The Role of Physical Therapy in Myofascial Pelvic Pain Syndromes
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Current research is showing many chronic pelvic pain syndromes have multiple etiologies spanning several disciplines. Patients with complex syndromes such as vulvodynia, interstitial cystitis/painful bladder syndrome, nonbacterial chronic prostatitis/chronic pelvic pain syndrome and pudendal neuralgia present with myofascial impairments upon physical examination, making physical therapy a necessary component of an inter-disciplinary treatment plan. In 2008, Frank Tu, MD, conducted a blinded, prospective, cross-sectional study of 19 women with Chronic Pelvic Pain (CPP) and 20 healthy control subjects. He found that many women with CPP have pelvic musculoskeletal abnormalities and concluded that the investigation of somatic pain generators is warranted in these patients. (1)

A physical therapist specializing in pelvic floor dysfunction can help identify and treat pelvic abnormalities in men and women with hypertonic pelvic floor disorders. Literature has described physical therapy treatment of the pelvic floor using biofeedback, real-time ultrasound, electrical stimulation, stretching and strengthening, neural mobilization, and structural and biomechanical correction. Many of these techniques are widely used in effective treatment programs. (See Summer 1996 and Winter 2002 issues of NVA News.)

As the field of pelvic medicine has advanced, findings from animal and clinical research have shown that chronic pelvic pain syndromes involve musculoskeletal structures that extend beyond the pelvic floor muscles and surrounding joints. Consequently, the medical profession has incorporated manual examination of the pelvic floor muscles, internal and external connective tissue, and myofascial trigger points into the evaluation of a patient with pelvic pain. It is our position that incorporating manual physical therapy techniques will improve patient outcomes. This article presents the rationale behind the use of manual techniques and how to use them in evaluation and treatment.
Physical Therapy Evaluation and Treatment

Evaluation and treatment of patients with pelvic pain involve several components. A comprehensive evaluation and treatment address the connective tissue from the ribs to the knees, myofascial trigger points and hypertonus of the entire pelvic floor musculature and external pelvic girdle muscles, peripheral nerves of the pelvis and lower extremity, and the patient’s structure, joint mechanics, neuromuscular recruitment, and strength.

Connective Tissue

Healthy connective tissue is not thickened or painful and moves freely. As mentioned above, the viscerosomatic reflex can lead to connective tissue restrictions, internal and external myofascial trigger points and pain. To both evaluate and treat connective tissue dysfunction, a physical therapist must utilize a technique known as skin rolling. This manual technique manipulates connective tissue to normalize its mobility, improve circulation, reduce hypersensitivity and minimize the negative reflexive effects on surrounding muscle, nerve, and viscera.

Since patients with pelvic pain typically have connective tissue restrictions in the thighs, along the bony pelvis, in the gluteals and in the abdomen, all areas must be evaluated and treated. External connective tissue manipulation involves the therapist ‘pinch-rolling’ the affected tissue (below the skin and above the muscle) between his/her thumb and other four fingers, with both hands. The therapist will palpate to feel where the tissue is thick and restricted and mobilize the tissue using the thumb and forefinger to improve blood flow, decrease thickness, and restore mobility. When tissue is restricted, manipulating it typically causes a sharp sensation and may cause tissue soreness in the days following treatment.

Although the patient may feel discomfort, therapy-induced symptoms should decrease or remain the same during treatment. If symptoms increase, or the
patient cannot tolerate the technique, the therapist will discontinue the treatment until it is better tolerated. As the patient’s tissue normalizes over a series of treatments, skin rolling is no longer painful during or after treatment.

**Pelvic Floor Muscles**

The internal pelvic floor muscle exam begins with the therapist inserting one finger into the vagina or rectum, noting if there is pain or excessive tension upon entry. Motor control should be manually assessed prior to specific muscle examinations. Motor control is assessed by asking the patient to concentrically contract (squeeze) and eccentrically contract (push out) the levator ani muscles and voluntarily relax or “drop” the pelvic floor muscles. By palpat ing the pelvic floor muscles, the concentric strength of these muscles is scored using Laycock’s modified Oxford Grading System. This grading system is a 6-point scale as follows: 0=no contraction, 1=flicker, 2=weak, 3=moderate, 4=good (with lift), and 5=strong. The physical therapist should also note the rate at which the levator ani muscles relax after a concentric contraction. Muscles that are hypertonic, or tight, have difficulty relaxing or returning to a normal length after a single concentric contraction. After noting the motor control of the levator ani muscles, each muscle of the pelvic floor, including the obturator internus, ischiocavernosus, bulbospongiosus, transverse perinea, coccygeus and anal sphincter, must be assessed for tone, presence of myofascial trigger points and areas of muscle spasm and/or tenderness.

Traditionally, strength and motor control of the pelvic floor muscles have been assessed using biofeedback. Unlike biofeedback, a manual exam enables the therapist to assess the strength and quality of the contraction, as well as the tone of the musculature. Sometimes a therapist finds it beneficial to use both biofeedback and a manual assessment. The last component of the internal examination is palpation of the pudendal nerve for tenderness and/or a positive Tinel’s sign, otherwise known as the Valleix phenomenon. Upon palpation, if a patient experiences sharp, shooting pain in the sensory distribution of the
The pudendal nerve, which innervates the majority of the pelvic floor muscles, genitals, and vulvar and scrotal tissue, can play a role in pelvic pain syndromes. The nerve can be palpated for tenderness in four locations: at the ischial spine, at Alcock’s canal, at the terminus of the inferior rectal branch, and along the dorsal branch.

To treat the pelvic floor musculature, the physical therapist inserts one finger in the vagina or rectum to access the pelvic floor muscles. Manual techniques are employed to normalize muscle tone and motor control, and to eliminate myofascial trigger points. The techniques are performed by directly stretching the muscle, compressing the muscle, and/or using movement to achieve a muscle release. The most desirable technique should decrease muscle tone while causing only minimal discomfort for the patient. After a successful series of pelvic floor treatments, the muscles should have improved tone and motor control, and the patient should report less tenderness upon palpation of the muscles.

Myofascial Trigger Points

Another common finding with patients who suffer from pelvic pain is the presence of myofascial trigger points in the pelvic floor and the muscles attaching to the pelvis. Myofascial trigger points (MTrPs) are hyperirritable spots, usually within a taut band of skeletal muscle or the muscle’s fascia, that are painful upon compression. They cause referred pain, local tenderness and autonomic phenomena such as abnormal sweating, persistent and profuse nasal discharge and tear secretion, and excessive lubrication. Trigger points also cause proprioceptive disturbances, such as dizziness, tinnitus, and distorted weight perception of lifted objects. Untreated trigger points can lead to motor dysfunction and muscle weakness of involved and surrounding muscles, and can interfere with adequate muscle lengthening.

Janet Travell, MD and David Simon, MD pioneered the research on MTrPs. In their two-volume book, *Myofascial Pain and Dysfunction: The Trigger Point Manual*, they describe how to identify and treat a MTrP. The authors presented
the recommended criteria for identifying a trigger point, but also stated, “There is no one diagnostic examination that alone is a satisfactory criterion for routine clinical identification of a trigger point. Based on experimental information now available, the combination of spot tenderness in a palpable band and subject recognition of the pain are the minimum acceptable criteria.”

Travell’s approach to identifying trigger points is utilized by most physical therapists. In the evaluation of a patient, the physical therapist should examine multiple muscles for MTrPs that could be contributing the patient’s symptoms. The extrapelvic muscles that must be evaluated include the abdominal muscles, the iliopsoas, the adductors, and the gluteals.

After identifying the MTrPs, there are two manual techniques the physical therapist can use to eliminate them. In the first technique, the therapist manually compresses the trigger point for 60 to 90 seconds or until he/she can feel the trigger point ‘release.’ The second technique requires the therapist to compress the trigger point and instruct the patient to very gently contract the involved muscle 10 to 15 times, or until the therapist feels the trigger point release. The choice of technique depends on the preference of the individual therapist and the tolerance of the patient.

**Adverse Neural Tension**

David Butler defines adverse neural tension as an abnormal physiological and mechanical response produced from nervous system structures when their normal ranges of movement and stretch capabilities are tested. To understand adverse neural tension, a few basic anatomy and physiology facts are important to recognize. First, the nervous system consumes 20% of the available oxygen in the circulating blood yet consists of 2% of the body mass. Second, the peripheral and central nervous systems form a mobile, continuous tract through three mechanisms: connective tissue, electrical impulses and chemical neurotransmitters. Lastly, mechanical interfaces (tissue or material adjacent to the nervous system that can move independently of the system) can
compromise normal nerve mobility and lead to pain and dysfunction. Problematic mechanical interfaces for the pudendal nerve include connective tissue restrictions in the surrounding areas (which create ischemia), fibrosis from inflammatory processes (such as gynecological or urologic infections or muscular dysfunction of the pelvic floor), hypertonic muscles, myofascial trigger points, narrow facial canals, narrow spaces between the sacrotuberosous and sacrospinous ligaments and unyielding bony surfaces such as the sacrum and the ischial spine. When nerves are deprived of adequate blood supply, lack normal mobility, or undergo compression or tension from surrounding structures, pain and dysfunction can result anywhere along the course of the nerve or in the structures the nerve innervates.

Manual therapy techniques are used to test for and treat adverse neural tension. To evaluate a nerve, a physical therapist needs to palpate all relevant nerve fibers along the length of the nerve, assessing for tenderness, swelling, Tinel’s Sign, and perform nerve mobility testing. If nerve palpation causes shooting pain, Tinel’s Sign is considered positive. If nerve palpation simply produces pain, this should be noted. Mobility testing involves lengthening the nerve via extremity movement (if the nerve crosses a joint) or by distracting nerve fibers within normal limits. For example, increasing degrees of hip flexion will lengthen the pudendal nerve around the ischial spine. Lengthening the nerve this short distance will not cause pain if the nerve is unrestricted and the mobility is normal. A mobility test is considered positive if the movement reproduces a patient’s symptoms. For example, during one of the pudendal nerve mobility tests, a physical therapist will distract the tissue medial to the ischial tuberosity away from the patient while passively flexing the hip 90 – 120 degrees of hip flexion. If a patient reports an increase in the pain with increasing degrees of hip flexion and a decrease in pain as the degree of hip flexion decreases the test is considered positive. The pudendal nerves can be tested at the perineal branch, the dorsal branch, and the inferior branch. The tests by themselves are limited and need to be paired with other physical findings and a thorough assessment to determine all factors contributing to the patient’s symptoms. It is also important to
remember concepts of referred pain and consider the tests may also place force
or tension on mechanical interfaces that may be symptomatic themselves.

If a nerve is found to be under adverse neural tension, manual treatment can be
approached 3 ways. The first approach is via direct nerve mobilizations (not
stretches). This approach involves creating movement of the nerve, either
passively by the physical therapist or actively by the patient. It is not therapeutic
to stretch an inflamed nerve. For example, if a patient has adverse neural tension
on the perineal branch of the pudendal nerve and performs a hamstring stretch,
the hip flexion will stretch the nerve if it’s mobility is limited. This will cause pain in
the territory of the nerve, which may last for several hours. To avoid this, any
muscle stretching that may also stretch the nerve should be avoided until the
adverse neural tension has been resolved. The next technique is to treat
problematic interfaces in order to take excessive tension or compression off of
the nerve. For example, a patient with pudendal neuralgia may also have a
hypertonic obturator internus muscle. This will restrict the space available in
Alcock’s Canal. Decreasing the hypertonus will provide more space in the canal
and take tension off of the nerve. Any technique to decrease the hypertonicity
may be used, and when resolved, the nerve will have improved mobility and the
patient will have less pain. Finally, indirect therapies such as education and
positional modifications can help reduce symptoms while a patient is in
treatment. For example, a patient may need to avoid the squatting position
(avoiding tension), sit on a cushion (to decrease compression), and regulate their
diet to avoid constipation (avoiding tension).

Prior to initiating treatment, a PT must consider the severity, irritability, and
nature of the nerve-related symptoms and tailor the techniques to create a
reduction, rather than an increase, in the patient’s symptoms. The patient’s
presentation will guide the therapist to determine if the techniques will push the
patient into the symptomatic zone during the treatment. The end result should
always be a decrease in symptoms as the therapist repeats the treatment
technique during the session. When the treatment is successful the patient
should report a decrease in intensity or elimination of their symptoms.
immediately after the treatment. However, it is normal for a patient to feel soreness but it should be noted that soft tissue soreness is different than their symptoms. As a general rule, a patient may report pain or discomfort during the technique; however, if the pain increases (versus decreases or remains the same) during the technique the therapist should stop.

Structure
The pudendal nerve can be significantly affected by abnormalities of the sacro-iliac joint because it exits the sacrum and travels between the sacrotuberous and sacrospinous ligaments. Any deviation of the joint that can result in tension at the sacrum or that narrows the space between the two ligaments must be addressed. As multiple strategies exist to treat sacro-iliac joint dysfunction, the therapist should determine which is best for their patient and the techniques should be incorporated into the treatment session.

Treatment Plan
A typical physical therapy treatment program consists of 1-4 hours of physical therapy per week until the symptoms begin to decrease. As a patient’s symptoms decrease, less frequent physical therapy is required. The therapist will also make appropriate suggestions for lifestyle modifications and prescribe a home exercise program based on the clinical findings. The frequency, duration, and expected goals of physical therapy are dependent on the severity and longevity of the problem and the mechanism of injury. When creating functional goals for a patient, it is important for both the therapist and the patient to have realistic expectations. For example, a patient who has suffered from chronic constipation for 25 years may have permanently damaged the pudendal nerve and may only get partial pain relief and functional improvement with treatment. However, a patient that began sitting excessively during the past 6 weeks because he/she
started school and developed pudendal neuralgia will likely make a full recovery with the treatment plan discussed in this newsletter.

Conclusion

The musculoskeletal component of chronic pelvic pain is significant, and if left untreated, can prevent a patient’s condition from improving. An inter-disciplinary approach, including manual techniques, can help a patient eliminate or manage his/her condition and restore their quality of life. Physical therapists specializing in pelvic pain disorders can be found through the International Pelvic Pain Society (www.pelvicpain.org) and the American Physical Therapy Association (www.womenshealthapta.org).

Bibliography


