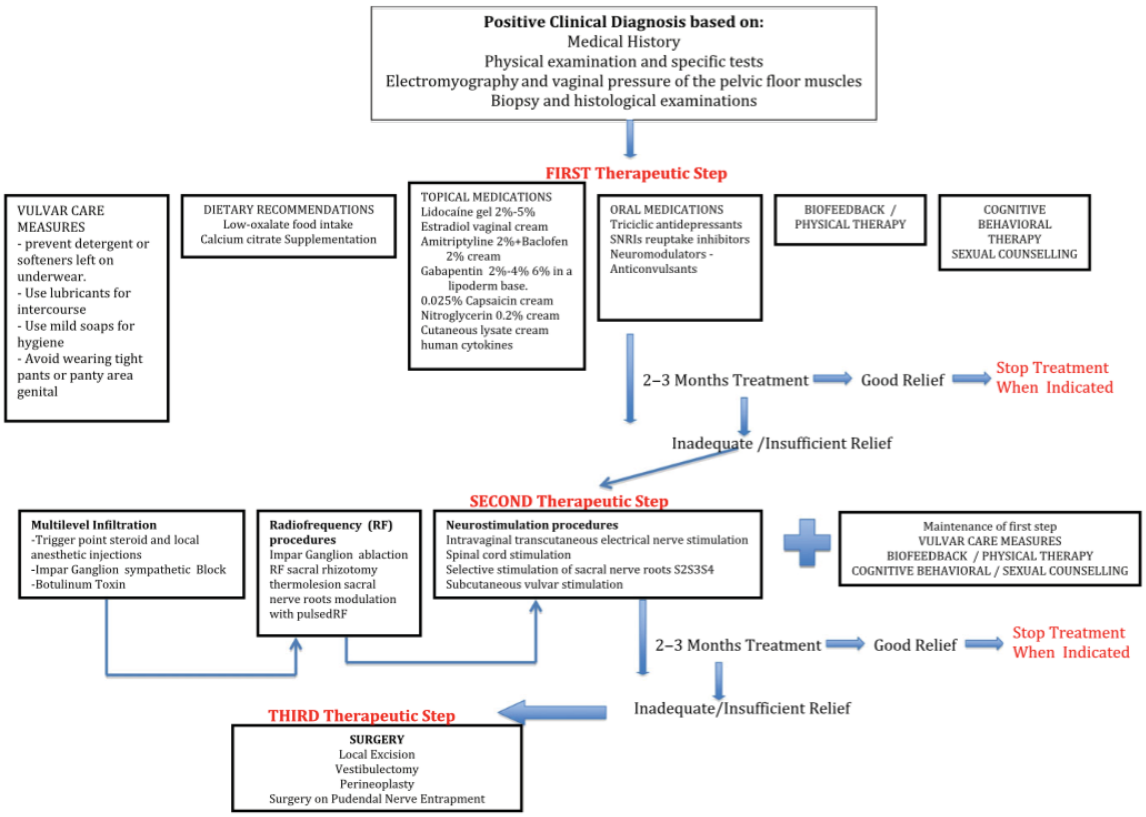


Figure 1. Proposed therapeutic algorithm model including an intermediate, minimally invasive stage for the treatment of vulvodynia.

Pudendal Neuralgia (PN)

- Painful neuropathic condition in the distribution of the pudendal nerve (vulva, vagina, clitoris, perineum, anus)
- Usually unilateral, but can be bilateral
- Usually described as burning, or sensation of having a foreign object inside the vagina or rectum; can also have hyperethesia, allodynia and paresthesias
- Aggravated by sitting, improved by lying down or standing; does not awaken patients at night
- Common associated Sx are: dyspareunia, urinary Sx including increased frequency and urgency
- Prevalence between 1/100,000 and 1%

PN - Causes

- Mechanical compression = most common cause
  - Trauma
    - falls injuring the back or buttocks
    - Insertion of foreign objects into the rectum or vagina
    - Childbirth
    - Cycling / horseback riding
  - Entrapment caused by pelvic floor muscle spasm
  - Tumors / deeply infiltrating endometriosis
  - Scarring following surgical procedures (especially for pelvic organ prolapse with mesh), or radiation therapy
- More rarely, can be caused by herpes simplex infection, or an immunological condition

Diagnostic Criteria

Nantes criteria for the diagnosis of pudendal neuralgia
Pain in the area innervated by the pudendal nerve extending from anus to clitoris
Pain is more severe when sitting
Pain does not awaken patients from sleep
Pain with no objective sensory impairment
Pain relieved by diagnostic pudendal block

Data from Labat JJ, Riant T, Robert R, et al. Diagnostic criteria for pudendal neuralgia by pudendal nerve entrapment (Nantes criteria). Neurourol Urodyn 2008;27(4):306–10.

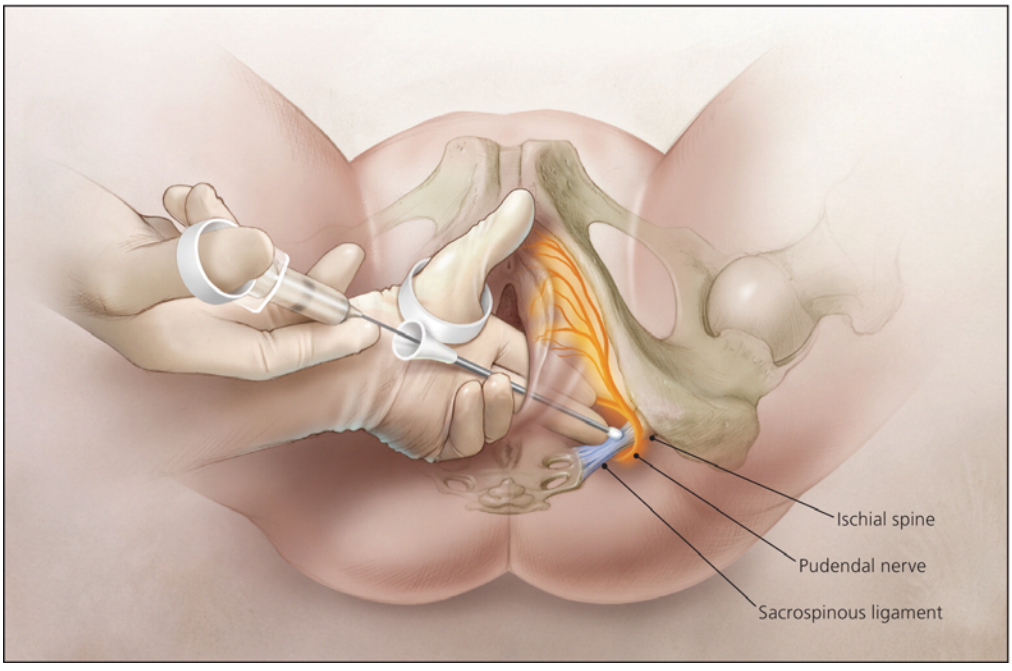
PN – Therapeutic Approaches

- First line therapy = pelvic physiotherapy
- Medications
  - Muscle relaxants such as cyclobenzaprine
  - Neuromodulators such as gabapentin, pregabalin (75 mg orally twice daily), tricyclic antidepressants
  - Local intravaginal therapies: diazepam 5-10mg tablets TID PRN or baclofen 10mg TID PRN
  - rectal belladonna and opium suppositories

PN - Interventional approaches

- Pudendal nerve blocks
  - Multiple techniques described
    - Transgluteal (ultrasound guided), trans perineal, transvaginal or transrectal
    - Can also be done CT guided or using fluoroscopy
  - Multiple protocols
    - Local anesthetic (xylocaine, bupivacaine) +/- corticosteriods (triamcinolone, methylprednisolone)
    - Often first injection is done as trial with local, then repeated one or more times if patient gets relief

Transvaginal pudendal nerve block



PN – Interventional Approaches

- Transvaginal Pulsed radiofrequency (case-series)
- Refractory levator ani muscle spasm can be treated with injections of botox
- Surgical decompression
  - Various routes ex transgluteal, transperineal or transvaginal
- Refractory cases: sacral neuromodulation
- Systematic review unable to conclude which interventional method was superior
  - Seems as though nerve block better in short term, and surgery better in the medium-long term

http://milplumascalligraphy.blogspot.ca/2011_08_01_archive.html

CPP / Vulvodynia Guidelines

- SOGC Consensus Guidelines for the Management of Chronic Pelvic Pain, Nov 2018
- ACOG Practice Bulletin: Chronic Pelvic Pain, March 2020
- European Association of Urology Guidelines on Chronic Pelvic Pain, 2016
- Canadian Association of Gastroenterology Clinical Practice Guidelines for the Management of IBS, 2019
- 2015 ISSVD, ISSWSH and IPPS Consensus Terminology and Classification of Persistent Vulvar Pain and Vulvodynia

References – Journal Articles

- Hunter et al. ***Anatomy, Pathophysiology and Interventional Therapies for Chronic Pelvic Pain: A Review;*** Pain Physician (2018) 21:147-167
- Nagpal & Moody; ***Interventional Management of Pelvic Pain***; Phys Med Rehabil Clin N Am 28 (2017) 621–646
- Elkins, Hunt & Scott; ***Neurogenic Pelvic Pain***; Phys Med Rehabil Clin N Am (2017) 28: 551–569
- Perez-Lopez & Hita-Contreras; ***Management of Pudendal Neuralgia***; Climacteric (2014) 17(6): 654-656
- De Andres et al. ***Vulvodynia—An Evidence-Based Literature Review and Proposed Treatment Algorithm*** Pain Practice (2016) 16(2): 204–236
- Bergeron et al***. Vulvodynia;*** Nature Reviews, Disease Primers***;*** (2020) 6:36
- As-Sanie et al. ***Changes in regional gray matter volume in women with chronic pelvic pain - a voxel based morphometry study*** Pain (2012) 153(5): 1006–1014
- Brawn et al. ***Central changes associated with chronic pelvic pain and endometriosis*** Hum Reprod Update (2014) 20(5): 737–747
- Ghizzani et al. ***Differentiating overlapping symptoms of vulvodynia and pudendal neuralgia*** British Journal of Pain 2019, Vol 13(1) 54–58
- Tricard et al. ***The drug-resistant pudendal neuralgia management: A systematic review*** Neurourology and Urodynamics. 2019;38:13–21.
- Frank et al. ***The Use of Pulsed Radiofrequency for the Treatment of Pudendal Neuralgia: A Case Series*** J Obstet Gynaecol Can 2019;41(11):1558–1563

Other Useful References

- Many excellent articles by Dr Sawsan As-Sanie and Dr Andrew Goldstein
- IPPS Pain Questionnaire;
- ISSVD.org, National Vulvodynia Association
- http://www.bcwomens.ca/health-info/sexual-reproductive-health/pelvic-pain-endometriosis#Patient--Resources
- https://ainsworthinstitute.com/conditions/pelvic-pain
- www.cvvd.org
  - (sections “conditions we treat”, “publications”)