Chronic Pelvic Pain: A Focus on the Musculoskeletal Component

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Objectives:

At the end of this session, you should be able to:

• Cite the most common causes of pelvic pain
• Outline the historical clues indicative of musculoskeletal pain
• Understand the role the musculoskeletal system may play as either a primary or secondary cause of pelvic pain
• Identify musculoskeletal pain on physical examination
Pelvic Pain in the Adolescent

• The most common presenting complaint of adolescent women to primary care clinicians

• Variety of causes:
  – Gastrointestinal (IBDz, Celiac Dz)
  – Genitourinary (Interstitial cystitis)
  – Neurologic (Persistent pain after PID)
  – Musculoskeletal
  – Infectious (PID)
  – Immunologic dysfunction (Endometriosis)
  – Cognitive-psychologic (Somatization)

Chronic Pelvic Pain

Common Causes
  – Endometriosis
  – Interstitial cystitis
  – Irritable Bowel Syndrome
  – Myofascial / musculoskeletal pain
    • Up to 85% of adult patients with CPP have MSK dysfunction
      – Postural changes
      – Spasms of pelvic muscles
      – Abdominal wall myofascial syndrome
Pelvic Pain in the Adolescent

- Retrospective review 63 adolescent girls with pelvic pain
- 67% had musculoskeletal pain
  - 11% had Endometriosis and MS pain

Schroeder et al NASPAG 2000

Pelvic Pain

Etiology:
- May be single etiology
  - May have a single primary cause
  - May be exacerbation of known diagnosis
- More often an overlap of more than one etiology
  - Example:
    Endometriosis
    Irritable Bowel
    Poor Posture
Case: Samantha

15 year old female diagnosed with endometriosis by laparoscopy for cyclic pelvic pain 10 weeks ago. Had ablation of endometriosis and then Mirena for both contraception and treatment of her endometriosis. No bladder symptoms.

PMH: Neg, PSH: Scope for endo, Social: SA 1 partner, stopped running track due to recent surgery and need to get better grades.

“After a month of crampy pain, things were fine, then I felt pretty good for 6 weeks, but the pain returned a month ago, here on my right ovary. It’s constant but flares too.”

Case: Physical Exam / Studies

• Exam: General exam normal.
• Affect: Normal, not anxious.
• RLQ tenderness, no guard, no rebound
• BME: AV uterus, non tender, IUS strings palpable, no abnormal discharge. Right adnexa seemed slightly tender, non enlarged.
• Sono: Normal with IUS in position, Cultures GCCT and trichomonas negative.
Case: Samantha

DDX:

– Endometriosis flare
  • IF so, treatment options???

– What else could it be?
  • Adhesions?
  • IC?
  • IBS?
  • Infection?
  • Drug seeking?
  • Psychiatric / Psychosomatic
  • What else??????

“When the pain doesn’t go away...”

• If our diagnosis is inaccurate or incomplete,
  – Our treatment will fail.

• Musculoskeletal (MSK) Dysfunction is not identified with our usual quantifiable tools ...
  – Routine non-targeted exam
  – Ultrasound
  – Cultures
  – Laparoscopy
  – CT scan

So, If we do not look for MSK disorder ..We may miss the true diagnosis.
Abnormal musculoskeletal findings are more common in women with CPP

- Asymmetric iliac crests (61% VS. 10%)
- Asymmetric pubic symphysis heights (50% vs. 10%)
- More abdominal and pelvic floor tenderness
- Less able to relax pelvic floor (78% vs. 20%)

AJOG, 2008; 198: 272.e1-272.e7

Muscular and Myofascial Pain

Well-localized areas of pain

- Trigger points:
  - a hyperirritable locus located in a muscle or its associated fascia, often referred from another area.
  - “Jump” sign when palpated.
- Myofascial tender point:
  - similar to trigger point, except the pain is not referred.

Myofascial Pain

- Trigger points are found in 30-70% of women with CPP(1)
- Pelvic muscle dysfunction is seen in 50-85% of patients with IC/painful bladder syndrome(2).


Muscle Fiber Trauma
- Overt injury
- Overuse / dysbehaviors
  (poor posture, repetitive motions, etc)
Secondary pain disorder with central sensitization

Sacromere shortening ➔ Endplate overactivity ➔ Neuroinflammatory mediator release ➔ Local ischemia

Peripheral sensitization

Afferent Overactivity ➔ Trigger Point Activation

Dorsal Horn Up-regulation and Central Sensitization

Hypertonic disorders / Trigger points with dysfunction and/or Pain and/or Visceral dysfunction

Myofascial Pain

- Most Common Cause: chronic repetitive stress and strain:
  - Faulty posture
  - Poor body mechanics
  - Poor physical conditioning

- Other causes
  - Direct trauma (MVC, Acute athletic injury, etc)
  - Can be secondary to surgical procedures (Port sites, positioning, cesarean section, urogyn procedures, etc)
  - Can be secondary to vaginal birth

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**Table 2. Muscular Causes of Pelvic Pain**

<table>
<thead>
<tr>
<th>Muscle</th>
<th>Referred Pain Area</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iliopsoas</td>
<td>Ipsilateral spine (thoracic, upper buttock), anterior thigh, groin, lower abdomen</td>
<td>Pain with weight-bearing or hip extension</td>
</tr>
<tr>
<td>Piriformis</td>
<td>Low back, buttock, pelvic floor</td>
<td>Pain in referred areas worsening with sitting, standing, walking; sciatica</td>
</tr>
<tr>
<td>Quadratus lumborum</td>
<td>Sacroiliac joint and buttock, anterior ilium, lower abdominal region, groin, greater trochanter</td>
<td>Pain in low back and with walking, coughing, or sneezing</td>
</tr>
<tr>
<td>Abdominal Muscles Transverse</td>
<td>Groin, inguinal ligament, detrusor and urinary sphincter spasm</td>
<td>Urinary frequency or retention, groin pain, bladder pain</td>
</tr>
<tr>
<td>Rectus</td>
<td>Across thoracolumbar back, xiphoid process, sacroiliac joints and low back</td>
<td>Somatovisceral response, projectile vomiting, anorexia, nausea, intestinal colic, diarrhea, dysmenorrhea</td>
</tr>
<tr>
<td>Gluteus maximus</td>
<td>Buttock region</td>
<td>Pain with prolonged sitting, walking uphill, or swimming the crawl crane</td>
</tr>
<tr>
<td>Gluteus medius</td>
<td>Posterior aspect of the ilium, the sacrum, posterior and lateral buttock</td>
<td>Pain with walking, lying on one’s side, and sitting</td>
</tr>
<tr>
<td>Sphincter ani, superficial transverse perinei, levator ani, coccygeus</td>
<td>Coccyx, anal area, lower sacrum, vagina</td>
<td>Tailbone, hip and back pain, painful bowel movements, perineal pain with sitting</td>
</tr>
<tr>
<td>Ischiocavernous and bulbocavernosus</td>
<td>Genital structures</td>
<td>Dyspareunia, perineal ache</td>
</tr>
<tr>
<td>Obturator internus</td>
<td>Vagina, anococcygeal, posterior thigh</td>
<td>Rectal fullness, posterior thigh pain</td>
</tr>
</tbody>
</table>

Clinical Obstetrics and Gynecology, 2003; 46, (4): 773-782
Diagnostic Approach

- Use history / physical for accurate diagnosis
  - Allow patient to tell her story (therapeutic effect)
  - Take time with history and physical remembering other systems
- Use your eyes, and hands and intuition to perform a thorough musculoskeletal exam

CPP Evaluation: History

In addition to routine history and physical, assess for the 5 major sources that might contribute to CPP

- Gynecological
- Gastrointestinal
- Urologic
- Psychological
- Musculoskeletal
Pelvic Pain: History

- Location:
  - R or LLQ vs periumbilical?
- Severity:
  - On a 0 to 10 scale; any missed activities
- Timing:
  - Cyclic vs noncyclic
  - What life events/ medical issues occurred at time of onset?
  - Dysmenorrhea rarely presents at menarche—instead think outflow anomaly
- Modifying Factors:
  - What makes pain better? Worse?
    - Worse with movement and better with rest—think musculoskeletal pain
  - Same position or vary in location
    - Pain radiating to back is often musculoskeletal
  - What meds have been used to treat? Response?

Pelvic Pain History

- Quality:
  - Cramping: more visceral
  - Burning: more neuropathic
- Duration:
  - How long is hx of pain? How long each episode?
- Context:
  - With menses? With exercise?
  - Recent change in habits? Heavy lifting? New sport or exercise?
- Associated symptoms:
  - GI: Nausea/ Vomiting/ Constipation/ Better or worse with BM/ flatus
  - GU: Dysuria/ Frequency/ Urgency/ Nocturia
CPP History

- Need complete ROS with emphasis on
  - Bowel function
  - Urinary tract
  - Substance use / dependence
  - Depression / Anxiety
  - Sexual, physical, psychological abuse
  - Trauma or Injury
  - Physical activity level
    (or lack of activity)
    - Hours on computer
    - watching / using digital media

Pelvic Pain: History

Difficult for patient:
- Remember the CNS (T 10-12, S 1-4) overlap between
- Pelvic viscera (i.e.: bladder, uterus)
- Somatic structures (rectus abdominus, iliopsoas)

Historical Clues
- Pain worse with movement/ better with rest
- Pain better with curling up in fetal position
- Associated low back pain
Physical Examination: Use your Eyes

Observe posture
- During interview
- Walking to exam
- Self-selected posture

- Observe anterior, posterior, lateral views

- Look for lateral pelvic tilt, spinal curvature

Typical Pelvic Pain Postures

- Hyperextended knee
- Exaggerated lumbar lordosis or Exaggerated thoracic kyphosis
- Forward head auditory meatus anterior to acromion

Normal
Abdominal Wall: Basic Physical Exam

- Assess bowel sounds
- Look for abdominal distention/ascites
  - Rectus muscle dysfunction-appear bloated
- Palpate for hepatosplenomegaly
- Assess for abdominal masses, hernias
- Check any surgical scar for hernia, tenderness

M/S Physical Examination

- Abdominal wall
  - Assess for trigger points
    - Areas of hyperirritability that are locally tender on compression and cause referred pain and tenderness
  - Common
    - Rectus abdominus
    - Iliopsoas
Abdominal Musculature:

- Enervated by:
  - T7-T11

- Injured by:
  - Exercise
  - Trocars
  - Trauma

- Examination techniques:
  - Head raise in supine position
Abdominal Wall Exam

• If raising the head increases the pain, most likely abdominal wall related.
• If raising the head decreases pain, most likely below the abdominal wall.

Physical Examination

Abdominal wall trigger points
  Psoas (lateral to the umbilicus)
  Pain with ipsilateral straight leg lift-pain likely psoas mm
  Iliacus
  Pain inside hollow of ASIS with straight leg lift
Hip Flexors: Psoas and Illiacus

• Enervated by:
  L1-L4

• Injured by
  Poor posture
  Exercise overuse
  Local inflammation

• Examination techniques:
  Evaluation of trigger points
  Ipsilateral straight leg raise
Proximity to pelvic organs

Pelvic Floor Physical Exam

KOSAIR CHILDREN'S HOSPITAL
GYNECOLOGY SPECIALISTS
Pelvic Floor

• Enervated by: S2-S4

• Injured with:
  - Trauma
  - Poor posture
  - Exercise

• Examination techniques:
  - Palpation of tender points

Relationship of pelvic organs to pelvic musculature
Pelvic floor: view from above

Physical Examination

Visceral Exam
Use single digit for exam
Palpate urethra, bladder base
Physical Examination

Vaginal, Cervix, Paracervical Tissues
Single digit palpation of lateral sidewalls
Identify any trigger points

Check levator mm at 5 and 8 o’clock
Check piriformis mm
Piriformis muscle is found deep to the ischial spine.
Physical Examination

Bimanual exam

Define uterus, adnexa

- Note areas of abdominal wall vs visceral discomfort
- Add abdominal hand as the very last part of exam

Perform rectovaginal exam

Examples Musculoskeletal Findings:
(Findings that can be treated with Physical Therapy)

- Muscular:
  - Trigger points
  - Abdominal/rectus or pelvic muscular spasm / hypertonicity
  - Iliosoas spasm, pelvic floor spasm (vaginismus,) piriformas syndrome

- Nervous System
  - Cutaneous nerve hypersensitivity (vulvodynia, abdominal skin paresthesia/pain)
  - Various neuralgias / nerve impingements
  - Visceral nerve dysfunction (voiding problems)

- Skeletal
  - Leg length discrepancy
  - Increased lordosis, kyphosis, scoliosis
Accepted Physical Therapy Diagnoses

- 564.6  Spasm, anus/ani sphincter
- 569.7  Anal rectal pain
- 618.  Genital prolapse
- 625   Pain and other symptoms associated with female genital organs  
   - except 625.0 Dyspareunia - not covered by ins
- 358.8  Denervation
- 664.4  Constipation
- 709.2  Scar - painful
- 728   Disorders of muscle, ligaments and fascia
- 729   Other disorders of soft tissues
- 781.3  Muscle incoordination.
- 788   Symptoms involving the urinary system
- 787.6  Incontinence of feces
- Orthopedic codes: back pain, SI joint dysfunction, hip, sciatica

Samantha: Musculo-Skeletal Exam

- Exam Findings: Right iliacus tender point
- Diagnosis: Muscle spasm 728
- Treatment Options: Physical therapy
  - Ligamentous articular release, passive stretching, ultrasound
  - Instruction of stretching, strengthening
- Lifestyle recommendations:
  - Stretching, exercise
So, you have made a diagnosis of musculoskeletal pain, what now?

- **Educate** your patient on the cause(s) of pain
  - **Validate the pain**, sympathize, and empower her to take an active role in her treatment. (don’t say – “it’s just muscle pain.”)
  - Use a pelvic model or other graphic educational material so that the patient can see the areas causing her pain.
  - Put a positive spin on a diagnosis of musculoskeletal pain

- **Treat other causes** of pelvic pain, if the patient has them.

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So, you have made a diagnosis of musculoskeletal pain, what now?

- **Refer to a Pelvic Physical therapist**
  - Educate your patient on the expected treatment course with Physical Therapy
  - "Manage Up" and describe the provider as someone you trust, believe in, and respect as a partner in management.
  - Schedule your patient back for follow up with you, so that you can re-assess after treatment and follow up on any other aspects of her pain (Endo, IC, Anxiety, Depression, etc.)
Tips for strengthening your exam skills

• Do careful muscular exams on patients without pelvic pain to identify normal.
• Find an osteopathic medical student or resident or women’s physical therapist to work with you in your office!

Pelvic Physical Therapy

Find a physical therapist who has certification through the Herman and Wallace Institute or has similar training on internal pelvic PT (not all physical therapists are trained and certified to do transvaginal PT)

• Mission: To provide the most comprehensive, evidence-based, continuing education for the rehabilitation of the pelvic floor and pelvic girdle dysfunction, resulting in the development and certification of a skilled practitioner and the advancement of pelvic rehabilitation research.
• Herman & Wallace | Pelvic Rehabilitation Institute 93 South Jackson Street #71393 Seattle, WA 98104 Phone: 646.355.8777
• Web Address: http://hermanwallace.com
Physical Therapy: What to expect...

• Pelvic PTs can treat:
  – Muscular dysfunction: levator spasm, vaginismus, dyspareunia, pelvic floor spasm, piriformas spasm syndrome, and others...
  – Impingement neuralgias such as pudendal nerve neuralgia, and others
  – Skeletal dysfunction such as: coccyx injuries, SI joint dysfunction, others
  – Visceral dysfunction: Bladder / Bowel dysfunction
  – Others: vulvodynia, IC

• Initial visit is mostly assessment
• Therapeutic interventions typically at follow up

Physical Therapy: Treatment

Therapeutic interventions include:
• Muscular fascial release
• Mobilization of Joints (T-spine, SI joint, Coccyx, Pubic bone)
• Home vaginal stimulation
• Ultrasound of the pelvic floor
• Tens units for abdomen and perineum
• Biofeedback

Prescriptions:
• Stretching exercises
• Strengthening exercise
• Posture recommendations
• Devices to help: Therapy Balls, vaginal dilators etc.
Ashley

- 21 year old college student
- Stable partner for two years
- 4 month history of dyspareunia, pain with penetration, unable to complete intercourse due to pain.
- She describes a hypersensitivity of her vulvar skin, has had negative vaginitis assessment recently.

Ashley

She has been using a crutch for 5-6 months due to a foot injury requiring surgical intervention.

- Exam: SI joint dysfunction, Levator Spasm, vulvar hypersensitivity
- Assessment: Pudendal neuralgia and somatic dysfunction of pelvic floor
- Plan: Pelvic Floor Rehabilitation PT
Ashley: PT evaluation

EXAM FINDINGS
• Abdominal trigger points along entire length or right rectus abdominis from origin to insertion.
• Right Psoas trigger point.
• Trigger point on central perineal body and left superficial transverse perineum
• Elevated sensitivity of vaginal introitus from 6:00-9:00
• Pelvic floor 2/5 decreased ability to relax, quick flicks 15 in 30 seconds

ASSESSMENT
• Perineal muscle spasm
• Pelvic floor, hip and abdominal core weakness
• Abdominal wall trigger points, Right side, Right Psoas, Left perineum

GOALS
• Use tampons
• Intercourse
• Decreased pain
• Increased strength

PLAN: Ashley will be seen once a week for 60 minute treatment sessions
8-12 visits to include:
therapeutic exercise, therapeutic activities, neuromuscular reduction and manual therapy.
Summary

• Musculoskeletal pain accounts for a significant portion of pelvic pain—majority of my patients
• Historical clues:
  – Pain worse with movement, better with rest
  – Associated back pain and abdominal pain
• Assess for rectus and iliopsoas trigger points
• Assess for levator pain on vaginal exam
• Send patients for physical therapy evaluation

Questions?