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# Evaluation of Posterior Hip Pain

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## Hip Pain in the Adult

Various etiologies:

- Traumatic
- Infectious
- Neurovascular
- Degenerative
- Congenital
- Pathologic



## Hip Pain

- Complex interaction of both intra-articular and extra-articular pathology causing pain. Origins may be:
  - Capsulolabral
  - Osseous
  - Neurovascular
  - Musculotendinous
  - Pathology involving the lumbar spine

## Pain patterns

- Hip pain patterns:
  - Anterior (groin pain) typically intra-articular pathology such as osteoarthritis
  - Lateral (trochanteric pain) typically extra-articular pathology such as trochanteric bursitis
  - Posterior (buttock pain) typically ???
    - Intra-capsular pathology
    - Extra-capsular pathology
    - Emanating from the lumbar spine or SI joint
- Involves a complex interaction between anatomic structures, ROM, and neuromuscular activity

## Main differential of posterior hip pain

- Various types of impingement
- Hip-spine syndrome
- Hamstring syndrome or proximal hamstring tendinitis
- Sciatic nerve entrapment
- Pudendal nerve entrapment
- Deep gluteal syndrome
- Piriformis syndrome
- SI joint pain
- Referred pain from the lumbar spine
- GU disorders
- Labral tears
- Osteoarthritis
- Inflammatory arthritis

## History

- Understanding the origin of hip pain is key to identifying the pathology and which patients would benefit from a conservative vs a surgical approach to treatment
- Diagnosis involves a complete history, physical exam, and any necessary imaging
- Every hip exam should include a back exam to rule out lumbar spine pathology
  - Any pathology that limits hip extension may emanate from the lumbar spine...
- A proper history should lead you to the diagnosis

## History taking

- Should include:
  - Chief concern documented
  - Date of onset
  - Presence or absence of trauma
  - Localization of pain
  - Mechanism of injury
  - Referred pain patterns
  - Severity of pain
  - Aggravating or Alleviating factors
  - Prior surgeries and hardware present
  - Treatments tried thus far

## History

Sometimes a history will point you in the right direction:

- If severe hip pain with history of chronic steroid use or alcohol abuse - think osteonecrosis of the hip
- If elderly or frail patient with osteoporosis - think fragility fracture
- If inability to bear weight with a mechanism of injury - think traumatic fracture
- If pain or paresthesias that radiate down the leg past the knee - think lumbar spine pathology

## History

Always document sports or hobbies patient is involved in:

- Female ballet dancers or gymnasts can experience hip laxity and instability
- Recent increases in activity may suggest a stress fracture
- Many athletes can suffer from a wide range of hip pathology

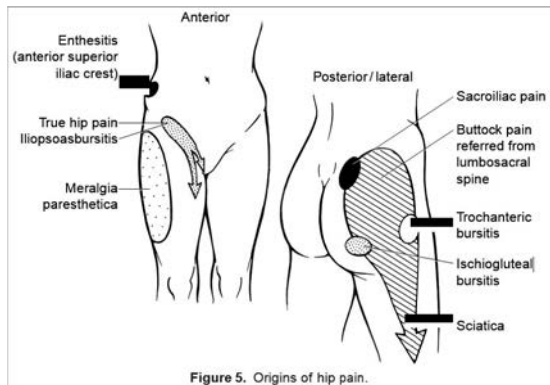
## Physical exam

- Posterior hip pain typically occurs from extra-articular sources and causes a more global pain distribution
  - Intra-articular pathology typically radiates to the anterior or medial thigh due to the femoral or obturator nerves
  - Difference between hip pain and "C sign"



## Physical exam

- Step 1 – rule out lumbar spine pathology:
  - Range of motion
  - Increasing pain with extended or flexed posture
  - Radiating or radicular pain patterns
  - Dermatomal sensory loss
  - Strength testing
  - Straight leg raise test
  - Reflexes



## Physical Exam

- Step 2 – Determine the location of pain:
  - TTP over the greater trochanter suggests trochanteric bursitis
  - TTP over the ischial tuberosity (gluteal crease) suggests ischial bursitis
  - TTP medial to the ischial tuberosity suggests pudendal nerve entrapment
  - TTP posterior or lateral to the ischial tuberosity suggests hamstring tendinitis
  - TTP over the SI joint suggests sacroiliitis

Documenting the patient's localization of the pain is a key finding!

## Physical Exam

- Step 3 – Assess gait pattern:
  - Antalgic gait
  - Trendelenburg sign
  - Wide based gait (myelopathy)
  - Long stride walking test
  - Use of assistive devices (and which hand they use it in)
  - Asymmetric shoe wear



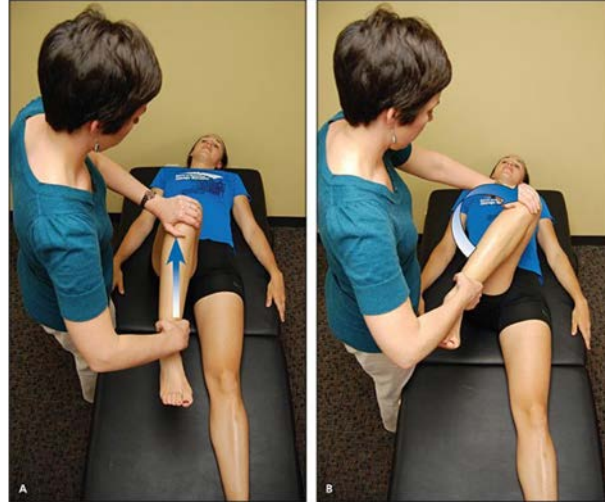
## Physical exam

- Step 4 – Assess ROM, strength, and sensation
  - Long tract signs - Babinski and clonus
  - Tension signs
  - Don't forget to rule out claudication symptoms



## Physical Exam

- Step 5 – Special testing
  - Log roll
  - FABER and FADIR tests for impingement
  - Hamstring active test
  - Straight leg raise test
  - SI joint tests – Gaenslen, distraction, compression, thigh thrust



## Physical Exam

Step 6 - Think outside the box.

If no obvious source of hip pain, then think of spine or SI joint:

- Neurovascular exam
- Pain worsened with lumbar flexion or extension?
- SI joint tests
- Other source of symptoms - gynecologic or urologic





## More common posterior hip pathology

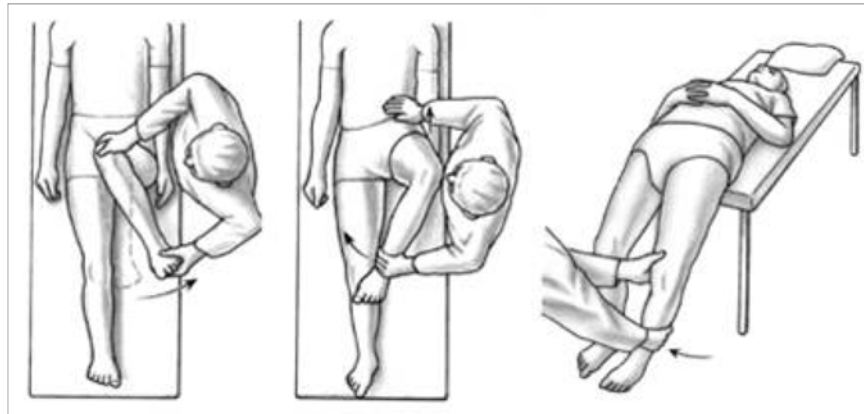
- Lumbar spine pathology
  - With or without radiculopathy
- SI joint pain
- Piriformis syndrome
- Proximal hamstring pathology
- Impingement

## Impingement

- When two structures come into contact with each other and cause pain
- Various etiologies of impingement:
  - Sciatic nerve can rub against the greater trochanter as the hip moves into deep flexion, abduction, and external rotation
  - A prominent AIIS or part of the ischium can come into contact with the lesser trochanter or proximal femur and cause pain
  - Various musculotendinous structures can be impinged between bony structures with extremes of motion

## Impingement testing

Anterior vs Posterior impingement:

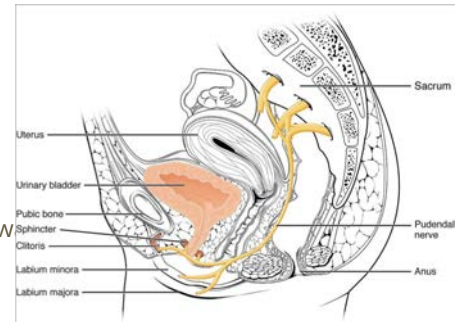


## Deep gluteal syndrome

- A syndrome in which the sciatic nerve is entrapped between various structures in the deep gluteal space
- Often presents with a traumatic mechanism of injury
- Pain with prolonged sitting in a balanced position; frequently offloads the affected side during sitting
- May present with sciatica symptoms
  - Pain and/or paresthesias that radiate down the posterior thigh to the knee

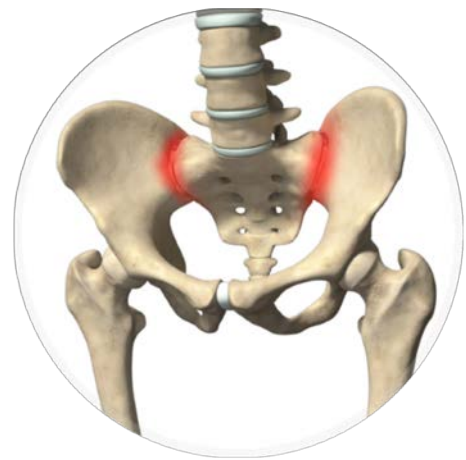
## Pudendal nerve entrapment

- TTP medial to the ischial tuberosity
- Worsened with sitting, partially relieved with standing and walking
- May present with pain or paresthesias in the perineum
- Alleviated when sitting on a toilet or pillow
  - patients who ride bicycles for prolonged periods can be affected
- Damage to this nerve may represent a broader syndrome including pelvic floor insufficiency or incontinence



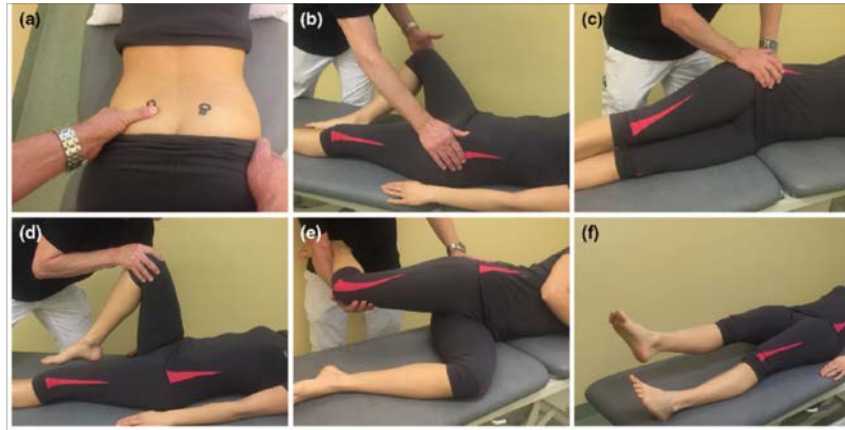
## SI Joint pathology

- TTP that is medial and inferior to the PSIS likely emanates from the SI joint and has high sensitivity
- Various etiologies:
  1. Traumatic
  2. Degenerative
  3. Inflammatory
  4. Hypermobility related to pregnancy
  5. Infection



## SI Joint pain

Testing:



## Proximal hamstring tendinitis

- TTP localized lateral or posterior to the ischial tuberosity
- May have pain or weakness with resisted hip extension and knee flexion
  
- Hamstring syndrome = irritation of the sciatic nerve due to inflammation and scar tissue associated with hamstring pathology
  - Can present with sciatica symptoms



## Piriformis syndrome

- Presents with buttock pain or pain in a sciatic nerve distribution
- Pain is exacerbated by forward bending or heavy lifting
- Gluteal atrophy may be present
- Diagnosis of exclusion



Frierberg test ->

## Imaging

### 1. Xrays

- Good initial imaging modality
- Evidence rating of C by AAFP

### 2. CT

- Rarely needed except in surgical planning

### 3. MRI

- High sensitivity and specificity
- Can be used to rule out occult fracture or lumbar spine pathology
- Can demonstrate nerve entrapment

### 4. Ultrasound

- Becoming more common to diagnose musculoskeletal pathology, especially with more superficial structures

## Treatment options

- Pain medication
  - Tylenol, NSAIDs, or trial of corticosteroids
- Physical therapy
  - Home exercises vs formal therapy
  - Mackenzie exercise program for low back pain
- Rest and temporary cessation of aggravating activity
- Other modalities
  - Heat, ice, stretching, OMT, acupuncture, iontophoresis
- Diagnostic lidocaine injections
  - Especially helpful for diagnosing SI joint pain

If no relief, then referral to an Orthopedist is recommended



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