
# TREATMENT OPTIONS FOR PERSISTENT PAIN FOLLOWING PUDENDAL NERVE DECOMPRESSION SURGERY

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In general, patients expect some pain following decompression surgery. However, six months later when they continue to have severe flares that may eclipse their preoperative symptoms, they suffer desperation and depression. When nerve blocks provide no significant long term relief, we must look “outside the sensitive nerve” or “outside the box” for treatment answers. After evaluating and treating more than thirty post operative patients and approximately 200 that did not require surgery, some of these answers to the treatment questions have emerged.

Many of these post operative pain generators were actually preexisting myofascial dysfunctions that predisposed the nerve to injury and then remained a dominant problem following surgery. Others developed because of the effect that the sensitized nerve and/or surgical trauma had on the surrounding connective tissue, muscles, and ligaments. It is only after these extra neural causes are identified and treated that significant pain relief can be achieved.

## The Major Causes of Persistent Pain Following Surgery

**1. Myofascial trigger points** of the pelvic floor. Even though they may have preceded surgery, trigger points can be further aggravated by surgical trauma and act as powerful nociceptors maintaining the pudendal neuralgia.

**2. Subcutaneous connective tissue sensitivity** from **connective tissue restrictions and adverse neural tension** is a very important perpetuator of post surgical pain. Sitting on tender and restricted tissues can not only mimic PNE pain, but also contribute to neuralgia because of its nociceptive input.

**3. Sacroiliac Joint Dysfunction,** caused by transecting the sacro spinous and tuberous ligaments during the transgluteal surgical approach can maintain and/or create myofascial dysfunction as well as be a local source of pain. The attaching piriformis is especially vulnerable to the development of trigger points through this mechanism.

**4. Pudendal nerve branch pathology:** I have come to believe that this is one of the most important challenges in treating persistent pain. The perineum, anus, and penis/clitoris, innervated by the perineal, inferior rectal, and clitoral/penile branches, are commonly the most painful post operatively and the most resistant to treatment. This is due to several biomechanical and physiological consequences of nerve compression.

From the **mechanical standpoint 1.** Nerve branches that leave the main trunk at right angles, such as the perineal and inferior rectal or traverse fibroosseus canals are the most vulnerable to injury. 2. The double crush

syndrome: When a nerve is pathologically fixed, the nerve and its branches are subject to increased friction and stretch because they are unable to slide normally in their sheathes. 3. Tension placed on any part of the nerve will be dissipated in two directions.

From the **physiological standpoint**, it has been shown that even minimal distortion of a nerve disturbs the normal axoplasmic flow which sensitizes other areas of the nerve to minor traumas.
These principles may explain why the perineal and inferior rectal branches, which leave the main trunk at an angle, and the penile/clitoral branch which traverse a fibroosseus canal(Hruby), sustain significant injury that may or may not have been addressed during surgery, or even if addressed may not quickly respond. Therefore, is it possible that some of the persistent pain in these problem areas is due to inflammation or fibrosis that either has not been surgically addressed, or is slow to recover?

**Table 1 refers to the distribution of these pain generators in thirty two post operative patients.** Note that 83% of the patients who under went a transgluteal approach had symptomatic SIJD. All of the patients had regional subcutaneous connective tissue sensitivity. The patients with anal pain had the largest percentage of tenderness in the region of the inferior rectal branch and trigger points in the puborectalis, the coccygeus and the piriformis muscles.

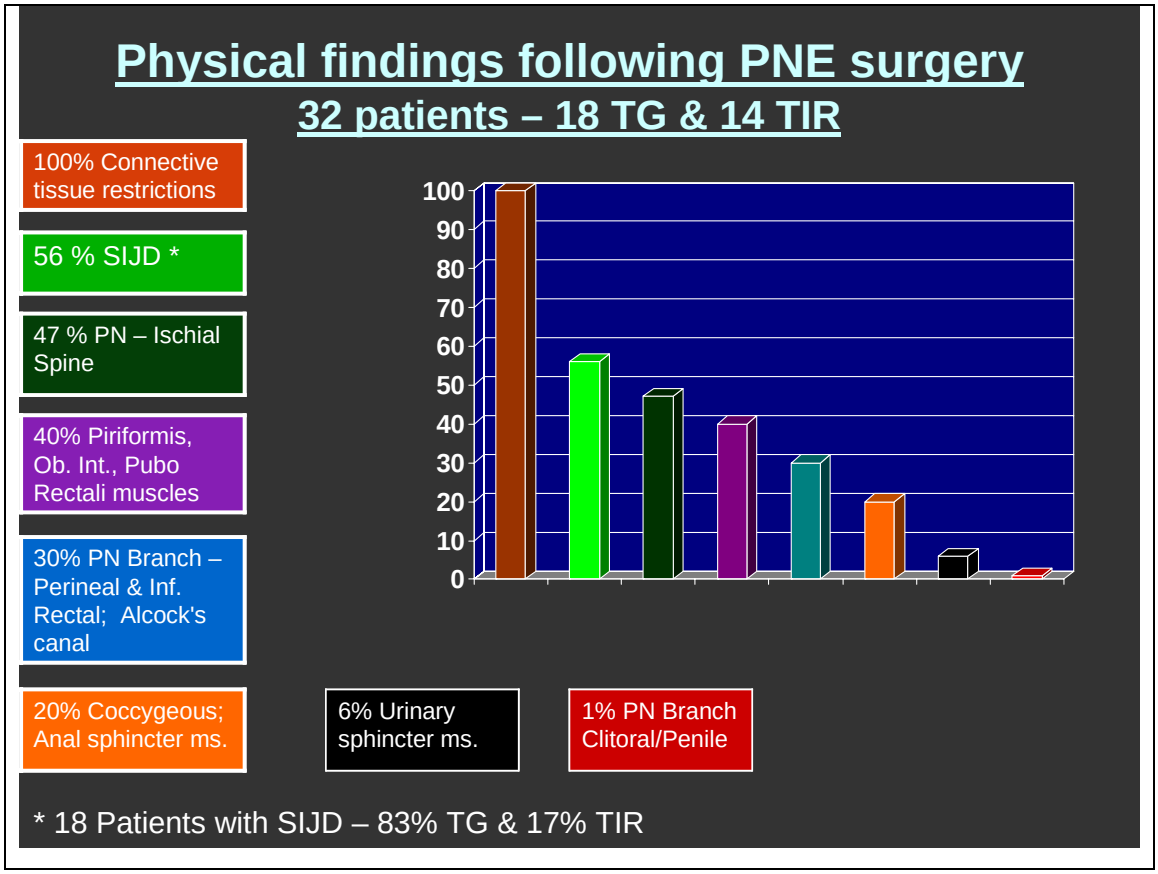


**Table 1 –Percentage physical findings following PNE surgery**

**5.** We must further be aware **of factors that interfere with normal pain modulation** since they can intensify symptoms both pre and post operatively. **Chronic stress and pain** lower pain thresholds by depleting dopamine and elevating adrenaline, and tightening overloaded muscles. **Sleep deficiency, hormonal shifts, and dietary factors** can also disrupt normal pain modulation. Effective treatment requires recognizing and addressing them pharmacologically or behaviorally.

**6. Central Sensitization also** plays a major role in the maintenance of post operative pudendal nerve pain. However this shouldn't be an excuse for

watchful waiting. Rather this is the reason why a holistic multidisciplinary is essential for success. Gracely, Koltzenburg, and Cohen, after studies, concluded that altered central processing could not be maintained without an ongoing input from a painful focus. They believe that when nociceptor activity is blocked or reduced below a critical level, the central processing mechanism quickly reverts to normal. Many sources of increased nociceptor activity have been outlined: myofascial trigger points, connective tissue inflammation and restrictions, stress and depression, sleep deficit, dietary pain producers, and biomechanical abnormalities. Justins and Siemasko, in the 2002 IASP Pain Updated Review, after reviewing treatment for chronic nerve pain, concluded "… it is naive to believe that nerve blocks will correct a complex multidimensional problem….." Interventions should be just one component of a comprehensive multidisciplinary approach to management."

## TREATMENT OPTIONS FOR PERSISTENT POST SURGICAL PAIN

**Non- Invasive**

Manual Therapy

- Myofascial Release: Internal and External
- Neural Mobilization
- Connective Tissue Manipulation

Cold Laser

**Invasive**

Proliferative Therapy of the Sacroiliac Joint

Trigger point Injections/Dry Needling

Connective Tissue Infiltration

Pudendal Nerve Blocks: Main Trunk or Selective
Branch Blocks with Steroids or Heparin

Epidural Anesthesia

Botox Injections to Obturator Internus

Sympathetic Block

**Pharmacologic**

Tricyclics

Neurologics/ Anticonvulsants

Opiates

SSRI's/ SSNRI's

**Mind Directed**

Stress Reduction: Meditation/ Mindfulness

Cognitive Behavioral Therapy

Psychotherapy

**Treatment Protocol:**

1. **History** to determine the sites and intensity of the pain, the activities that influence it, and medication requirements for pain control.
2. **Physical examination** of the pelvic floor and external muscle groups, the connective tissue, and the pudendal nerve along its entire course.

In general nerve sensitivity, muscle hypertonus, trigger points and connective tissue changes co-exist. The question is: What is the core problem driving the entire complex?

The answer can be arrived at by first treating the muscles and subcutaneous connective tissue to see if this reduces the nerve sensitivity. It is not uncommon to find that extreme nerve sensitivity completely resolves or is markedly decreased with this therapy. If the nerve sensitivity persists then attention should be directed to the segment most involved. Selective nerve blocks using steroids or heparin can then be administered in conjunction with manual therapy for connective tissue restrictions and myofascial trigger points.

## Treatment Techniques

**Trigger point injections or dry needling** are used to eradicate myofascial trigger points. The ones that most commonly contribute to post operative pain are located in the gluteals, the piriformis, obturator internus, pubococcygeus muscles, anal sphincter, and the connective tissue of the perineal body. If they cannot be eradicated manually, the trigger point is either treated with an anesthetic injection of bupivicaine or with dry needling using a 0.30x50mm acupuncture needle. The technique for localization of the trigger point is identical. The taunt band of the trigger point is localized manually and then the needle is directed into the area. Once there is contact, the needle is moved in a pecking fashion to elicit a local twitch response or a sharp pain. At this point 0.5cc of anesthetic is injected or the acupuncture needle manipulated. The procedure is repeated moving the needle tip until the band is no longer palpable or pain is no longer triggered. Once this has been accomplished it should be followed by stretching and applying heat to the involved muscle.

**Connective tissue infiltration of anesthetic agents** for panniculitis or subcutaneous connective tissue restrictions and inflammation is utilized to increase blood flow in order to normalize the ischemic tissue. This is frequently done in conjunction with manual therapy since the two modalities potentates each other. The connective tissue is infiltrated with approximately 30 cc of 0.25% bupivicaine. Following this procedure, a severely sensitive pudendal nerve often will become pain free on palpation. Many patients describe significant immediate, long lasting relief without a flare or the trauma of a nerve block.

**Selective finger guided pudendal nerve blocks** are done through a transperineal approach with the patient in lithotomy. The entire nerve is palpated from the ischial spine, the terminal portion of Alcock's canal to the paraprostatic or urethral regions noting any areas of extreme tenderness. This frequently corresponds to areas of the patient's major complaints, i.e., the inferior rectal branch with anal pain, the perineal branch with perineal pain and the penile/clitoral branch with penile/clitoral pain. The ability to localize and focus treatment on these points and the ability to be certain that they are no longer tender post injection are the advantages that finger guided blocks have over X-ray guided techniques. An anesthetic with a steroid or heparin is used for the injection.

Not uncommonly patients describe more relief from the initial one or two blocks than subsequent ones, in spite of having a significant decrease in palpatory nerve sensitivity. This is an indication that there are other issues driving the pain other than the nerve. Since all of the patients treated had varying degrees of subcutaneous connective tissue sensitivity and restrictions, a combination of anesthetic infiltration, acupuncture needling,

and manual therapy was directed to affected regional tissues. If myofascial trigger points cannot be eradicated with manual therapy, they can be injected with anesthetic agents or dry needled.
In the problem area of the perineum, in conjunction with the trigger point injection, the perineal branches can be blocked by directing the needle laterally at the level of the superficial transverse perineal muscles, as well as under the pubic ramus in the area of the sensitive nerve.
Depending upon the severity of symptoms, pain or anticonvulsant medication was added.

**Mind directed therapy** is carried out in conjunction with the above.
**Cognitive Behavioral Therapy** gives patients alternative ways of coping with their chronic pain by challenging negative, unrealistic appraisals of their pain and training them to decrease their focus on what they can't do to what they can do.
**Meditation** has been shown to increase endorphin levels and is also a valuable adjunct.

**Statistics:** Accurate statistics are impossible to determine since the primary treatment, surgery, has a variable recovery period. However it is logical to assume that recovery will be accelerated when the peripheral pain generators are successfully treated. It has been my uniform experience that patients can have dramatic and rapid improvement immediately following physical therapy and injection techniques that would not be explained by the slower surgical recovery phase. It is also our experience that patients come running to my office if they have a flare, because they have found that the treatment gives them relief.

**In conclusion**, successful treatment of persistent post decompression pain requires comprehensive multidisciplinary therapy. The level of pain a patient experiences is the sum total of nerve injury, regional myofascial trigger points, connective tissue restrictions and adverse neural tension, deficient pain modulators and stress. To further complicate the picture, all of these aforementioned factors can perpetuate symptoms by initiating a vicious pain cycle. Some pain flares during the recovery phase can be attributed to the failure to address all of the issues that comprise the whole. An analogy is that of cutting one fiber in a spider's web which will not release its prey any more than treating one pain component will release the patient from the web of pain. Freedom from pain can only occur when all of the links are severed, since treatment of every component is essential in decreasing the underlying central sensitization.

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