Advances in Diagnosis and Treatment of Hip Injuries

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I have no relevant disclosures.

Most Common Hip Pathologies

- **STAIRS**
  - Stress Fracture
  - Trochanteric Pathology
  - Arthritis
  - Impingement
  - Referred pain
  - Snapping hip

Big 3- Questions to Ask

- Chronicity - When did it happen?
- Mechanism - How did you injure it?
- Location - Where is the pain?
Chronicity

- Acute
- Chronic
  - Overuse
  - Repetitive microtrauma
  - Degenerative
  - No specific injury

Mechanism of Injury

- Contact
- Non-contact
  - Twisting
  - Squatting
  - Flexion/extension
  - “Pop”

Location, Location, Location

- Buttock/posterior
  - Low back/sciatic nerve
  - Referred pain
- Lateral/thigh
  - Trochanteric pathology
  - Snapping hip
- Anterior/groin
  - Arthritis
  - Impingement (FAI)
  - Stress fracture

Anatomy

Intra-articular Anatomy

- Pelvis
- Acetabulum (Socket)
- Femoral head (Ball)
**Stress Fracture**

- Acute on chronic injury (overtraining)
- Age group 18-60 (more commonly >40 years old)
- Pain in groin, anterior thigh, deep in joint, worse with weightbearing
- PE- painful hop test
- Females > males
- Female athletic triad
  - Stress fracture
  - Amenorrhea
  - Eating disorder

**Stress Fracture (Proximal Femur)**

- Sports- Track and field most common
- MRI or bone scan for diagnosis
- Treatment
  - Rest, counseling, protected weight bearing
  - RTP: 3-4 months

**Trochanteric Pathologies**

- Trochanteric bursitis
- Gluteus tear

- All have lateral sided hip pain

**Trochanteric Bursitis**

- Chronic pain from inflamed trochanteric bursa
- Pain over lateral hip
- Pain with direct palpation of greater trochanter
- More common in females age 40-70

- Treatment
  - PT, CSI
  - If refractory >3 months then endoscopic bursectomy is option
Gluteus Tears

- Chronic trochanteric bursitis can cause gluteus medius and minimus tearing
- Chronic but can be from acute fall
- **Females 50-70**
- Lateral pain and WEAKNESS with abduction on exam
- Trendelenburg sign

**Treatment**
- PT, CSI
- If no improvement then endoscopic gluteus repair is an option

Arthritis of the Hip

- Osteoarthritis most common
  - Chronic pain, no specific injury
  - Pain in groin, anterior thigh, deep
  - **Age >55**
- Rheumatoid Arthritis
  - Family history
  - Multiple joints involved
  - **Age >35**

Physical Exam

- Hip Abduction Testing

**Clinical Presentation**

- **Physical Exam**
  - Decreased range of motion
  - Pain in groin, lateral and posterior
  - Crepitus with ROM
  - Altered gait
Radiographic Findings

- AP Pelvis
  - Joint space narrowing
  - Subchondral sclerosis
  - Osteophytes

![Radiographic Image]

Treatment

- Conservative
  - Physical Therapy
    - Gluteal and core strengthening
  - Cortisone injection
    - Ultrasound or fluoroscopic guidance
- Operative treatment
  - Total hip arthroplasty
    - Anterior, anterolateral, posterior approach

Impingement

- Femoroacetabular Impingement (FAI)
  - Abnormal bony anatomy that forms during development
  - Age group 15 to 45 years old
  - More commonly chronic injury (can be acute)
  - Can lead to intra-articular injury to labrum and cartilage
  - Can lead to early arthritis

FAI

- Cam-Type: femoral head neck asphericity
- Pincer Type: acetabulum overcoverage
- Mixed Type: both Cam and Pincer
Hip Labral Tear - can be acute event

FAI - Common symptoms

- Pain
  - Anterior groin and in c-shaped band
  - Worse with prolonged sitting
  - Sit to stand
  - Activity related (walking, running, jumping, squats)
  - Pts may complain of hip tightness or inflexibility

Physical Exam

- Flexion, adduction, internal rotation of hip causes pain

Imaging

- Radiographs (AP pelvis, Dunn Lateral)
- MRI/MRA
MRI- can show labral/cartilage injury

Prevalence of FAI in Athletes

- Football- **90%** of players at NFL Combine (2009-2010) had at least 1 sign of FAI on xrays
- Hockey- **75%** of Elite Youth Hockey players in Colorado had Cam lesion on MRI
- Soccer- **72%** of male and **50%** of female elite soccer players (MLS, US national team) had radiographic FAI

FAI Acquired During Skeletal Maturation in Athletes

- Agricola et al AJSM 2014
  - 63 pre-professional soccer players in Netherlands
  - Baseline Xray at age 12 showed 2% with Cam
  - F/u xrays 2 years later showed 18% with Cam

FAI and Arthritis

- For patients <50 years old with hip arthritis
  - 45% due to FAI, 45% hip dysplasia, 10% trauma/other
Treatment

- Conservative treatment is 1st line
- Rest
- PT: core strengthening, gluteal strengthening
- If fails PT then intra-articular CSI

Intra-articular injection of anesthetic/steroid

- Ultrasound or fluoroscopically guided intra-articular corticosteroid injections commonly used in US
- Can help to localize an intra-articular source of hip pain

CSI for Hip Pain

- Diagnostic modality for localization of source of pain
  - 90% accuracy (Byrd et al 2004)
- Therapeutic effect
  - Pain improvement variable duration (2 weeks to 2 months)

Surgical Treatment – Hip Arthroscopy
Cam Decompression
Pre-op                       Post-op

Pincer Decompression

Labral Repair

Labral Repair
### Age-Related Trends in Hip Arthroscopy: A Large Cross-Sectional Analysis

David C. Sing, B.S., Brian T. Feeley, M.D., Bobby Tay, M.D., Thomas P. Vail, M.D., and Alan L. Zhang, M.D.

- 20,484,172 unique orthopedic patients analyzed
- 8,227 hip arthroscopy cases

![Graph showing number of hip arthroscopy cases from 2007 to 2011.](image)

### Outcomes

- Byrd et al. 2011
- 200 athletes with 2 year follow up after hip arthroscopy
- 90% returned to sport (95% pro, 85% collegiate)

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### Does FAI Surgery Prevent Arthritis?

- Quantitative MRI to assess for early cartilage injury in hip
- NIH funded study at UCSF - actively recruiting patients

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### Referred Pain

- Hip pain can be referred from the lumbar spine or the knee
- Can be acute (lumbar disk herniation)
- Usually located posterior in buttock region and radiates down the leg
- Age group: >40
Referred pain

- Lumbar radiculopathy
  - Ask about radiating or shooting pain, numbness or tingling
  - Pain that shoots from the hip down past the knee is usually from the spine and not the hip
  - Obtain L-spine films if needed

- Knee pain
  - Femoral nerve can cause referred hip pain when source is from the knee (and vice versa)
  - Check radiographic and knee exam if hip films and exam is normal

Snapping Hip

- External snapping hip (lateral)
  - More common
  - IT band catching on greater trochanter
  - Dancers, runners, soccer players

- Internal snapping hip (groin)
  - Iliopsoas snaps over the lesser trochanter or AIIS

Treatment

- PT- Rest, stretching, foam roll
- Rarely- surgery for endoscopic IT band or iliopsoas release

IT Band Syndrome

- Chronic pain over lateral thigh/hip pain from overuse

- Age group 20-40

- Can cause contracture/tightness- External snapping hip

- Common in runners and bikers

Treatment

- Rest, icing, stretching,
- PT, foam roll
- Endoscopic IT band release

RTP: 2-4 weeks

Iliopsoas Snapping/tendinopathy

- Low pitched snap on flexion to extension of hip (Thomas test)

- Tender on deep palpation of anterior groin

- Sore with hyperflexion of hip
Stress Fracture
  • Female athlete triad

Trochanteric Pathology
  • Bursitis, gluteus tear

Arthritis
  • Osteoarthritis, rheumatoid

Impingement
  • FAI, Labral tears

Referred pain
  • Lumbar spine/knee

Snapping hip
  • IT band, iliopsoas

References