

Tension myalgia of the PFM - diagnosis and conservative management
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Objectives:

1. Define PFM tension myalgia and discuss its co-morbidities and possible Etiology
2. Explain assessment for PFM tension myalgia - symptoms, signs and investigations
3. Review possible conservative management strategies and outcomes

Pelvic floor Muscle (PFM) Tension Myalgia: a condition of pain and increased PFM tone

- Levator ani tension myalgia
- PFM tension myalgia - global or undifferentiated

Symptoms of PFM Tension Myalgia

- Pain, tender, ache, discomfort, burning
- Tight, tense, narrow, constricted
- Pain location (lumbopelvic, hip) - lower abdomen, perineum, groin, lumbar, sacrum, buttock, hips, thighs
- Pain with sitting, sensation of sitting on a ball or board

Co-morbidities

- Obstructed defecation, pain with defecation
- Bladder pain syndrome (BPS), Interstitial cystitis (IC), obstructed urination
 - Urinary frequency and urgency, burning or painful urination
- Chronic prostatitis / chronic pelvic pain syndrome (CP/CPPS) (Zhang 2020)
 - Urinary frequency and urgency, burning or painful urination and ejaculation
- Dyspareunia, genito-pelvic pain disorder, endometriosis

Etiology of PFM Tension Myalgia

- Poorly understood, Multi-factorial (Mense 2009, Thompson 1990)
- Unclear which comes first
- Pain
 - Pain-causing event
 - Surgery - pain, adhesions
 - Traumatic injury - coccyx, abdomen, pelvis, sacroiliac joint
 - Painful organ condition
 - Bowel, bladder prostate, uterus, skin
 - Neurological
 - Irritation to the Pudendal nerve - compression, neuralgia
 - Muscle guarding in response to pain (Pakzad 2016)
 - Poor body mechanics and prolonged postures (Sinaki 1977)
 - Joint malalignment
 - Muscles imbalance – increased tension, weaker
 - Subsequent chronic musculoskeletal dysfunction
 - Sustained PFM contraction

- Stress
 - General stress response – PFM contracts in normal subjects in response to threatening situation (van der Velde 2001)
 - Increased stress response
 - Anxiety
 - Post traumatic stress disorder
 - Abuse, assault
 - Subsequent holding pattern of the PFM, sustained contraction

Assessment for PFM tension myalgia

- Medical assessment of all co-morbidities
- Psychosocial assessment
 - Central sensitization (Hilton 2012)
- PFM assessment
 - Symptoms
 - Signs
 - Investigations

Central sensitization (CS) - sensitive nervous system

- Central sensitization questionnaire (Mayer 2012)
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3248986/>
- Strongest predictor - disproportionate, non-mechanical pain, and unpredictable pattern of pain provocation
- Logistical regression - cluster of 3 symptoms and 1 sign predictive of CS (Smart 2012)
 - Disproportionate, non-mechanical pain, and unpredictable pattern of pain provocation
 - Pain disproportionate to type of injury or pathology - low pain tolerance
 - Strong association with maladaptive psychosocial factors (negative emotions, poor self efficacy, pain behaviors) - Pain responds to stress and anxiety
 - Defuse / non-anatomic areas of pain and tenderness on palpation, "spread" of pain
- Pain longer than 12 weeks
- Burning, shooting, crushing, allodynia or hyperalgesia
- Multiple systems involved – sleep, bladder, bowel, muscles, joints, immune system
- Depression, fear avoidance, catastrophization
- Previous treatment failure - treatment adherence for active treatments is low
- "The overactive PFM is an input to the CNS causing CS" (EUA guidelines Engler 2010)
- Lower touch and pain thresholds
 - Vulvodynia (Pukall 2005)
 - Endometriosis (Bajaj 2003)
- Overlap of several disorders evidence of centralized mechanism (Kaya 2013)
 - Chronic pelvic pain
 - Interstitial cystitis / bladder pain syndrome
 - Chronic prostatitis
 - Vulvodynia
 - Fibromyalgia
 - Irritable bowel syndrome

Signs

- Physical examination
 - Inspection, visual observation
 - Palpation, digital palpation
- Myalgia - Tenderness or tender point on palpation of PFMs per perineum, per vaginum or per rectum
 - Muscle Tenderness (Bo 2017): discomfort elicited through palpation, indicates unusual sensitivity to pressure or touch.
 - Muscle Tender point: areas of tenderness occurring in muscle (or other tissue)
 - Technique
 - Broad contact on the side of the finger initially
 - Slowly generate pressure to avoid and inflated response
 - Visual analog scale (0-10)
 - Location
 - Palpate all areas of the muscle 1:00 to 11:00 and all depths superficial to deep
 - Depth and firmness of palpation
 - Superficial - mucosal sensitivity
 - Deep - underlying muscle tenderness
- Documenting PFM myalgia
 - Location
 - Probable muscle – pubococcygeous, illicococcygeous, etc
 - Right / Left
 - Location on the clock
 - Intensity of pain 0 to 10
- Increased PFM tone - palpation
 - Muscle tone: (Bo 2017) state of the muscle, usually defined by its resting tension, clinically determined by resistance to passive movement.
 - Pressure or stretch is applied perpendicular to the muscle fibres
 - Palpation tone rating scales (Kavvadias 2013, Devreese 2004, Dietz 2008, Reissing 2004)
 - Rating of PFM stiffness not reproducible among Pelvic PTs (Davidson 2020)
 - ICS tone scale
 - Decreased tone (Hypotonicity in a patient with a neurological disease)
 - Normal tone
 - Increased tone (Hypertonicity in a patient with a neurological disease)
 - Increased PFM tone
 - Increased firmness to palpation
 - Increased resistance to stretch
 - Most severe case = spasm
 - Muscle tone has two components:
 - Contractile component - low frequency activation of motor units
 - Viscoelastic (non contractile) component - passive physical properties of the elastic tension of the muscle fiber elements, osmotic pressure of cell
 - Palpation cannot differentiate contractile from non contractile components of tone

- Palpation of muscle tone
 - Palpate the muscle for
 - Increased firmness to palpation
 - Increased resistance to stretch
 - ICS tone scale
 - Increased tone
 - Normal tone
 - Decreased tone
- Active testing of muscle tone
 - Bear down with sustained increased intra-abdominal pressure (as if defecating)
 - Present = normal small decent with bearing down
 - Excessive decent with bearing down (POP)
 - Absent
 - Lack of observed perineal descent
 - Lack of palpated PFM descent (per vagina or per rectum)
 - PFM contraction and relaxation
 - Present = normal return to resting state
 - Partial = incomplete return to resting state
 - Delayed return to resting state
 - Absent = no relaxation, PFM remains contracted
 - Absent, partial or delayed relaxation of perineum observed
 - Absent, partial or delayed relaxation of PFM palpated (per vagina or per rectum)
- Summary of signs
 - Palpate all areas for tenderness (0-10) and firmness (increased or normal)
 - Bear down - watch and feel for descent
 - Contract and relax - watch and feel for relaxation

Investigations - Instruments which measure tone

- All component of tone
 - Dynamometer
 - Myotonometer
 - Shear-wave elastography
- Active component of tone - overactivity in the PFM
 - EMG - inconsistent or elevated resting baseline, or slow de-recruitment

Evidence for conservative treatment of CPP

- Systematic review of therapies for noncyclic CPP in women (Yunker 2012)
 - 17 non surgical, 7 surgical studies
 - Conclusion – not enough evidence to know which treatments work.
- Systematic review and meta-analysis of treatment for CP/CPPS (Cohen 2012)
 - 35 articles
 - Significant placebo effect for all outcomes
- “Management of pelvic pain is most effective when a multidisciplinary team of physician, physical therapist, and psychologist is concurrently involved in patient treatment from the outset.” RCT (Peters 1991)

Treatments to decrease PFM tone

- Standard PT treatment of musculoskeletal dysfunction in the pelvis
 - Sacroiliac, pubic symphysis, lumbar dysfunction
 - Tightness of adductors, piriformis, obturator internus
 - Persistent overactivity in PFM may be related to pelvic joint dysfunction – expert opinion (Doggweiler-Wiygul 2004, Lee 2011, Gurian 2012, Chaitow 2012, Tu 2005)
- EMG biofeedback relaxation training (McLean 2017, McGuire 2009)
- “Anti Kegel” – small contract and big relax to decrease PFM tension (Naess 2013)
- Vaginal dilation (Reissing 2011)
- Soft tissue mobilization / myofascial release (MFR) inside the vaginal canal (grade 1a - Engeler 2010, Sinaki 1977)
- Self-internal rectal / vaginal massage of patients with CPP (Anderson 2011)
 - Curved tool used to massage internal PFM trigger points
 - 95% of patient felt wand was at least moderately effective in decreasing pain

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