

The Enigma of Chronic Pelvic Pain: A Focus on Pudendal Neuropathy

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Chronic pelvic pain (CPP) is a very complex pain condition, and has eluded the development of treatment paradigms for many decades. The exact cause of CPP tends to be harder to identify due to comorbid conditions, and, therefore, symptom and pain management has historically been less than optimal.

usual responsibilities. Recent research has been able to illuminate possibilities for better management of CPP—offering patients opportunities to experience pain relief, and perhaps regain control of their lives.

Common Causes of CPP

Many patients with CPP carry multiple diagnoses, since there is significant overlap with common core symptoms, including abdominal distension and pain, headache, fatigue, bowel and bladder dysfunction, and sexual disorders. Any of the conditions listed in Table 1 may coexist with CPP, as well as with other specific diagnoses, such as fibromyalgia or a remote process, like sickle cell anemia. Nerve entrapments, pelvic congestion syndrome, interstitial cystitis, irritable bowel syndrome, excessive pain with endometriosis, and adhesions are all common sources of CPP, and can create changes in central processing.

Pudendal Neuropathy

Pudendal neuropathy (PN) is possibly the most frequent neuropathy of the pelvic region in both males and females. It is suggested that in women, prolonged labor, extensions of the second stage of labor, and endometriosis may be involved, and, in men, extended bicycle seat

exposure and serious chronic

constipation may play a role. Table 2 reviews common symptoms of PN from these activities, and the associated functional limitations.



Parachutist Descending, by Fran Forman

Patients with CPP can sometimes feel helpless, secluded, discouraged, and vulnerable. The patients may have trouble functioning, resting, or even facing their

A basic understanding of the neurobiology of the pelvis is essential to effective clinical management of CPP. The pudendal nerve diverges from the sacral plexus at S2-3, and runs medial to the internal pudendal vessels, then branching to become the dorsal nerve of the

Management Overview

The successful management of PN depends on the goals established by the physician and the patient, and may include decreasing the pain score, improving sleep disorder issues, instilling patient confidence, and creating hope.

Table 1: Common Causes of Chronic Pelvic Pain

Gynecological

Adhesions
Cervical stenosis
Chronic functional ovarian cyst
Endometrial polyps
Endometriosis and adenomyosis
Imperforate hymen or transverse vaginal septum
Intrauterine synechiae (Asherman's syndrome)
Ovarian neoplasms
Ovarian remnant syndrome
Pelvic congestion syndrome (varicosities)
Pelvic relaxation
Primary and secondary dysmenorrheas
Salpingo-oophoritis
Uterine anomalies (congenital malformation, bicornuate uterus)
Uterine leiomyoma

Gastrointestinal

Abdominal angina
Carcinoma
Diverticulitis
Granulomatous colitis (Crohn's disease)
Hernia
Infectious diarrhea
Irritable bowel syndrome
Recurrent appendiceal colic
Recurrent partial small bowel obstruction
Ulcerative colitis

Genitourinary

Carcinoma of the bladder
Interstitial cystitis
Pelvic kidney syndrome
Recurrent or relapsing cystourethritis

Ureteral diverticula/polyps
Ureteral obstruction
Urethral syndrome

Musculoskeletal

Coccydynia
Congenital anomalies
Fibromyalgia
Low back pain syndrome
Myofascial syndrome
Osteoporosis
Pelvic floor muscle tension
Scoliosis and kyphosis
Spinal pathology (spinal stenosis)
Spondylolisthesis
Spondylolysis
Tumors

Adapted from: McDonald JS, Rapkin AR. General Considerations. In: Loeser JD, Butler SH, Chapman CR, Turk DC. Eds. *Bonica's Management of Pain*. 3rd Edition. Philadelphia, PA: Lippincott Williams & Wilkins; 2001.

Table 2: Impairments and Functional Limitations caused by Pudendal Neuropathy

Impairments

Pelvic floor dysfunction
Connective tissue restrictions
Myofascial trigger points
Muscle hypertonicity
Adverse neural tension
Structural/biochemical abnormalities
Depression and anxiety
Central sensitization

Functional Limitations

Decreased sitting tolerance
Urinary urgency and frequency
Pain during or after voiding; slow, hesitant, or interrupted urinary stream
Pain before, during, or after bowel movements
Constipation and difficulty evacuating
Difficulties with activities of daily living
Decreased tolerance for exercise
Sexual dysfunction

Adapted from: Prendergast SA, Rummer EH. The Role of Physical Therapy in the Treatment of Pudendal Neuralgia. *IPPS*. 2007;15(1).

penis/clitoris, medial branches to the anal canal, dorsal branches to the urethral sphincter, and dorsolateral branches to anterior perineal musculature (1). This neural-fiber distribution illuminates the array of symptoms and causes of PN, and related CPP syndromes.

Recent research shows more discoveries on the horizon regarding the locus of causation of PN (2-4). My initial clinical study of PN involved CT guidance for more accurate medication delivery in certain circumstances (5). This study launched from the fact that there were many treatment failures, and, for the most part, patients with PN who do not respond well to pudendal blocks may

have a root causation of therapy failure, perhaps due to poor medication delivery near the pudendal nerve itself.

It is also possible that a pudendal block may miss the primary target, when performed transvaginally via a blind approach, due to the ischial spine. In our radiologically-directed study (6), CT scans were used to precisely locate the ischial spine and, thus, allow more direct needle guidance. Twenty-six female patients with PN were treated

A multimodal approach encourages the use of oral pain medications, diagnostic nerve blocks, physical therapy, and psychological support, concomitantly and within the first patient visit.

over a several month period. Over time, they received five CT-guided pudendal block treatments. All 26 patients were asked to score their pain before and after therapy based upon the classic pain scale, with 10 being the worst possible pain imaginable. Sixteen of 26 patients (62%) had significant pain reduction after therapy; however, 10 patients (38%) did not. Using information from the clinical research team at UCLA, we initiated a treatment study of vulvar vestibulitis (VVS), which included multiple treatment levels. [PN can be a possible cause of VVS.] Specifically, the study focused on subservient nerves involved peripherally, and involved dorsal root ganglia (DRG) serving the involved area. This treatment worked to erase some of the painful signals at the putative site, DRG, and the nerves located superficially at the point of pain perception. Our hypothesis was that this triple therapy approach, already displaying evidence of success in many of my patients, would also bring some sustained relief to our research subjects.

A multimodal approach encourages the use of oral pain medications, diagnostic nerve blocks, physical therapy, and psychological support, concomitantly and within the first patient visit. In cases where comorbid conditions have created changes in central processing (Table 1), the physician must consider both the condition causing CPP and the other diagnosis, and communicate with the patient's primary physician. CPP rarely results from a psychological disorder, but most women with CPP will have comorbid anxiety, depression, sexual dysfunction, and social withdrawal. There also is higher prevalence of major depression, affective disorder, panic

disorder, sexual abuse, and physical abuse in women with CPP. Progressive activity programs are useful in increasing physical activity and decreasing disability behaviors, thus helping to decrease the effects of CPP (7). Managing stress by learning to identify and alter stresses is essential to any therapeutic program. When coordinated with education on CPP, as well as the importance of nutrition, exercise, sleep, relaxation, and the avoidance of substance abuse, success is attainable in most cases (8). As is seen with both interstitial cystitis and irritable bowel syndrome, dietary modifications, such as a decrease in acidity and avoidance of stimulants, will help control symptoms and allow patients a better quality of life.



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