Osteitis Pubis

Background
1. Definition: inflammation of pubic symphysis and surrounding muscle insertions
2. General info
   - Common cause of groin pain in athletes
   - Exact etiology unknown
     - May be due to repetitive microtrauma and/or shearing forces to pubic symphysis
     - Abnormal pelvic muscle biomechanics

Pathophysiology
1. Pathology
   - Repetitive rotation of muscles inserting on pubic bone cause traction microtrauma to joint and surrounding fascia
2. Incidence/prevalence
   - No available statistics in literature for incidence in US
   - More common in men
   - Seen in sports involving twisting, turning, kicking, lateral running and running backwards
     - Soccer, ice hockey, football, track sprinters
3. Risk factors
   - Male gender
   - Specific movements w/specific sports
   - Limited hip ROM, particularly internal rotation
   - Weakness of hip adduction or abduction strength
   - Sudden escalation in training frequency, duration or intensity
   - Sacroiliac joint dysfunction
   - Leg length discrepancy
   - Skeletal immaturity, particularly w/high training loads
4. Morbidity
   - Assoc w/pain and difficulty ambulating and limitation to sports participation

Diagnostics
1. History
   - Localized pain over pubic symphysis
   - Pain
   - May radiate to groin, medial thigh, or lower abdomen
   - Incr w/activity/exercise often w/hip adduction
   - Sx relieved w/rest
   - Sx often unilateral
   - Hip weakness
   - Difficulty walking
2. Physical exam
   - Tenderness to palpation directly over pubic symphysis
     - Pubic Spring Test
• Pressing on both left and right superior pubic rami triggers pain
  o Pubic Symphysis Gap Test aka "squeeze test"
    ▪ Examiner's clenched fist is held between knees at varying degrees of hip flexion and pt is asked to perform isometric contraction of their adductors
    ▪ Reproduction of groin pain ? pos test
    ▪ Note decr strength of contraction due to weak adductors
  o Decr ROM in 1 or both hip adductors and/or hip flexors
  o Diagnostic imaging
    ▪ X-ray of pubic symphysis
      ▪ Most common initial test
        ▪ Often neg early on
      ▪ After several wks may demonstrate widening of pubic symphysis on AP film
      ▪ Later can demonstrate sclerosis and cystic changes of medial portions of pubic rami
    ▪ Bone scan
      ▪ May be neg
      ▪ Can demonstrate intense signal uptake at pubis symphysis
    ▪ MRI
      ▪ Bone marrow edema at pubic symphysis
 3. Diagnostic testing
  o Lab evaluation: none recommended; however, for DDx, consider ordering
    ▪ CBC: to rule out systemic infection like osteomyelitis
    ▪ If febrile, order blood cultures
    ▪ ESR: to rule out rheumatologic disorders
    ▪ Urinalysis: to rule out UTI, prostatitis
 4. Staging
  o Stage 1: unilateral Sx involving dominant leg and inguinal pain in adductor muscles
  o Stage 2: bilateral pain involving adductor muscles
  o Stage 3: bilateral inguinal pain involving adductor muscles and abdominal Sx
  o Stage 4: pain in both adductor and abdominal muscles referred to pelvic girdle and lumbar spine w/defecation, sneezing, or walking on uneven surfaces causing an inability to perform ADLs

Differential Diagnosis
1. Key DDx
  o Osteomyelitis pubis
    ▪ Usually accompanied by fever
    ▪ Most common organism - Staph aureus
    ▪ Similar imaging necessary for Dx
    ▪ Workup also includes
      ▪ Blood cultures
      ▪ Pubic symphysis aspirate
      ▪ CBC
2.18.10

- ESR
- CRP
  - Adductor muscle strain

2. Extensive DDx
  - Groin strain
  - PID (women)
  - Prostatitis
  - Orchitis
  - Arthritis
  - Stress fracture
  - Ankylosing spondylitis
  - Reiter's syndrome
  - Urolithiasis
  - Bursitis
  - Tendon injuries
  - Inguinal hernia

**Therapeutics**

1. Acute Tx
  - 0-72 hrs after injury or presentation
  - Sx may be chronic, treat as acute
  - Consider other medical causes
  - Relative rest
  - Ice massage if tolerated
  - Consider PT referral
    - Evaluate for muscle imbalance
    - Evaluate for SI joint dysfunction
  - NSAIDs
  - Avoid heat and massage

2. Further mgmt
  - Apply heat
  - Stretching exercises
  - PT
    - Goals are
      - Hip flexor, hip adductor, pelvic muscle strengthening
      - Lumbar and abdominal muscle stabilization
    - Correct somatic dysfunctions
  - Sx-limited activity
  - Corticosteroids
    - Oral: prednisone 20 mg PO BID for 5-7 d
    - Injection: betamethasone 1 mL (6 mg/mL) mixed with 1 mL 2% lidocaine and 1 mL 0.5% bupivacaine
      - Can be done under fluoroscopy
  - Aquatic conditioning
  - Do not tolerate traditional cycling due to saddle positioning
    - Recumbent bike as alternative

3. Long-term care
  - Surgery used in pts whom conservative mgmt has failed
Follow-up
1. Return to office
   - After PT completed
   - Earlier f/u needed if pt has weakness or problems ambulating
2. Refer to specialist
   - If conservative mgmt fails

Prognosis
1. Very good if diagnosed and treated early
2. Usually self-limiting
3. Takes 3-6 mos until normal/premorbid fxn restored
4. Recurs in approx 25% of pts
5. More commonly recurs in men
6. Return to play recommendations
   - 3-6 mos after conservative mgmt
   - As early as 8 wks after first steroid injection

Prevention
1. Appropriate warm-up and stretching
   - Stress flexibility
2. Proper biomechanics
   - Coach may need to be involved w/technique
3. Rest and recovery between workouts
4. Core-strengthening exercises
5. Appropriate footwear
   - Correct biomechanical issues
6. Early recognition and Tx of Sx
   - Avoid activities that cause pain

Patient Education
1. Handout from The Stretching Institute

References


**Author:** Toni S. Zink, MD, & Isaac Pierre, MD, *Medical College of Wisconsin*

**Editor:** Carol Scott, MD, *University of Nevada Reno FPRP*