Advances in the Treatment of Sports-Related Hip Injuries in Young Adults

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Disclosures

- None
Objectives

- Define “hip pain”
- Discuss etiology
- Review key exam findings
- Discuss treatment approaches
- Discuss pitfalls in treatment
Hip Pain

- Complex multilayered anatomy
- Broad differential
  - Musculoskeletal
  - Neurologic
  - Gynecologic
  - Gastrointestinal
  - Vascular
Hip Disease

Hip Pain - Musculoskeletal

- Intra-articular
  - Labral
  - Chondral
  - Ligamentum teres
  - Capsular laxity
  - Adhesive capsulitis
  - FAI – femoroacetabular impingement
  - Loose bodies
  - Intra-articular tumors (PVNS, chondromatosis)
Hip Pain - Musculoskeletal

- Extra-articular
  - Hip tendonitis/avulsion injuries
  - Snapping hip
    - Iliopsoas
    - ITB
  - Abductor tears
  - Osteitis pubis
  - Athletic pubalgia
  - Nerve compression pathologies
Hip Pain - History

- Location and Quality
  - C-sign
  - Anterior, Posterior, Lateral

- Discrete injury
  - Limitations
  - Recreating pain
  - Avoidance maneuvers

- Associated symptoms
  - Catching/locking/popping
  - Audible snap
  - Instability
Hip Pain – Physical Examination

- General
- Compartmental
  - Intra-articular
  - Medial
  - Lateral
  - Posterior
  - Anterior
Hip Pain – Physical Examination

- General Exam
  - Gait
  - Active range of motion
  - Passive range of motion
  - Neurovascular
  - Reflexes
Physical Exam – Intra-articular

- Log roll
- FADIR (Impingement test)
- Anterior instability/apprehension test
Physical Exam - Medial

- Adductor muscles - pain with resisted adduction
- Iliopsoas – worse with hip flexion
  - Flex/Abd/ER – groin pain
- Snapping hip
  - FABER → EIR
  - Tight iliopsoas
Physical Exam - Lateral

- Trochanteric bursitis
  - Ober test
  - Direct tenderness
- Trochanteric Pain sign
  - Flexion/abd/ER against resistance
- Trendelenburg test
- External snapping hip
  - Hip flex → extension keeping knee extended
Physical Exam - Anterior

- Abdominal muscles/Inguinal structures
  - Resisted sit up
  - Valsalva
  - Athletic twisting
  - Inguinal ring tenderness

- ASIS/AIIS
  - Tenderness

- Subspine impingement
  - Hip flexion beyond 90
Physical Exam - Posterior

- Hamstrings
  - Eccentric load testing
  - Palpable defects
- Adductor Magnus
- Neurovascular structures
- External rotators
  - Piriformis – resisted ER
- Ischiofemoral impingement
  - Ext/IR against resistance
Hip Pain 101: The labrum is painful

- Both to the patient AND the surgeon/therapist
- Underlying causes
Hip Pain – The Labrum

- Labral Tears
  - Repetitive hip flexion or pivoting
  - Skeletal deformities
Femoroacetabular Impingement (FAI)

- Abnormal morphology + abnormal contact during terminal motion
- Hip pain and labral degeneration
- Types
  - Cam
  - Pincer

Femoroacetabular Impingement (FAI)

Cam

Femoroacetabular Impingement (FAI)

- Sharp anterior groin pain
  - Deep flexion, IR, abduction
- Lateral or posterior if extensive
- Difficulty squatting/cutting
- Limited flexion and IR
Shaded area = Pincer deformity
FAI – Radiographs

Shaded area = Cam deformity
FAI – 3D CT
Development Dysplasia of the Hip (DDH)

- Inadequate osseous coverage leads to mechanical overload
  - anterolateral acetabular rim
  - labrum

- Radiographs/Advanced imaging – critical
  - lateral center-edge angle of Wiberg (LCEA)
  - anterior center-edge angle of Lequesne (ACEA)
  - Acetabular index (AI)
  - Femoral head extrusion index
  - Tönnis angle
Normal ≥ 25

False Profile Pelvis – Anterior Center Edge Angle

Normal ≥ 20

Treatment

- FA morphology ≠ FAI
- FA morphology + impingement symptoms = FAI
- Abnormal contact
  - Extremes of motion
  - “Increasing flexibility”

- Pilates-based PT program
- Alteration of positions to relieve contact
  - Activity modification
- Corticosteroids
Treatment - Nonoperative

- Limited evidence in the literature
  - 0-90% successful
- More successful for mild deformities
- Postural rehabilitation
- Avoid PROM and stretching

Treatment - Surgical Intervention

 Goals

- Diagnostic evaluation of cartilage and labrum
- Treat cartilage and labrum
- Address underlying sources of impingement
- Address underlying sources of mechanical overload
Surgical Intervention

- Arthroscopy
  - Stab incisions
  - Ambulatory surgery
- 4 Rs
  - Repair
  - Reconstruct
  - Resect
  - Release
Surgical Intervention

- Open Surgery
  - 5 Rs
    - Repair
    - Reconstruct
    - Resect
    - Release
    - Reorient
- Surgical Hip Dislocation
- Proximal Femoral or Pelvic Osteotomy

Outcomes

- Arthroscopic FAI surgery (2yr f/u)$^{8,10}$
  - 70-90% return to sports

- Open FAI surgery (12-70 month f/u)$^{9,11}$
  - 80-96% return to sport
Hip Pain
Defining the underlying problem
Restore Anatomy

Preoperative

Postoperative
17 y.o female

- Active competitive dancer
- Mild hip pain “for years”
- Significant symptoms precluding dance since 3/13.
- Tried PT, act mod, CSI with mild relief.
- Continued ant groin pain with activities. Pinch sensation anteriorly. Also buttock region pain.
- +Impingement sign (IR 30)
X-rays

LCE 18, AI 8
Anterior CE angle (17); alpha angle 72
Options?

- Hip arthroscopy with labral debridement/repair
- PAO
Painful labrum – early failure
4.5 months postop
Outcome

Returned to collegiate level competitive dance at 8 months.
Complex Deformity

- 29 y.o male with right hip pain and catching for 4 months. Mild continued pain after PT and CSI.
- IR (-5) R; IR (5) L.
- ER 40 B
Options and concerns?
Treatment

- Hip arthroscopy
- Labral repair
- Cyst decompression
- Subspine decompression (AIIS)
- Open osteochondroplasty
- PAO – periacetabular osteotomy
  - Reorients the acetabulum
No pain. Full activities.
Labral reconstruction
  Positive short-term outcomes
  Limited long-term data
Take-home message

- Determine the UNDERLYING cause of hip pain and tailor treatment regimen to return hip homeostasis
Questions

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