



Standard of Care: Female Chronic Pelvic Pain Syndromes

ICD 9 Codes:

- 719.45 Pain in the pelvic region
- 625.9 Vulvar/pelvic pain/vulvodynia/vestibulodynia (localized provoked vestibulodynia or unprovoked)
- 625.0 Dyspareunia
- 595.1 Interstitial cystitis/painful bladder syndrome
- 739.5 Pelvic floor dysfunction
- 569.42 Anal/rectal pain
- 564.6 Proctalgia fugax/spasm anal sphincter
- 724.79 Coccygodynia
- 781.3 Muscular incoordination (other possible pain diagnoses: prolapse 618.0)

Case Type/Diagnosis:

Chronic pelvic pain (CPP) can be defined as: “non-malignant pain perceived in structures related to the pelvis, in the anterior abdominal wall below the level of the umbilicus, the spine from T10 (ovarian nerve supply) or T12 (nerve supply to pelvic musculoskeletal structures) to S5, the perineum, and all external and internal tissues within these reference zones”.¹ Specifically, pelvic pain syndrome has been further defined as: “the occurrence of persistent or recurrent episodic pelvic pain associated with symptoms suggestive of lower urinary tract, sexual, bowel or gynecological dysfunction with no proven infection or other obvious pathology”.¹ Generally, female pelvic pain has been defined as pain and dysfunction in and around the pelvic outlet, specifically the suprapubic, vulvar, and anal regions. A plethora of various terms/diagnoses encompass pelvic pain as a symptom, including but not limited to: chronic pelvic pain (CPP), vulvar pain, vulvodynia, vestibulitis/vestibulodynia (localized provoked vestibulodynia or unprovoked vestibulodynia), vaginismus, dyspareunia, interstitial cystitis (IC)/painful bladder syndrome (PBS), proctalgia fugax, levator ani syndrome, pelvic floor dysfunction, vulvodynia, vestibulitis/vestibulodynia dyspareunia, vaginismus, coccygodynia, levator ani syndrome, tension myalgia of the pelvic floor, shortened pelvic floor, and muscular incoordination of the pelvic floor muscles.¹

Vulvar pain or vulvodynia refers to pain in and around the vulvar region of the pelvis in women. It is poorly understood and ill-defined which lends to the paucity of research on this topic.² Vulvodynia is a pain condition of the vulva associated with burning, irritation, and rawness, often specifically located at the vaginal introitus (opening). Vestibulodynia, a subset of vulvar pain and formerly known as vulvar vestibulitis syndrome (VVS), specifically refers to pain in and around the vestibule. It is defined by symptoms and the exclusion of other pathologies.² Other pathologies to exclude include: candidiasis, sexually transmitted diseases, dermatoses, atrophic vaginitis, and estrogen related dyspareunia, neoplasms, and bacterial infections. Vulvar pain prevalence is difficult to track given the inconsistencies in terminology and diagnostic

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criteria, as well as reluctance of women to discuss this problem (16% lifetime prevalence most commonly cited). The majority of women had onset of symptoms in their reproductive years (21-50 years old) and one-quarter of women reported onset after menopause. Chronic vulvar pain may be the result of musculoskeletal, neurological, viscerogenic, dermatologic, and myofascial dysfunction.²

Vulvodynia can be classified into three types: unprovoked vestibulodynia, provoked vestibulodynia, and clitorodynia. Symptoms that are continuous without provocation is known as unprovoked vestibulodynia. Pain that occurs with touch to the vulvar region is known as provoked vestibulodynia. Pain located specifically at the introitus with direct touch to the region, is sub-classified considered localized provoked vestibulodynia.³ Provocating situations can be: speculum insertion, intercourse, exercise, and tampon use.⁴ Clitorodynia, a further classification of vulvar pain, is pain in the clitoris.¹

Vulvodynia is associated with other pain conditions such as: fibromyalgia, irritable bowel syndrome, temporomandibular joint dysfunction, and interstitial cystitis/painful bladder syndrome. Pelvic floor over activity is found in 80-90% of these patients.³

Vaginismus affects more than 1% of women and is among the most common causes of entry dyspareunia. It is defined as recurrent involuntary contractions of the pelvic floor musculature. This diagnosis can be subdivided into primary vaginismus and secondary vaginismus. Primary vaginismus is defined as muscular spasms and pain occurring with the first attempt at penetration, limiting the ability for complete penetration/intercourse. Secondary vaginismus occurs after initial and previous attempts at intercourse have been successful. This condition can lead to anxiety and poor sexual response, leading to further involuntary contraction of the pelvic floor muscles prohibiting future penetration, and facilitating a continuation of the pain cycle.³

Dyspareunia is another pelvic pain diagnosis. This condition refers to persistent or recurrent pain with attempted or complete vaginal entry and/or penile vaginal intercourse.¹

Interstitial cystitis (IC) or painful bladder syndrome (PBS) is defined as pelvic pain associated with urinary frequency, urgency, and irritable voiding. It can be associated with vulvodynia, irritable bowel syndrome, endometriosis, fibromyalgia, and chronic fatigue syndrome. It is estimated that 50-87% of patients with IC/PBS have pelvic floor muscle overactivity.³ The sensation of the need to void is associated with the pressure from the pelvic floor muscle over activity. Pelvic floor physical therapy is more successful with this population compared to treatment directed at the bladder.³

Proctalgia fugax and levator ani syndrome are two anal region pain conditions that are associated with hypertonic pelvic floor musculature. Proctalgia fugax is a sudden, severe, transient attack of pain in the rectum lasting less than five minutes. Levator ani syndrome is defined as a near constant pain of a dull ache nature in the anal and rectal region. Because of the presence of pelvic floor muscle over activity, the failure of the pelvic floor muscles to relax can lead to incomplete defecation and post defecatory pain inside the anus.³

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Pelvic pain as a whole, accounts for 39% of women seen at primary care clinics. Pelvic pain also accounts for 40-50% of gynecological laparoscopies, 10% of gynecologic visits, and 12% of hysterectomies. Associated costs for CPP exceed 2 billion dollars a year in the USA. The prevalence of CPP is estimated to be 3.8% among women 15-73 years of age and ranges from 14-24% in women of reproductive age.⁵

The etiology of CPP includes potential involvement of any of the abdomino-pelvic structures, including the organs of the upper genital tract, blood vessels, muscular and fascial structures of the abdominal wall and pelvic floor, bladder, urethra, and gastrointestinal tract. Varying mechanisms can also contribute to the maintenance and evolution of CPP. One hypothesis is: neuroplastic changes that occur in the posterior horn of the spinal cord, which can lead to neurologic inflammation and cross-sensitivity of the viscera and muscles, share innervation. Due to these aforementioned mechanisms, an overlap of symptoms including: dyspareunia, dysmenorrhea, gastrointestinal complaints, genitourinary complaints, and musculoskeletal complaints can occur with CPP.⁵ In particular, irritable bowel syndrome (IBS), fibromyalgia, and interstitial cystitis are common co-morbidities of patients with CPP.² Furthermore, there is strong evidence that currently demonstrates the involvement of the musculoskeletal system in CPP.⁵ Over activity in the pelvic floor musculature is found in up to 80-90% of patients with vulvodynia.^{3, 6} Dysfunction of the musculoskeletal system can lead to the adoption of abnormal postures which contribute to increased tension, spasm, and adaptive muscle shortening that can exacerbate or perpetuate the pain.⁵

The musculoskeletal system is often overlooked as a source of pain in people with pelvic pain. Unrecognized musculoskeletal pain may be involved with the development of a state of pain amplification, which may contribute to the initiation of and/or maintenance of idiopathic chronic pain disorders.⁷ The symptoms of CPP often lead physicians to seek out visceral causes of pain. Because myofascial causes of pelvic pain are common, 25-40% of laparoscopies performed on women with chronic pelvic pain are negative. Thus, when treating this population, it is important to address the myofascial component of pain to be successful in treatment.³ Physical therapists are treating a specific musculoskeletal dysfunction such as muscle spasm, myofascial restriction, muscle incoordination, and impaired activities of daily living in patients with vulvar pain.²

Indications for Treatment:⁸

- Increased pain (including vaginal, rectal, suprapubic, vulvar region)
- Urinary urgency/frequency/incontinence
- Impaired muscle performance
- Impaired functional mobility
- Increased joint mobility
- Impaired boney alignment
- Impaired posture

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Contraindications / Precautions for Treatment: ⁸

The following precautions/contraindications refer to the performance of an internal pelvic floor examination:

- Pregnancy (must receive written consent from patient's obstetrician)
- Active pelvic infections of the vagina or bladder
- Active infectious lesions (i.e.: genital herpes)
- Current yeast infection
- Immediately post pelvic radiation treatment (within 6-8 weeks without physician approval)
- Immediate post pelvic surgery or postpartum (within 6-8 weeks without physician approval)
- Severe atrophic vaginitis
- Severe pelvic pain
- History of sexual abuse
- Lack of patient consent
- Pediatric patients
- Absence of previous pelvic exam
- Inadequate training on the part of the physical therapist

The following precautions/contraindications refer to patients who are currently pregnant: ⁹

- Deep heat modalities (ultrasound) and electrical stimulation
- Manual therapy techniques that may increase laxity
- Maintaining supine positions longer than three minutes after the fourth month of pregnancy

All patients with chronic pelvic pain should be screened for “red flags” such as active pelvic infections, cord signs, and cauda equina.

Evaluation:

This section is intended to capture the most commonly used assessment tools for this case type/diagnosis. It is not intended to be either inclusive or exclusive of assessment tools.

Medical History: History of major illness, surgery, traumas, accidents, allergies, and family history. Specifically, information regarding the following will also be helpful: ⁵

- Pregnancy and delivery history
- Previous pelvic surgeries
- Menstrual cycle information
- Breast feeding status
- Menopause status
- Recurrent yeast or urinary tract infections, and sexually transmitted diseases

Currently, no studies have been able to identify risk factors for CPP; however, the following conditions do seem to be associated with CPP. ⁵

- Alcohol abuse

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- Abortion
- Increased menstrual flow
- Pelvic inflammatory disease/pelvic pathology
- Cesarean sections
- Psychological co-morbidities

History of Present Illness: Patient describes main complaint(s) including:

- A trauma or incident associated with the onset of the pain
- Symptom duration, location, type of pain
 - Pain is often described as achy, throbbing, and as having a pressure or heaviness quality to it. Pain symptoms can often be vague and poorly recognized. The pain can be located in the vagina, clitoris, rectum, suprapubic region, or in the lower quadrants. Pain can also radiate into the hip and lumbar spine.³
- Provocation and relieving factors
 - Pain is typically provoked with intercourse, penetration, sitting, walking, exercise, orgasm, voiding or passing stool.³ Pain may also be unprovoked.¹⁰
- Previous episodes of similar symptoms
- Course of symptoms
- Functional activity status as a result of symptoms
- Bowel, bladder, and sexual functioning; review of bladder and bowel diary
- Previous treatments for symptoms and effect
- Special tests (including but not limited to):
 - Plain film: To rule out other insidious disease process
 - MRI: To visualize soft tissue changes in disc, spinal cord, nerve root specifically in pelvic and lumbar region
 - CT scan with contrast: To enhance myelography in order to detect space occupying lesion with good resolution
 - CT scan: To enhance bony margins in the pelvic region
 - Pelvic US: To rule out other abnormalities, kidney stones, and tumors
 - Cystoscopy: To identify the presence of glomerulations and/or Hunner's ulcers to facilitate the diagnosis of IC/PBS¹¹
 - Urodynamic studies: To assess voiding patterns, urethral pressures, urethral stability, and pelvic floor muscle activity during voiding³
 - Colonoscopy: To identify colorectal anomalies, including tumor¹²
 - Defecography: To identify presence of a non-relaxing pelvic floor, rectal prolapse, rectocele, and enterocele³
 - Anorectal manometry: To assess anal canal resting and squeeze pressures, rectal sensation, and rectal compliance¹²

Social History:

Obtain a complete social history, including living situation, both physical set up and with whom the patient resides, sleep patterns, stressors, personal and professional roles/responsibilities, as well as recreational and leisure activities.¹³

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Medications:

Obtain a complete list of medications used by the patient for this problem,¹³ including both prescription and non-prescription medications, as well as topical medications, as these may impact bowel and bladder habits which may correlate with the report of pain.

Oral contraceptives have been recently linked as a possible contributor to the development of pelvic pain.¹⁴ A lifetime risk of 6.6 of developing localized provoked vestibulodynia when using oral contraceptives has been found.¹⁵

Topical medications are often used with vulvar pain. Topical gabapentin has also been shown to reduce vulvar pain. Topical steroids are another class of medication that are used if the patient has an accompanying inflammatory skin condition, such as lichen sclerosus.¹⁶ Lidocaine applied topically to the vulva is a commonly used treatment strategy. Local estrogen has also been used in cases where there is a specific lack of local estrogen, as in post-menopausal conditions and thyroid disorders.¹⁵ Tricyclic antidepressants are typically used as first line treatment for vulvar pain (amitriptyline, desipramine, and nortriptyline are commonly used and used at lower doses that would be used for depression).^{15,16} Furthermore, anti-epileptic drugs including gabapentin or pregabalin have also been used to decrease pain, especially associated with unprovoked vulvodynia.¹⁵

Examination:

Most pelvic floor exams include a detailed medical history, posture assessment, pelvic floor muscle exam, sensory, coordination, and neurological testing, pelvic girdle and associated structure exam, bowel and bladder function including voiding diaries, digital and surface electromyography, hip, sacroiliac, and spinal mobility, abdominal, and lower extremity strength testing.²

Informed Consent:

Prior to conducting any pelvic floor assessment, explicit informed consent from the patient and/or parent/guardian is needed prior to conducting the exam. Risks, benefits, and examination components are reviewed with the patient and consent from the patient is given prior to conducting the examination. The fact that informed consent is given needs to be noted in the examination paperwork.⁸

Observation/Visual Inspection:

- **Gait-** The patient may present with an abnormal or antalgic gait pattern.⁵ Decreased or increased pelvic mobility may be observed during gait by observing quantity of movement of the pelvis in both the sagittal and transverse planes.
- **Function-** Patients may have difficulty with prolonged sitting, standing, ambulation, activities of daily living, as well as bladder and bowel functioning and intercourse.
- **Posture/Alignment:**
 - AROM of the spine, quadrant tests, passive segmental mobility may reveal specific facet joint dysfunction, facilitated segments, and motion restrictions.²

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- Head alignment, shoulder positioning and symmetry, scoliosis, as well as pelvis and lower extremities should be analyzed for postural deviations.⁵
 - Muscle imbalances may occur in and around the pelvic girdle, hips, and trunk because of muscle pain and become chronic once established.
 - Typical pelvic pain posture has been found in 75% of women with CPP which includes: exaggerated lumbar lordosis, increased anterior pelvic tilt, increased thoracic kyphosis.¹⁷
 - Abnormal sitting postures may also be found such as increased weight distribution on the sacrum instead of ischial tuberosities.¹⁸ Patients may exhibit shifting and frequent changes of position while standing. Patients may favor weight bearing on one side, which may contribute to muscle imbalances between the gluteus medius and the tensor fascia lata.
 - Toileting and intercourse positions should also be reviewed.
- **Pain:** Pain location can be in the vagina, vulva, rectum, suprapubic region, or lower abdomen. Pain can also radiate into the back and hips. Pain reports associated with pelvic floor muscle (PFM) over activity are often vague and poorly localized and defined as aching, throbbing, pressure-like or heavy. Pain can be provoked as the day progresses or during activities specifically involving the pelvic floor such as walking, sitting, exercise, intercourse, urinating, and defecating.³

Examination/Palpation:

(Please refer to Hand Washing Protocol for details)

- **External Trunk and Abdominal Palpation:**
 - The clinician may start with an observation and examination of the pelvic bones and lower extremities to determine the presence of pelvic obliquities, innominate rotation or shear dysfunctions, and sacral positional or movement dysfunctions.^{2, 8} Please refer to the Pelvic Girdle Pain Standard of Care and the Special Tests Task Force document of preferred tests to examine this area.
 - Testing may include: sacroiliac joint compression/distraction, FABER, Gaenslen's test, standing forward bend, spring rests, and stork test (see Special Test Task Force SI Tests for details)
 - A lower quarter screening examination including reflex testing and dermatomal testing for sensation impairment is conducted, assessing for possible adverse neural tension of the lower quarter nerves. This would be revealed with specific positional testing to help determine if the pain in the pelvis is resulting from pudendal, obturator, sciatic, ilioinguinal, or genitofemoral nerve compression, adherence, or restriction.²
 - External palpation of the abdominal wall, including any scarring or deformities and assessment of any abdominal trigger points or adhesions should be made.² Palpation of the bilateral iliacus, psoas, abdominal obliques, rectus abdominis, and quadratus lumborum muscles should also be performed, as these muscles can be commonly involved with those with pelvic pain.⁷ Carnett's test can be conducted to differentially diagnose between visceral and musculoskeletal causes of pain in this region.^{4,5} Diastasis recti testing should also be conducted to

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determine any separation and possible reduced stability of the rectus abdominis muscles.⁴

- Evaluative findings in this area may include: thoracolumbar and sacroiliac joint dysfunction, pubic bone malalignment, coccyx dysfunction, hip impairments, lower quarter flexibility and strength impairments, pelvic ligamentous tautness or laxity, and dysfunctional muscle firing or movement patterns.²
- **ROM:** Assessment of the range of motion of the lumbar spine, hips, and sacroiliac joints, and coccyx is also conducted.
- **Strength:** Manual muscle testing of the abdominal region and lower extremities is conducted. The pelvic floor muscles are tested for strength as well, using the Modified Oxford Laycock scale for assessment described in a later section.²
Rehabilitative ultrasound imaging (RUSI) can also be used to assess the timing and accuracy of the pelvic floor muscles as well as the transverse abdominis contraction to facilitate its correct timing during functional and strengthening activities (described later).²
- **Sensation:** Lower extremity and perineal sensation should be assessed for any alterations or deficits.
- **External Pelvic Floor Palpation:**
 - A physical therapy exam of the pelvic floor starts with observation of the external perineum to assess for swelling, asymmetry, color, and skin changes. If dermatoses are noted, the patient may be referred back to MD for further evaluation of such conditions. Also, external examination of the vulva, vestibule, urethra, and external pelvic floor (pelvic clock) should be assessed for injuries, irritation, adhesions, scarring, or trigger points.
 - External observation of a pelvic floor muscle contraction and relaxation is observed to see recruitment, coordination, and symmetry of the pelvic floor and anal sphincter activity. Neurological exam including reflex testing of the anal wink and bulbocavernosus reflex can occur, along with external palpation of the superficial PFM for pain and trigger points, shortening and spasm.²
 - The cotton swab test can be conducted. This test helps to determine the patient's irritability and tolerance to pressure or contact on the vestibular tissue and is considered to be a hallmark of localized provoked vestibulodynia. A cotton swab moistened with water is applied lightly, deflecting the skin 1 mm, around the areas of the vestibule at the following locations: 12:00, 12-3:00 quadrant, 3-6:00 quadrant, 6-9:00 quadrant, and 9-12:00 quadrant. These are tested in random order and the posterior fourchette is tested last as this area has a high probability of provocation. Pain is rated on the Numerical Rating Pain Scale from 0-10, where 0 is no pain and 10 is the greatest pain one can imagine. The test is repeated during re-evaluation following procedural interventions.² From this assessment, the therapist can determine where symptoms are perceived versus where they can be provoked.³
 - Pelvic and visceral adhesions may be seen and detected with visceral manipulation techniques, although they lack validity, reliability, and

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effectiveness, it may prove to be a useful tool in the evaluation and treatment of this population.²

- **Internal Palpation/Exam (vaginal):**

- An examination of the middle and deep pelvic floor muscles should then commence and is best conducted via transvaginal or transrectal palpation. From this exam, the clinician can evaluate the pelvic floor musculature for the presence of trigger points, spasm, vaginal vault size, symmetry, muscle activity, and muscle strength.² Manual muscle testing, using the modified Oxford scale, is done to determine PFM strength and excursion.^{2,8}
- A cleaned, well glove, and lubricated finger is used to enter the vaginal (or rectal) vault to assess presence of pain and vaginal/rectal coordination and strength (Please refer to Hand Washing Protocol for more details).
- Common findings for patients with CPP and PFM tension myalgia include: tenderness of PFM, spasm of the PFM, trigger point presence, shortened muscles, overactive PFM, poor posture, and/or deconditioned pelvic floor muscles. With shortened muscles, pain and weakness may be present and will have a decreased ability to lengthen, elongate, or bulge their PFM downwardly, which is needed to allow voiding or penetration to occur without pain.² With pelvic floor muscle over activity, the musculature has tension at rest, and these patients are often unable to demonstrate much more of a contraction and will rarely show a release of the muscle between attempts at contraction. Consequently, the attempt to contract the pelvic floor musculature will often be ineffective.³
 - The aforementioned possible findings of altered muscle activity can be evaluated with palpation, surface electromyography (sEMG), observation, and RUSI.
 - **Surface Electromyography (sEMG):** For diagnostic studies, objective determination of pelvic floor muscle over activity or under activity can be obtained through various techniques, one of which is sEMG. Either internal vaginal or rectal sensors or external superficial adhesive sensors may be used. The examination will likely reveal at least 3 of the 5 following findings: elevated and unstable resting baseline activity, poor derecruitment after contraction, poor return to baseline after contraction, spasms with sustained contractions, and poor overall recruitment.^{2,3}
 - **Rehabilitative Ultrasonic Imaging (RUSI):** Overuse of abdominal oblique muscles or valsalva maneuver during the execution of a PFM contraction may be seen on RUSI which may be worsening symptoms²
- Less likely to be observed is under activity or weakness of PFM, yet still possible and should not be overlooked.²

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- **Functional Outcomes:**

It is important to recognize that no single measurement can capture the entire scope of pelvic floor symptoms or impairments; therefore, the use of health related quality of life measures as an adjunct to clinical examination and evaluation offers a more accurate means of demonstrating and understanding the impact of pelvic floor dysfunction, including vulvar pain, on a woman's daily life.²

- Health-related quality of life questionnaires refer to a person's total sense of well-being and consider multiple dimensions including: social, physical, and emotional health.
- Vulvar Functional Status Questionnaire (VQ): provides a measure of physical function among women with vulvar pathology
- Pelvic Organ Prolapse and Incontinence Sexual Function Questionnaire (PISQ): assesses the impact of POP or UI on the sexual function of sexually active women.²

Differential Diagnosis:

- Non-musculoskeletal gynecological and/or urological or colorectal disorders (i.e.: endometriosis) should be considered.¹⁹
- Hip pathology, lumbosacral radiculopathy, plexopathy, or peripheral neuropathy including pudendal neuralgia should also be examined in the differential diagnosis process.¹⁹
- Lumbar source of pain: Current reports of or a history of lumbar pain, pain located above the sacrum, decreased ROM in the lumbar spine, pain with lumbar motion, pain with palpation of erector spinae muscles, and negative PGP special testing should be examined as part of the differential diagnosis.
- Pelvic girdle pain: Pelvic girdle pain (PGP) is defined by pain experienced between the posterior iliac crest and the gluteal fold, particularly in the vicinity of the sacroiliac joints (SIJ). PGP is a specific form of low back pain (LBP) that can occur separately or concurrently with LBP. The pain may radiate in the posterior thigh and can occur in conjunction with/or separately in the symphysis, a similar location to that of vulvar region pain. PGP generally arises in relation to pregnancy, trauma, or reactive arthritis. The pain or functional disturbances in relation to PGP must be reproduced by specific clinical tests.²⁰
- Rupture of the symphysis pubis: A pubic symphysis rupture is characterized by tenderness and swelling over the symphysis pubis. Separations greater than 1 cm are considered to be symptom producing. Palpation of gapping in the joint may occur. Patients may report difficulty with ambulation. Patients may have PGP in addition to rupture.²¹
- Vulvar skin condition (such as lichen sclerosus)¹⁶
- Tumor or infectious process

Assessment: Establish Diagnosis and Need for Skilled Services

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Problem List (Identify Impairment(s) and/ or dysfunction(s)):

- Increased pain
- Impaired functional mobility
- Impaired ROM
- Impaired posture
- Impaired muscle performance
- Impaired knowledge
- Impaired joint mobility

Prognosis: Generally, the prognosis for this patient population is good. Some retrospective studies have reported a success rate of 77% for physical therapy treatment of sexual pain conditions.²² Pelvic floor physical therapy is over 50% successful in a population of women with vulvodynia. Therapy for this diagnosis should be directed toward the pain disorder as well as the myofascial component of the problem.³

Goals (Measurable parameters and specific timelines to be included on eval form):

- Patient will be independent with correct return demonstration of home exercise techniques in 1-2 visits.
- Patient will be independent with correct demonstration of proper bowel and bladder habits (as appropriate) in 2-3 visits.
- Patient will demonstrate increased pelvic floor muscle coordination for voluntary contraction and relaxation 80-100% of the time in 4-6 visits.
- Patient will be able to tolerate previously painful activities or positions at least 75% of the time in 6-8 visits.
- Patient will be independent with self- correction of postures, stretches, or positions that minimize pain in 2-3 visits.
- Patient will minimize antalgic gait with SIJ belt and/or corrective postures in 2-3 visits.
- Patient will minimize muscle weakness and increase flexibility in 8-10 visits.

Treatment Planning / Interventions

Established Pathway ___ Yes, see attached. X No

Established Protocol ___ Yes, see attached. X No

Interventions Most Commonly Used for This Case Type/Diagnosis:

This section is intended to capture the most commonly used interventions for this case type/diagnosis. It is not intended to be either inclusive or exclusive of appropriate interventions.

Physical therapy evidence for efficacy of treatment has fallen short, however, the literature provides acknowledgement for physical therapy as a medical treatment option for women with vulvar pain either as a sole intervention or as part of a multidisciplinary approach.²

The main goal of physical therapy for pelvic pain is to rehabilitate the PFM by: increasing awareness and proprioception, improving strength, speed, endurance, and muscle discrimination,

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decreasing over activity and improving voluntary relaxation, increasing elasticity of the tissues at the vaginal opening, and decreasing the fear of penetration.¹⁰

A variety of treatment options exist in physical therapy for this patient population, depending on the specific presentation of the patient. The clinician must always use management plans that best approach the patient's primary complaints and goals. Improvement in pelvic floor functioning always begins with patient education of the normal pelvic floor muscle function during activities and at rest.³

It has been reported that 90% of women with vulvar pain demonstrate pelvic floor muscle pathology including overactive pelvic floor muscles. The success of pelvic floor physical therapy with this population highlights the importance of the role of the pelvic floor muscles.¹⁶ Therefore, when treating pain syndromes in the pelvic region, attention should be given to the pelvic floor muscles, as well as extrinsically around the hip, spine, and sacroiliac joint. Treatment should focus on the cause of the dysfunction, not just the source of pain. The goal of therapy is to address any musculoskeletal imbalances that are causing or perpetuating the pain.¹⁹

Patient Education:

Patient education must always occur first and is one of the most important factors in treating this population.³ Specifically, educating the patient about the physical therapy examination findings, the specific nature of their pain, and how treatment strategies correlate with improvement in their condition.^{2,3} The role of the pelvic floor muscles in posture, sexual appreciation, bowel, and bladder control, physiology of micturition/defecation, proper bowel and bladder habits/techniques, proper postural techniques, role of hormonal changes, and proper skin care techniques should all be addressed.³ Education regarding proper posture and use of support devices such as lumbar rolls and perineal support cushions may be included. Recommended vulvar care practices such as: avoiding irritants, wearing only cotton underwear, and cleaning the area only with water may be provided to the patient.² Furthermore, education to avoid provoking activities initially (i.e.: intercourse, tampon usage) or changing positions with painful activities may also be warranted.^{12, 22} Finally, a comprehensive program should always include instruction in a home exercise program to promote patient/client independence and continuity of treatment.²

After determining if the patient has an over- or under-active PFM, a specific PFM rehabilitation program can be established

- **Overactive PFM:** Downtraining is the primary goal in patients with overactive PFM including relaxation training, diaphragmatic breathing, sEMG biofeedback, RUSI, manual cues/techniques, and neuromuscular re-education. The goals for downtraining include: lowering sEMG output, improving PFM stability, decreasing spasm.
 - It remains controversial as to whether to instruct a patient in PFM in cases of overactive PFM. Some clinicians believe that gaining length and relaxation of the PFM first is crucial prior to incorporating PFM contractions. However, others argue that PFM exercises will increase a patient's awareness of muscles, facilitate blood flow, decrease pain, and

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promote muscle fatigue which may result in a more relaxed state. Neither approach currently has evidence to support one method of success.²

- **Underactive PFM:** Uptraining is the goal of intervention in patients with underactive PFM. If weakness exists, than stability of the pelvis, lumbar spine, and pelvic organs is compromised. A PFM uptraining program can be facilitated by internal manual techniques, sEMG, RUSI, and neuromuscular re-education techniques. Vaginal weights and neuromuscular electrical stimulation can be used to facilitate PFM strengthening.²

Manual Therapy:

Specific manual soft tissue mobilization techniques to address scar tissue, adhesions, trigger points, and to desensitize the tissue in this area should be utilized. Such techniques would include: scar mobilization, myofascial release, trigger point release, muscle energy techniques, strain-counterstrain, and joint mobilization.^{19,22} Passive and resistive stretching techniques are designed to improve blood flow and mobility to the pelvic and vulvar region, and normalize postural imbalances.²² In either cases of over- or under-active PFM dysfunction, correction of spinal, hip, pelvic, sacroiliac joints, and coccyx dysfunction will help to balance the system and may improve some of the function and pain level experienced by the patient. Correcting dysfunctional movement patterns, resolving neural tension, resolving pelvic visceral adhesions, and increasing abdominal strength are all important in this population.²

External Perineal Treatments: Skin rolling, external trigger point/myofascial release techniques, and scar mobilization to the affected regions around the pelvic and vulvar region can be useful.

Internal Treatments (intra-vaginal): Transvaginal manual techniques of the pelvic floor muscles have been used for the treatment of high-tone dysfunction of pelvic floor patients with CPP and IC, with symptoms remaining significantly improved after four and one half months.⁵ Trigger point release, myofascial release, stretching, manual scar mobilization, strength and coordination training of the pelvic floor musculature using digital tactile cueing, is also warranted in this population.⁵ Manual therapy techniques directed at the vaginal introitus can be useful for increasing vaginal entry space and desensitizing areas that are painful to touch.²²

Surface Electromyography (sEMG) Biofeedback:

Biofeedback with use of sEMG can be beneficial to facilitate a patient's awareness of the activity in their pelvic floor muscles and facilitate pelvic floor muscle coordination and relaxation or downtraining as appropriate.^{3,19} Biofeedback is a conditioning treatment whereby typically unknown information about a bodily function (pelvic floor muscle activity) is converted into simple auditory or visual cues so they can be voluntarily altered to become more efficient.²³

- In the case of a patient with overactive PFM contributing to their pain, sEMG can be used to facilitate a reduction in the patient's resting level of activity of the PFM. When the PFM improve in their resting level as demonstrated by decreased activity at rest, then PFM weakness may become more apparent.² This should then be addressed with pelvic floor muscle uptraining as described below. Home biofeedback can also be issued to the patient if needed for further training.

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Rehabilitative Ultrasonic Imaging (RUSI):

Incoordination of the PFM, abdominal muscles or both may be observed with RUSI. Therefore, RUSI can be used to facilitate increased patient awareness of the inappropriate muscle activity to promote proper PFM and/or abdominal contraction and synergy.²

Vaginal Dilators:

Vaginal dilators are helpful for passively stretching the introitus and PFM.^{2, 22} The girth of the dilator can be progressed as tolerated. In one study of a comprehensive pelvic floor physical therapy program (including: patient education, manual techniques to the pelvic floor muscles, biofeedback, electrical stimulation, PFM exercise, and vaginal dilators) of 35 women with provoked vestibulodynia, over 70% of participants had moderate improvement in their symptoms with seven treatment sessions. Furthermore, 52% of women in the study were considered to have a successful treatment.²⁴

Therapeutic Exercise:

If there is imbalance of the muscles of the pelvic floor, trunk, and hips, the following therapeutic exercise strategies can be used: stretching of shortened musculature in and around the pelvis after pelvic obliquity correction and specific trunk stabilization exercises including transverse abdominis, multifidus, and pelvic floor musculature and breathing diaphragm.^{2, 22}

Modalities:

Additional intervention options include modalities such as internal or external electrical stimulation, ultrasound, moist heat, and cryotherapy.² Heat applied to the lower pelvis and pelvic floor musculature can be facilitory of pelvic floor muscle relaxation.³ Heat and cold modalities can be helpful to promote pain management and relaxation of muscles.¹⁹

Transvaginal electrostimulation has been associated with a success rate of 50%, approximately with pain intensity being improved after 4 weeks post-treatment and remained after 30 weeks post-treatment in patients with CPP and interstitial cystitis symptoms.⁵ Furthermore, the use of pelvic floor electrical stimulation in patients with pelvic pain and pelvic floor muscle over activity has been reported to both reduce pain and increase muscle strength in patients with vulvar vestibulodynia.²⁵

Behavioral Retraining:

Retraining of proper bladder and bowel habits and techniques, as well as proper postural awareness is essential for long term management of pain in this population.³ Proper breathing strategies are also important in patients with pelvic pain. There is a normal synergy between the respiratory diaphragm and the pelvic floor muscles, in that during inhalation, the pelvic floor muscles descend and relax, while during exhalation the pelvic floor muscles return to their resting baseline. Patients should be taught that during rest, the pelvic floor muscles should be relaxed and the patient educated on ways to monitor pelvic floor muscle activity during the day so that the muscle tone in this area is not inadvertently raised at the end of the day.¹⁹

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Frequency & Duration:

Typically, a patient with pelvic or vulvar pain is seen by the physical therapist for one visit per week for at least 8 to 12 weeks.¹²

Recommendations and Referrals to Other Providers:

Most experts agree that a multidisciplinary/interdisciplinary approach in the treatment and management of patients with CPP and localized provoked vestibulodynia is best.²

- Vulvar Pain Specialist Physicians
- Urogynecologists
- Gastroenterologists
- Obstetrical and Gynecological Physicians
- Physiatrist/Pain Management Physicians
- Sex Therapists/Psychiatrists/Psychologists
- Primary Care Physicians
- Acupuncture

Re-Evaluation:

- Standard Time Frame for re-evaluation is 30 days or less as appropriate if there are acute changes in signs or symptoms, or new trauma should trigger a referral back to the referring physician. The PT should always be reassessing for other disorders if pain levels are unchanged with treatment.²

Discharge Planning:**Commonly Expected Outcomes at Discharge:**

Upon discharge, it is expected that the patient's pain has been significantly reduced promoting their return to a higher level of function, including previously painful activities and/or positions. Activity modification to assist with pain reduction may also be appropriate. The patient should also be independent with self care techniques that promote independent management of pain symptoms. If symptoms resume after the patient has been discharged, the patient should be re-referred to physical therapy for a new consult.

Transfer of Care (if applicable):

If the patient is not progressing, or if symptoms are not from a musculoskeletal origin, transfer of the patient's care may be appropriate. Transfer to the following individuals may occur:

- Vulvar Pain Physicians
- Urogynecologists
- Gastroenterologists
- Obstetrical and Gynecological Physicians
- Physiatrist/Pain Management Physicians
- Sex Therapists/Psychiatrists/Psychologists
- Primary Care Physicians
- Acupuncture

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Patient's Discharge Instructions:

Patient's instructions at discharge should include: continuation of and independence with home exercise program to promote independent symptom management, as well as independence with activity modification and postures to minimize pain as appropriate. Patients should follow up with their physician if symptoms progress or re-occur.

Author:

Meghan Markowski, PT
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Reviewed by:

Rebecca Stephenson, PT
Michael Cowell, PT

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