

Pelvic Floor Tension Myalgia (PFTM)

PFTM is a myofascial diagnosis of exclusion made only after organic disease has been ruled out. It usually requires a multidisciplinary treatment for optimal outcomes

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Chronic pelvic and rectal pain is a common and frustrating problem for many patients. It has been shown that the prevalence is almost 15% in some patient populations.¹ The etiology of the pain is often unknown despite extensive work-up. In some of these patients, the cause of the pain is secondary to the pelvic floor muscles. Despite the prevalence of chronic pelvic and rectal pain, the muscles of the pelvic floor are often overlooked as a source of the discomfort. This muscular pain has been referred to by numerous names in the literature including coccygodynia, levator spasm syndrome, levator ani syndrome, spastic pelvic floor syndrome, diaphragma pelvis spastica, and pelvic floor tension myalgia.^{2,3,4,5,6} All of these terms refer to a similar set of symptoms and clinical findings. The authors prefer the term “pelvic floor tension myalgia” (PFTM), as it seems to most accurately describe the syndrome.

Epidemiology

PFTM affects women more often than men, and patients are frequently in their fourth to sixth decade of life.^{2,3,6} In a survey of over 5,000 women aged 18-50 years, Mathias et al found that 14.7% reported chronic pelvic pain (sustained over six months) within the past three months.¹ Additionally, Drossman et al reported that 6.6% of people in their survey had symptoms consistent with “levator syndrome.”⁷

Pathophysiology

While the etiology of PFTM is unknown, pelvic floor muscle spasm is thought to play a key role, although there is no EMG study definitely showing this. Hypotheses have included genitourinary inflammation, poor posture, rectal disorders, pudendal nerve entrapment, trauma, reaction to pelvic organ disease, post-surgical scarring, central pain sensitization, and psychological factors as contributing to PFTM.

“Symptoms are often vague and difficult to localize, but patients classically complain of pain, pressure, or discomfort in the rectum, pelvis, sacrum, or coccyx. Symptoms are typically present for months to years at the time of diagnosis.”⁶

Clinical Findings

Symptoms are often vague and difficult to localize, but patients classically complain of pain, pressure, or discomfort in the rectum, pelvis, sacrum, or coccyx. Symptoms are typically present for months to years at the time of diagnosis.⁶ Other complaints may include a feeling of heaviness in the pelvis, low back pain, thigh pain, and dyspareunia. Patients may notice that the symptoms are worse with prolonged sitting, physical activity, bowel movements, menses, or psychological or general physical tension. Some investigators have noted that the left side is more commonly affected for unknown reasons.³ On physical examination, patients have extreme muscular tenderness of one or more of the pelvic floor muscles (ileococcygeus, pubococcygeus, puborectalis, coccygeus) during digital rectal and/or vaginal examination. The examiner must attempt to palpate each of the muscles bilaterally for a complete exam. While most patients will find digital rectal exam uncomfortable, the discomfort should reproduce the patient’s pain and is often quite striking. It must be emphasized that PFTM is a diagnosis of

exclusion, made only after gynecologic, urogenital, gastrointestinal, infectious, and neurologic causes have been ruled out.

Case Study

A 55 year-old female presented to the emergency department with a two-week history of worsening sacrococcygeal area pain radiating into her buttocks, predominately on the left side. The pain had been getting progressively worse, and was rated as a 6 on a scale of 10 — even while taking scheduled oxycodone. The pain was worse lying supine, and improved with standing. She had a past medical history notable for stage IIB squamous cell carcinoma of the cervix, and had received radiation and chemotherapy treatment two years ago. She was admitted to the hospital and started on a fentanyl PCA and fentanyl patch for pain control, but continued to have significant pain. Diazepam was then given with moderate, although short-term, pain relief. Gynecology and gastroenterology consults were obtained, but no source of her pain was found on exam. Neurologic exam was normal. Work-up included a MRI of the pelvis, bone scan, flexible sigmoidoscopy, pap smear, urinalysis/urine culture, and transvaginal pelvic ultrasound. None of these studies identified a source for the patient’s pain. A physical medicine and rehabilitation consult was then ordered and completed by one of the authors (S.W.). The patient’s exam was notable for mild left sacroiliac joint pain on palpation, and extremely severe pain on rectal examination with palpation of the left pubococcygeal muscle. The patient stated that this reproduced her pain, and the diagnosis of pelvic floor tension myalgia was made. Physical therapy, consisting of EMG biofeedback relaxation, superficial heat, myofascial release, TENS unit trial, neuro-muscular re-education, and posture training, was initiated. During the first three days of treatment, the patient was able to discontinue the fentanyl PCA and fentanyl patch, and was discharged from the hospital with oral pain medications. She continued with outpatient physical therapy treatments with gradually increasing intervals between sessions, and has continued to have excellent relief over the course of three months.

Treatment Modalities

Treatment of PFTM is often quite challenging, with numerous treatments showing moderate success. Treatment for PFTM in the literature has been quite diverse. A combined approach with multiple simultaneous forms of treatment seems to be most beneficial in these patients and may include:

- Massage
- Medication
- High-voltage electrogalvanic stimulation (HVGS)
- Biofeedback
- Short Wave Diathermy
- Injections
- Other (relaxation therapies, cognitive behavioral therapy, ultrasound, sitz baths, posture training, hydrotherapy, strengthening exercises, and TENS units)

A discussion of each of the above modalities follows.

Massage

Thiele was first to describe muscle spasm of the levator ani and coccygeus muscles as a source of pelvic pain.² He called this “coccygodynia” even though he noted that the coccyx was non-tender on palpation. He treated these patients with transrectal massage of the affected muscles along with proper sitting posture. Massage was performed daily for five or six days, then every other day for a week or ten days, then with a gradual weaning. The massage consisted of applying as much pressure as the patient could tolerate along the fibers of the pelvic floor muscles. Each side of the pelvis was massaged 10 to

15 times during one session. In a study of 324 patients, he reported 62% had a successful outcome with massage only. Individual studies on massage are lacking. In a retrospective study by Sinaki, "Thiele's massage" resulted in at least mild improvement in symptoms in 76 out of 83 patients, although numerous other treatments were used in these patients as well.⁶

Pharmacology

Analgesics and muscle relaxants have been used frequently for treatment of pelvic floor tension myalgia. Analgesics may ameliorate the pain but do not address the underlying abnormality. Diazepam has been frequently used, but the improvement is temporary. In one retrospective study, diazepam was helpful in 40% of patients.⁶

High-voltage Electrogalvanic Stimulation

High-voltage electrogalvanic stimulation (HVGS) has been used by multiple investigators for pelvic floor tension myalgia. An intra-anal probe is inserted and applied to the muscles in spasm. Most studies describe increasing the voltage as tolerated to a goal of 150-400 volts. Treatment duration and frequency vary. Side effects with HVGS are rare. The exact mechanism of pain relief with HVGS is unknown. It has been hypothesized that sustained contraction of the pelvic floor muscle results in fatigue and relief of spasm.⁸

In 1982, Sohn et al were the first to describe the use of high-voltage electrogalvanic stimulation in patients with pelvic floor tension myalgia.⁸ An intra-anal probe was used to administer the voltage, starting at 0 and gradually increasing as the patient could tolerate. Most patients tolerated approximately 250-350 V. The 72 patients were treated for one hour per day, a total of three times during a period of 3-10 days. Overall success rate of this regimen was 90% after follow-up (6 to 30 months post-treatment), although 15 of these patients did require additional treatment sessions.

Nicosia and Abcarian also had excellent results with HVGS and felt that it was the treatment of choice following a study on 45 patients.⁹ They treated patients for 15 to 30 minutes every other day for up to nine treatments and reported a success rate over 90% at the completion of treatments.

Two additional investigations reported success with HVGS, although the follow-up periods were either short-term or unknown.^{10,11} Subsequent investigations, however, failed to show a long-term benefit of HVGS. In a study by Billingham et al, 60% of patients had good or excellent responses immediately after the last treatment but, within weeks to months, this dropped to 40%.¹² Hull et al reported in a study of 52 patients that 57% had no relief after a mean follow-up of 28 months.¹³ Additionally, Ger et al reported that after a mean of 15 months following the completion of electrogalvanic stimulation, 61% of patients with "levator spasm" had poor results.¹⁴

Biofeedback

The use of biofeedback for PFTM is common, with varying results reported in the literature. Biofeedback is thought to be beneficial in PFTM by teaching patients how to properly relax the pelvic floor musculature. Grimaud et al reported impressive results in 1991 in a study of 12 patients with chronic idiopathic anal pain.¹⁵ They performed biofeedback using an anal probe over a 30-minute treatment period. Patients received weekly sessions until disappearance of the pain, followed by monthly treatments for three months, then sessions once every three months. Pain was relieved after an average of 8 weeks (range: 5 to 13 weeks). At follow-up after an average of 16 months, the pain relief persisted in 11 out of 12 patients.

Heah et al reported in 1997 on 16 patients with "levator syndrome."¹⁶ All of the patients had "chronic anal pain" (mean duration 32.5 months) that was reproduced by digital rectal examination. All patients

were taking NSAIDs at the beginning of the study, and the median pain score was 8 out of 10. Biofeedback was performed using a rectal balloon and anal pressure transducer in one-hour sessions once a week for four weeks. After completion of the biofeedback sessions, the median pain score was 2 out of 10, and only 2 out of 16 patients were taking NSAIDs. At a mean follow-up of 12.8 months, they found no worsening of pain.

Gilliland et al had varying results using biofeedback for intractable rectal pain.¹⁷ In their retrospective study, only 35% of patients reported an improvement in symptoms. The majority of patients, however, stopped treatment before completion of the protocol as determined by the certified biofeedback therapist. In those patients who did complete the protocol to the satisfaction of the therapist, 86% improved.

Ger et al reported poor results with biofeedback treatment of patients with “levator spasm.”¹⁴ A certified biofeedback therapist treated 14 patients for 30 to 60 minutes weekly for at least six sessions. The results were classified as “poor” in 50% of patients.

Additional studies have found good success with non-invasive biofeedback using surface electrodes for EMG recording. Clemens et al used non-invasive biofeedback as part of their treatment in men with chronic pelvic pain.¹⁸ Following a 12-week, biweekly program, they reported an improvement in visual analogue scale pain scores from 5 out of 10 to 1 out of 10.

Short Wave Diathermy

Short wave diathermy is used at several centers for patients with PFTM. It applies high-frequency electromagnetic energy, resulting in deep heating of tissues. Short wave diathermy is effective in heating a relatively large area in a short amount of time. This heating facilitates relaxation, reduces the spasm, and improves pain.

Sinaki et al published the only study of short wave diathermy for PFTM. In that retrospective study, 86 of 94 patients had received rectal or coil diathermy.⁶ Although overall good results were reported, the patients all received multiple forms of treatment, so it is difficult to determine the incremental benefit of short wave diathermy.

Injections

Local injections of steroids and/or anesthetics have been used with minimal long-lasting effects. Ger et al administered epidural caudal blocks with Xylocaine and Depo-Medrol in 11 patients with chronic rectal pain.¹⁴ Nine of the patients had some initial improvement, but only two had long-term success.

Botulinum toxin may be of benefit in patients with PFTM. It inhibits presynaptic release of acetylcholine at the neuromuscular junction, resulting in decreased muscle spasm. This mechanism of action may be beneficial in PFTM, as the goal of treatment is to relax the pelvic floor muscles. Quality outcome studies need to be completed, however.

Other

Multiple other treatments have been used for PFTM, including relaxation therapies, cognitive behavioral therapy, ultrasound, sitz baths, posture training, hydrotherapy, strengthening exercises, and TENS units. Results of these treatments have varied, and there is little data to support or refute their effectiveness.

Multidisciplinary Approach

A multidisciplinary approach to treatment is likely most beneficial in patients with PFTM. This often includes a physical therapist, physician(s), bowel/bladder nurse, psychologist, etc. Reassurance is important after other diagnoses have been excluded, as many patients have been suffering with symptoms for months to years without any diagnosis.

At the authors' tertiary referral center, patients referred to the physical medicine and rehabilitation department with PFTM are treated with a combination of the following: short-wave diathermy, EMG-assisted biofeedback, relaxation training, massage, posture training, and back/abdominal strengthening. Patients receive frequent therapy (twice a day for one week), with emphasis on reducing spasm, increasing relaxation, and training patients in self-control of their pelvic floor muscles. A home program is established with a fairly rapid decrease in therapy frequency, though subsequent refresher sessions may be required. This treatment regimen works well for many of the authors' patients, however formal clinical outcomes and long-term follow-up have not been conducted to date.

Summary

Pelvic floor tension myalgia is a myofascial diagnosis of exclusion after organic disease has been ruled out. Exquisite tenderness of the pelvic floor muscles on rectal exam that reproduces the patient's symptoms is the required hallmark of the diagnosis. Treatment should be multidisciplinary with the goal of relaxation training of the pelvic floor muscles. No one form of treatment is universally successful, and frequent or recurrent treatments are usually required for this chronic condition.

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