
**Objective:** Describe prevalence of PFM Myofascial pain in PFD patients and determine any correlation with pain severity and PFD symptom bother

**Introduction:**
- Pelvic Myofascial pain affects both genders and is described as both OI (obturator internus-deep hip internal rotator) and the PFM Levator Ani and is often called pelvic floor Myofascial pain (PFMP), levator myalgia or pelvic floor tension myalgia.
- PFMP is often found in patients without pelvic pain, by urogynecologists
- PFMP is found in patients reporting “heaviness”, “pressure” and irritative voiding sx, who present with actually normal vaginal support and bladder function, possibly due to proximity of PFM to vagina and pelvic viscera.
- They surmise that as the bladder fills, it contacts OI and LA and “trigger/tender points”, which can be misinterpreted as urinary urgency.
- Also, defecatory dysfunction is reported with patients with PFM symptoms and may be related to underlying pelvic floor muscle dysfunction.
- These hypotheses were hard to study until recently, with more standardized, reproducible PFMP exam (see additional study listed), by WH providers (urogynecologists, etc) not trained to consider or assess PFMP as a contributor to patients’ sx.

**Design and Methods:**

**PFMP assessment:**
- Review of data to one UG referral center, from 2014-2016. Retrospective, cross sectional study.
- PF Myofascial pain (PFMP) determined by transvaginal palpation of Bil OI and LA, scored on 0-10 pain scale and grouped as none: 0, mild: 0-3/10, moderate: 4-6/10 or severe: 7-10/10 for each site.
- Pelvic floor symptom bother assessed by the PFDI-20 SF scores.
- All new patients included, except those with acute UTI, to avoid confounding data.
- Exam was by either of two RH urogynecologists, in a systematic, standardized way:
  - Transvaginal, palpating counter clockwise, starting at R OI, to R LA, L LA and L OI, single digit, starting at muscle belly and sweeping along length in direction of fibers. PFMP recorded as above.
  - Pressure was standardized using a non-injured, non-tender muscle (at the mid-thigh) to demonstrate amount of pressure and normal sensation of it as pressure vs. pain.
- Following data collection, protocol formalized, expanded to include external points Reproducibility across 4 examiners was high.

**PF symptom bother assessment:**
- PFDI short form PFDI-20, administered pre-visit.
- Pelvic Floor Distress Inventory includes Pelvic Organ Prolapse, Urogenital distress and Colorectal/Anal Distress inventories. PFDI-20 (short form), has been shown to be valid, reliable
and responsive to change in women with PFD. Scoring done with published methods. (Cited, not full access).

**Statistical Analysis:**
- PFMP scores stratified by pain, with box plots/proportions.
- Potential confounding investigated with full sample and separately with samples with completely filled out PFDI-20.
- Continuous variables compared with Student’s T test
- Categorical variables with Chi-square or Fisher’s exact test
- Selection bias potential investigated with Demographics/clinical info between patients who completed PFDI-20 and those who did not.
- Correlation between PFDI-20 and PFMP scores were studied with Spearman’s rank correlation coefficients.
- Variables between groups affecting PFMP severity were investigated with Spearman’s partial rank and only postmenopausal status was retained, due to appreciable change in PFMP point estimates.
- SAS version 9.4 used. IRB at Washington University, St Louis approved study.

**Results:**
- 912 new patients, 833 after UTI exclusions, with CC of urinary sx: 91.8%, bulge symptoms 30.4%, dyspareunia: 51.8% and mild pain: 58.3%. Some patients had more than 1 CC.
- 261 patients had complete PFDI-20 scores.
- PFMP of > 1/10 in at least one muscle group, on exam, in 85% of patients.
- Most rated pain as severe (50.4%), with less as moderate (25%) or mild (9.6%).
- Left OI had higher pain scores than other sites
- Patients with PFMP more likely to also be post menopausal, have abuse hx and endorse dyspareunia and pain (Table 1).

**Myofascial pain clustered as:** R OI significantly correlated with L OI (r=.702, p<.0001) and R LA with L LA: (r=.725, p<.0001), also with laterality, R OI with R LA and L OI with L LA, (.672 and .670, p< -0001 each)

**Correlation between PFMP severity and POPDI-6:** no difference in report of pelvic pressure, heaviness or urinary frequency, based on POP-Q stage.
- Majority of patients with complete POPDI-6 responses had severe pain on palpation (50.9%), with moderate pain 29.9% and mild or none: 19.4%
- Even after adjustment for menopausal status, PFMP severity was correlated significantly to adjusted “subjective” summary score (sensations of pressure, heaviness and incomplete emptying) but not with the “objective” summary score (a bulge that could be seen or felt or a need to push on a bulge in vaginal area to complete urination). Exception was L LA and the objective score.
- Leading edge and POP-Q stage were correlated with objective score but not the subjective score.

**Correlation between PFMP severity and degree of UDI-6 urinary symptom bother (Table 3)**
- Of patients with complete UDI-6 responses, the majority had severe pain (48.8%), with moderate pain in 31.2% and mild or no pain in 20.0%.
- After adjusting for variable of Pain and discomfort in lower abdominal and genital region question on UDI-6 (then UDI-5), only pain in R OI significantly correlated with UDI score.
- After adjusting for post-menopausal status, overall PFMP severity was sig correlated with pain/discomfort in lower abdomen/genital region, pain in R OI sig correlated with difficulty emptying and overall UDI-6 and pain in L LA with difficulty emptying.

**Correlation between PFMP severity and degree of bowel symptom bother (CRAD-8) (Table 4)**
For all 3 PFDI-20 categories, those with complete results were more likely to be white, report abuse history and not have a hx of chronic pain/fibromyalgia. Other characteristics varied between categories.

Of patients with complete results, the majority, 50%, had severe pain, with moderate pain in 33.3% and no or mild pain noted in 19.7%.

After controlling for post-menopausal status, overall PFMP scores correlated with:
- Incomplete emptying, anal incontinence to flatus and pain with defecation,
- Pain in R OI with sensation of incomplete emptying and pain with defecation
- And pain in L LA with pain with defecation

Comment:

Principal Findings
- PFMP common in patients w/ c/o only PFD sx, vs. pelvic pain complaint (85%-common with universal assessment of PFMP).
- Even w/o c/o pelvic pain, pts had mod-severe PFMP in Bil OI and LA
- PFMP severity may contribute to degree of bother sx of POP/defecatory dysfunction.

Clinical/Research Implications
- Px in R OI esp. correlated to sx of sensation of POP, defecatory pain or incomplete emptying (sensation)
- PFMP correlated with sensation of prolapse (pressure in lower abdomen or heaviness/dullness in pelvis), did not correlate with objective prolapse signs or other prolapse sx such as seeing a bulge or needing to push on bulge to start or end voiding.
- PFMP severity was sig correlated with need to push on bulge at vagina or rectum for a BM, but alternative explanation could be PFMP misinterpreted as pressure/heaviness due to proximity of PFM to vagina,
- PFMP important consideration for UGs, for DD of prolapse sx- may need PFPT vs. surgery.

Strengths
- Two fellowship trained UGs, with reliability/reproducibility with 4 providers
- Despite possible variability from pre-protocol measures, still several sig. correlations

Limitations
- Only irritative voiding sx of frequency and UUI were analyzed and weren’t correlated, but they think that the full UDI-19 may confirm original hypothesis (may correlate w/ more irritative sx)
- Incomplete PFDI-20 responses limited sample size may have weakened power, but still similar prevalence of cc of urinary, bowel and POP sx between incomplete and complete PFDI-20.
- Weak correlation coefficients between PFMP and PFD sx (despite highly sig correlations), were expected to not be stronger than correlations between MD measured POP-Q and objective measures from POPDI-6 (pushing on bulge).

Conclusions
- Significant correlation between PFMP and severity/degree of PF sx bother at UG practice
- Study supports hypothesis that underlying PFMP may cause PF bother sx attributed to prolapse, or bladder/bowel pathology.
- More research to clarify results is needed.
- Future results may show that all patients presenting with sx of pelvic floor bother should be evaluated for PFMP by UGs and given non-drug, non-surgical therapies (PFPT!) first.

Discussion Questions:
1) Although they addressed handedness dominance and use by examiners, do you think that may have had an effect on their results? (See reference article below for greater explanation of their protocol).

2) What percent of your practice do you think is of people who had PFD complaints but in the end, actually had PFMP instead?

3) Do you address this disparity with your referrers? If so, how?

4) What do you think about how they designated areas to palpate in the PFM (and OI)? (See other article for their explanation).

5) Have you noticed any of these correlations (specific muscle tenderness with PFD sx) in your practice?

Reference/previous study article-
Development of a standardized, reproducible screening examination for assessment of pelvic floor myofascial pain, MEISTER, et al