DIFFERENTIAL DIAGNOSIS AND MANAGEMENT OF PUBIC SYMPHYSIS DYSFUNCTION IN THE OBSTETRIC CLIENT

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OBJECTIVES

By the end of this session the attendee will:

1. Understand and apply to patient care the pathophysiology of peripartum pubic symphysis dysfunction

2. Select treatment interventions for the above-mentioned musculoskeletal dysfunction in the pregnant and postpartum client.

3. Consider appropriate home programs for clients with such musculoskeletal dysfunction.

4. Appreciate current evidence for the interventions the participants discuss.

CONTENT

- Anatomy review and differential diagnosis of PSD in the perinatal period
- Case of “Pubic Instability” or Pelvic Girdle Pain in pregnancy
- Case of Peripartum pubic symphysis separation
- Considerations for labor and delivery for the woman with PSD

PATHOLOGY DURING THE CHILDBEARING YEAR

- Pathology includes
  - Separation
  - Instability with potential ‘unleveling’
  - Osteitis pubis

PUBIC SYMPHYSIS

- Joined by a fibrocartilaginous disc; fibrocartilaginous amphiarthrois jt. Lined with hyaline cartilage.
- Supported superiorly and inferiorly by ligaments
- Motion occurs in sagital and frontal planes

PERI-PARTUM SEPARATED SYMPHYSIS PUBIS (OR SYMPHYSOLYSIS OR DIASTASIS SYMPHYSIS PUBIS)

- www.e-radiography.net
Frank separation is considered 10 mm or >
Pain does not seem to coincide with the
degree of separation
Some mild separation (not necessarily
painful) is considered normal in pregnancy
and during contractions (Boland 1933, Bjorklund 1997)
Can occur during pregnancy or postpartum
Separation related to delivery seems most common, though
stats are unknown

Prevalence: about 1/600 (range 1/30-1/30,000!)
Peri-partum vs. pre-natal incidence: Unknown, but
literature discusses MOI related to delivery
Theoretical MOI
- Fetal size
- Maternal Position
- Stiffness of pubic connective tissue
- Rapid fetal descent

Pathology to the pubic symphysis may be the
norm or quite common (Brandon 2012, Hermann 2007, Wurdinger 2003)
Bone marrow edema (76-86% in Hermann study)
Fx (27% in Brandon study)
Capsular disruption (rare)
Separation (rare)
Levator ani tears at the symphysis (common)

Pain management strategies
- Post-partum pain medication
- Referral to PT
- Imaging (Scriven, 1995)
  - CT
  - MRI
  - US
  - Radiograph
- Surgical stabilization: internal or external (Luger 1999, Dunivan 2009, Osterhoff 2012)
- Injections (Schwartz, 1986)
- Spinal cord Stimulator: 1 Case (Idrees 2012)

Aggravation:
- Transitional movements
- Bed mobility
- Hip abduction
Alleviation
- Rest, Ice, Pain Relievers, Support belt, avoidance of
  weight shift (rolling walker)
- Pain: Intense
  - Location at pubis with radiation into thighs, groin, perineum

Pain management strategies
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Frontal Plane Movement
that goes beyond physiologic
expectations
Superior of Inferior Shears
Patient Interview Findings
- Aggravation:
  - Transitional movements
  - Bed mobility
- Alleviation:
  - Rest, Ice, Pain Relievers, Support belt, avoidance of weight shift
  - Pain: Not as intense as with a separation
  - Location at pubis with radiation into thighs, groin, perineum

**COMMON SYMPTOM PRESENTATION - SHEARS**

**OSTEITIS PUBIS**
- Painful, non-infectious inflammatory condition of the pubic bone and symphysis
- Etiology: most likely periosteal trauma is initiating factor
- Seen in athletes and postpartum women and after urogynecological surgical procedures

**OSTEITIS PUBIS, SIGNS AND SYMPTOMS**
- Present with:
  - Pain
  - “Waddling” gait
  - May be accompanied with low grade fever, elevated sed rate, and mild leukocytosis
- Radiographic findings
  - Reactive Sclerosis
  - Rarefaction
  - Osteolytic changes

**DIFFERENTIAL DIAGNOSIS OF PERI-PARTUM GROIN PAIN**
- Consider osseous, joint and soft-tissues in the region
- Obstetric Complications

**ANATOMICAL CONSIDERATIONS**
- Si joint
- Ilium/Ischium
- Pubic Symphysis
- Low lumbar spine
- Hip
- Ligaments and discs
- Musculature of the region

**SACROILIAC JOINT DYSFUNCTION AS A SOURCE OF PERI-PARTUM PUBIC/GROIN PAIN**
- The sacral-iliac joint can refer pain into the groin and hip
- Positional dysfunction there can disrupt the normal anatomical structure of the pubic symphysis
ILIUM AS A SOURCE OF SYMPTOMS
- Positional pathology (ilial rotations, upsips, downsips)

LUMBAR SPINE AND DISC AS A SOURCE OF SYMPTOMS
- Upper lumbar spine pathology as pain referral or radicular symptoms into the groin

HIP AS A SOURCE OF SYMPTOMS
- OA of the hip
- Labral tears
- Bone Density Issues
- Stress Fx
- Bursitis
- Femoral Acetabular impingement

PUBIC SYMPHYSIS PATHOLOGY
- Separated Symphysis Pubis
- Pubic Shear or unleveling of the pubis
- Hormonally mediated joint instability
- Osteitis Pubis

OTHER POTENTIAL OBSTETRIC SOURCES OF SX
- Abruptio placentae
- Round ligament pain
- Transient Osteoporosis of the Hip in Pregnancy/Post-Partum

ABRUPTION OF THE PLACENTA
- Definition: placenta peels away from the inner wall of the uterus before delivery — either partially or completely
  - It’s known as placental abruption
- Symptoms:
  - Vaginal bleeding
  - Abdominal/groin pain
  - Back pain
  - Uterine tenderness
  - Rapid uterine contractions, often coming one right after another
ROUND LIGAMENT PAIN

- Round ligament pain is sharp or jabbing, often felt in the lower belly or groin area on one or both sides.
- Intermittent in nature
- Considered a normal part of pregnancy
- Exercise may cause the pain, as will rapid movements
- Round ligament has contractile tissue running through it; allows for "rebound"

TRANSIENT OSTEOPOROSIS OF THE HIP (TOH) IN PREGNANCY/POSTPARTUM

- Self-limiting nature and spontaneous recovery
- Fractures are infrequent
- True incidence during pregnancy is unknown
- Onset: Generally in 3rd trimester
- TOH Pain locale: inguinal or greater trochanteric regions with referral to anterior thigh.
- ROM: limited at the hip
- Functionally restricted weight bearing
  - (Bateman et al., 2001)

MUSCLE PATHOLOGY AS A SOURCE OF SYMPTOMS

- Adductors
- Iliopsoas
- Abdominal obliques

TRIGGER POINTS

- Adductors
- Iliopsoas
- Abdominal obliques

ILIUM, ISCHIUM AND MUSCULAR INFLUENCES

AND, CANNOT FORGET THE PELVIC FLOOR AS A PAIN GENERATOR!
PERFORM A LOWER QUARTER SCREENING EXAM WITH SOME SPECIAL TESTS

- Perform assessment in positions that the pt. can tolerate (commonly supine only, if pp)
  - Goal of R/O structures above and below the CC (i.e., pubis)
  - Clear L-S, SI jts, Hips, Ilia
  - Use pt. report to R/O abruption, round ligament
  - Assess for muscle pathology if Hx and Physical Exam lead you that way
  - Perform an internal assessment of PF if needed

SPECIAL TESTS AT THE PUBIC SYMPHYSIS

- Physical Exam
  - ASLR (Mens 2012): Research shows it to be better to detect SI-jt pain, but can be sensitive to this

PATELLAR PUBIC PERCUSSION TEST TO R/O STRESS FX, BONE DENSITY ISSUES

- Pt. Hx and possible MOI lead you there
- R/O all other potential sources of Sx
- Springing the pubis or palpation there very tender
- Trendellenburg painful
- Bed mobility painful
- Hip Abduction painful at Pubis
- ASLR may be painful
- May be unable to weight bear

AFTER CONSIDERATION/ASSESSMENT OF VARIOUS PAIN GENERATORS; SETTLING ON PUBIC SYMPHYSIS

- Palpatory asymmetry absent
- Attempt to “level out” pubis makes no change
- Essentially a “Rule-Out” Dx
CASE 1: PUBIC INSTABILITY IN PREGNANCY; PART OF PELVIC GIRDLE PAIN IN PREGNANCY

www.aylesburyosteopath.co.uk

EPIDEMIOLOGY OF PELVIC GIRDLE PAIN IN PREGNANCY

1460 women who formed incidence cohort, assessed at 33 wks gestation
- 1. Women who reported daily pain that could be objectively confirmed was 20.1%
- Sub-grouped as follows:
  - Pelvic girdle syndrome (pain in all 3 joints) (6.0%)
  - Symphysioloysis (2.3%)
  - One-sided a sacroiliac syndrome (5.5%)
  - Double-sided sacroiliac syndrome (6.3%)
  - Misc (sx not objectively confirmed) (Albert, 2002)
- Parity ↑ Odds Ratio of having PGP in pregnancy (Bjelland, 2010)

PROGNOSIS FOR OBSTETRIC PELVIC GIRDLE PAIN

(Albert et al, 2001)
- Cohort of 1789 women initially assessed at 33 wks
- These women were re-examined (questionnaire and physical exam) at regular intervals for 2 years after delivery or until sx disappeared
- At 2 yr postpartum, 21% with pelvic girdle syndrome (pain in all 3 joints) still had pain
- Indicators of highest relative risk for long term pain
  - High number of positive tests
  - Low mobility index
- Conclusion: women with pelvic girdle syndrome or pain in all 3 joints, had poorest prognosis

MEDICAL MANAGEMENT OF PELVIC GIRDLE PAIN IN PREGNANCY

- Pain Medications
- Belts and Supports-off the shelf type
- Referral to PT

PATIENT HX/INTERVIEW - PGP IN PREGNANCY

- Typical order of difficult ADLs for severe PGP listing most to least:
  - standing still,
  - cycling,
  - walking,
  - sitting,
  - and lying
  (Ronchetti, 2008)
- Pelvic Girdle Pain Questionnaire: Self-reported questionnaire that is condition specific for PGP utilizing 2 scales (activities/participation and symptoms); highly reliable and valid in women with PGP during and after pregnancy (Sruga, 2011)

PHYSICAL EXAM ASSESSMENT- PGP IN PREGNANCY

Ronchetti, 2008

- P4 (Posterior pelvic pain provocation test)
- ASLR
- Long dorsal ligament tests
- Quebec Back Pain Disability Scale

European Guidelines for PGP

- SIJ Pain:
  - P4/thigh thrust
  - Patrick’s Faber test
  - Palpation of the long dorsal SIJ ligament
  - Gaenslen’s test
- Symphysioloysis:
  - Palpation of the symphysis
  - Modified Trendelenburg test of the pelvic girdle
  - Functional pelvic test Active straight leg raise test

(Vleeming, 2008)
**EBP FOR PT INTERVENTIONS - PGP/PUBIC SHEAR IN PREGNANCY**

- Contraction of TRa ↓ laxity of SI-jt; drawing-in maneuver → ↓ laxity of SI-jt (Richardson, 2002)
- Systematic Reviews support use of exercise for treatment or prevention of PGP either alone or in combination with acupuncture, advice and/or belts (Boissonnault 2012, Stuge 2003)

**EXERCISE FOR THE PGP/PUBIC SHEAR CASE**

- Isolated activation of deep, local muscle system with integration into all transitional movements: abdominal drawing-in
- Spine stabilization exercises in various positions: sidelying, quadruped, upright kneel
- Functional Lower extremity strengthening with equal-bilateral weight bearing; E.G., sit to stand, Rising and lowering to half-kneel
- Trunk/Pelvic girdle strengthening: anterior-posterior tilting standing, gluteus maximus, gluteus medius, back extensors

**EDUCATION FOR PGP/PUBIC SHEAR CASE**

- To ↓ catastrophizing and fear beliefs
  - use of FABQ and other self-administered questionnaires can provide evidence for the intervention
- To empower self-management of the condition

**ADVICE FOR PGP/PUBIC SHEAR CASE**

- Postural alignment
- Body mechanics
  - sleeping positions
  - ADLs (e.g., laundry, grocery-shopping)
- Symmetrical movement
  - Sit-to-stand
  - Bed mobility
- Isometric use of Adductors or Abductors in transitional activities (rolling, shifting)
- Use of heat/ice (ice, especially over symphysis pubis)

**MANUAL THERAPY OPTIONS FOR PGP/PUBIC SHEAR CASE**

- Muscle Energy Rx
- Direct Jt-mob to Sacral bases, ILAs
- STM about posterior pelvis

(Murphy 2009, Licciardone 2010, George 2012)

**BELTS/SUPPORTS AND GAIT AIDS**

- Support garments for Pelvic Girdle Pain: some evidence for use (Carr 2003, Mens 2006, Ho 2009)
- Consider assistive gait aid if gait continues to be aggravating
  - Forearm crutches
  - Rolling walker
  - scooter
**THE CASE**

- 30 yr old Gravida 2, para 1, @ 14 weeks gestation. Has a 3-yr old dtr., and is a University professor
- CC: pubic pain with occasional Left and Right SI-Jt pain
- Hx of CC: Began @ 8 weeks and has worsened. Has similar pain (less intense) in first pregnancy that abated between pregnancies.
- Pt. Goals: To continue working and exercising as she does now.

**FINDINGS OF PT. INTERVIEW: PGP/PUBIC SHEAR**

- Rates pain 2/10-7/10
- Location: “my groin, my left upper thigh and buttock and sometimes after a really long day with lots of time on my feet my left rear-end dimple and sometimes the same place on the right”
- Nature: Can be sharp (intermittent) or achey (can be constant once it comes on).
- Agg: climbing hill from parking ramp to office, rolling over in bed, walking > 10 min, sit-to-stand after sitting > 45 min
- Alev: NWB rest, ice, Tylenol

**PHYSICAL EXAM FINDINGS IN PGP/PUBIC SHEAR CASE**

- Gait: antalgic and waddling a bit
- Standing posture: unremarkable
- Position testing in sitting: a superior left pubic shear & Left on Left Sacral torsion
- Palpation: painful over pubis. Painful also at Left and Right SI jts over sacral sulci; Left dorsal ligament painful
- ASLR and P4° on the left; weight shift onto L LE provokes sharp groin pain and a duller, L-sided posterior pain

**Pubis Palpation (or Springing) for Tenderness**

**PT INTERVENTIONS FOR PGP/PUBIC SHEAR CASE**

- MET to correct pubic shear and sacral torsion; Direct mobilization in sitting @ Left ILA
  - Exercise
    - Stabilization: trunk ex in 4 point
    - Strengthening ex: standing pelvic tilts, TRa in 4-point & sitting, glut medius strengthening with theraband, glut max strengthening in 4-point
  - Body mechanics instruction
    - Sleep: get soft mattress pad and squeeze pillow between legs to roll and shift
    - Lifting 3-yr old
    - Postural alignment
      - Sleep with pillow between knees and avoid asymmetric sleeping postures
      - Sitting @ desk: avoid crossing LE’s; got her a foot rest and a work chair back support

Asymmetric Straight Leg Raise Test-In this Case, for Trunk Instability
MET: SUPERIOR PUBIC SHEAR CORRECTION

Correction of Superior Pubic (Left)
Operator stabilize right ASIS while allowing left leg to cross over edge of table in extension
Operator places acupoint between patient and table into flexion and adduction of left thigh
After each contraction, operator places up stack into further leg extension

Greenman, PE. Principles of Manual Medicine

ASSESSMENT OF SACRAL BASE POSITION IN SITTING

ASSESSMENT OF SACRAL BASE POSITION IN 4-POINT

DIRECT MOBILIZATION IN SITTING FOR A ‘R ON R’ FORWARD SACRAL TORSION

MET: FORWARD SACRAL TORSION CORRECTION

Correction of Left on Left Forward Sacral Torsion
Patient starts in left side lying, then turns top half butt to left, reaching back with left hand to grasp edge of table
Operator controls both legs to flex up to L5-S1, then tucking the position while further stabilizing patient to left through right arm, maintaining at L5-S1
The operator then relaxes the effort of the patient to tilt both feet towards the ceiling
3-5 repetitions

Greenman, PE. Principles of Manual Medicine

PT INTERVENTIONS FOR PGP/PUBIC SHEAR CASE, CONT.

- Symmetrical movement instruction
- Sit-to-stand: symmetry and/or with isometric adduction or abduction
- Ice to SI-Jts and/or pubis at home, prn
- SI-belt: Found it helpful if doing chores requiring WB > 15 min. Preferred Serola Belt (Serola.net)
- Discussed fitness program:
  - encouraged her to move to aqua class/exercise vs. land-based running and zumba classes.
  - Self-mobilization for pubic shear (supine) and SI-Jt pain (seated and standing)

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Self-Mobilization Of Pubis in Sitting

SELF-MOBILIZATION OF A RIGHT SUPERIOR PUBIC SHEAR (ALSO OF A POSTERIORLY ROTATED RIGHT ILIUM)

SELF MOBILIZATION OF THE SACRUM

PELVIC STABILIZATION VIA ADDUCTOR SQUEEZE TO ASSIST IN ↓ PAIN WITH ROLLING

ROLLING WITH ISOMETRIC HIP ABDUCTION

SUPPORT BELT FOR PGP

MATERNITY SACROILIAC (SI) SUPPORT

IEM Maternity Sacroiliac (SI) Support
iemortho.com
CASE 2: SEPARATED SYMPHYSIS PUBIS (OR SYMPHYSEOLYSIS OR DIASTASIS SYMPHYSIS PUBIS) DURING DELIVERY

www.e-radiography.net

28 yr old Gr 1 para 1, 26 hours postpartum, S/P vaginal delivery. Pt is a hospital RN

CC: excruciating pubic and groin pain, 9-10/10

Hx of CC: Pain began pp when pt attempted to stand to use toilet. Unsuccessful. Was catheterized and put on bedrest. PT referral initialized by nursing staff

In 2nd stage, spouse reported hearing a gunshot-like pop as pt. pulled forward on squat bar while she was in semi-reclining & instructed to put feet on squat bar

MD ordered radiograph: 3 cm separation seen

Past Hx: no previous c/o pubic pain in pregnancy or prior to pregnancy

Pt lives with spouse in a two-story home

THE CASE

PATIENT INTERVIEW FINDINGS- MEDICAL MANAGEMENT OF PERI-PARTUM PUBIC SYMPHYSIS SEPARATION

- Pain Location: at Pubis and up into groin bilaterally with some ache in Left SI-Jt
- Nature: Sharp
- Agg: Any bed mobility or attempt at WB or to move legs
- Alev: lying still, pain meds
- Pt. Goals: able to return home, use stairs, care for newborn, perform IADLs, RTW in 6 weeks as RN. Pain management.

PHYSICAL EXAM FINDINGS- SEPARATED SYMPHYSIS PUBIS DURING DELIVERY

- Movement Assessment: Pt. could not roll, scoot or shift in bed without pain > 6/10
- Posture: WB unsuccessful without trochanteric belt
- Mobility: with rolling walker and belt Pt. able to ambulate for short distances with <4/10 pain
- Palpation: exquisite pain at pubis and at left SI-Jt
- Pain with weight shift in standing
- ASLR +
- Did not attempt P4
- Some fear avoidance (not formally assessed) (Waddell 1993)

IN-HOSPITAL PT INTERVENTIONS- SEPARATED SYMPHYSIS PUBIS DURING DELIVERY

- Gait: Rolling walker (parameters given); stairs-none if possible; if necessary, consider going up and down on bottom or at least foot-to-foot.
- Pelvic support belt (parameters given)
- Bed mobility training (log roll, use of adductor squeeze-gentle-with pillow)
- Soft mattress pad
- Discussion on activity level:
  - With spouse present
  - Minimize WB; baby brought to her; no IADLs
  - 3 weeks need for assistance
- Appt. made for 6 wk FU in PT

OP PT PHYSICAL EXAM FINDINGS- SEPARATED SYMPHYSIS PUBIS DURING DELIVERY

- Palpation:
  - Left inferior sacral shear
  - Left superior pubic
  - Tenderness still at pubis and at left SI-Jt
  - Pain with weight shift in standing
  - ASLR +
  - Did not attempt P4
  - Some fear avoidance (not formally assessed) (Waddell 1993)
OP PT INTERVENTIONS- SEPARATED SYMPHYSIS PUBIS DURING DELIVERY

- MET to correct pubic shear
- MET to correct sacral shear
- Self-mobilization for pubis and sacrum
- HEP for pelvic stabilization exercises
  - Seated
  - Standing on step
- Glut, abdominal and back extensor strengthening
- Encouraged continued use of pelvic belt, especially when out of the house

Pubis Palpation (or Springing) for Tenderness

Asymmetric Straight Leg Raise Test- In this Case, for Trunk Instability

MET: SUPERIOR PUBIC SHEAR CORRECTION

SELF-MOBILIZATION OF A RIGHT SUPERIOR PUBIC SHEAR (ALSO OF A POSTERIORMLY ROTATED RIGHT ILIUM)

SELF MOBILIZATION OF THE SACRUM
POST PUBIC SYMPHYSIS SEPARATION
BEGINNING STABILIZATION EXERCISE

PERI-PARTUM SEPARATED SYMPHYSIS PUBIS REFERENCES

PERI-PARTUM PUBIC SYMPHYSIS REFERENCES, CONT.

PERI-PARTUM PUBIC SYMPHYSIS REFERENCES

PT RECOMMENDATIONS FOR L&D - PELVIC GIRDLE PAIN IN PREGNANCY

First Stage
- Minimize walking
- Avoid asymmetric postures

Second Stage
- Support LE's, if semi-reclining, with pillows folded under knees
- Avoid WB postures if these provoke Sx (e.g., 4-point, upright kneel)
- Avoid squatting, especially if pain is @ pubis

PELVIC GIRDLE PAIN IN PREGNANCY REFERENCES