Hip pain in the soccer athlete

When, and how, to address hip impingement/labral tears

DISCLOSURES

• NONE
The emergence of Hip Arthroscopy and FAI

- 77% increase in procedures performed 2002-2013
- Projected to increase by 188% by 2023

Rate of publications over the past 5 years.

Table 1: Selected Publications Documenting the Increase in the Use of Hip Arthroscopy

<table>
<thead>
<tr>
<th>Publication</th>
<th>Year of analysis</th>
<th>Rate of change</th>
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<tbody>
<tr>
<td>Macnab et al.</td>
<td>2009-2012</td>
<td>15%</td>
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<tr>
<td>Sze et al.</td>
<td>2010-2013</td>
<td>20%</td>
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<tr>
<td>Montgomery et al.</td>
<td>2011-2014</td>
<td>10%</td>
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<tr>
<td>Harris JD. Editorial Commentary:</td>
<td>2018</td>
<td></td>
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</tbody>
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Harris JD. Editorial Commentary: A Hip Scope Spying Review on Surgical Outcomes Reporting: If You Want to Know the Answer, You Have to Ask the Question. Arthroscopy. 2018;34:1329–1331.

Trends in Hip Arthroscopy

Hip Impingement ("FAI") and Labral tears

**What is hip impingement?**

**Types of Impingement**
- Intra-Articular
  - CAM
  - Pincer
  - Mixed (65%)
- Extra-Articular
  - Sub-spine impingement*
  - Ischio-femoral impingement
  - Trochanteric-Pelvic impingement

**Etiology of Labral Tears**
- Trauma (24%)
  - Usually repetitive trauma
- Femoroacetabular Impingement (FAI) (43%)
- Capsular Laxity/Instability (25%)
- Dysplasia (4%)
- Degenerative (14%)

90% of patients with labral pathology have underlying structural abnormalities in femoral or acetabular morphology.
Why it is important: altered mechanics leading to OA

- When the labrum fails....
  - Hip pain
  - Decrease of articular cartilage compression (up to 40% quicker)
  - Contact stress (up to 92% higher) between the femoral and acetabular cartilage layers
  - Loss of suction seal may lead to loss of fluid dynamics
  - Loss of suction may to joint instability
  - Early DID

The Diagnostic Delay:

- Clinical presentation is variable
- Diagnosis often missed initially
- Burnett et al. JBI 2006
  - 66 patients diagnosed with labral tear on arthroscopy
  - Mean time to diagnosis: 21 months
  - 3.3 health care providers seen prior to diagnosis

STEP 1: Establishing the source

“Is this pain coming from inside the joint, outside the joint, or elsewhere?”

How do these patients present??
“Intraarticular Disorders”

- Labral Tears
  - Hyperplastic tears (dysplasia)
  - Hypoplastic labra
- Chondral Injury
  - Focal chondral defects
  - Arthritis
- Ligamentum Teres Tears
  - Partial
  - Complete
- Femoroacetabular Impingement
  - CAM
  - Pincer
- Synovitis
- Loose Bodies
- Tumors
  - Synovial chondromatosis
  - PVNS

HIP PAIN: LOCATION, LOCATION, LOCATION

Anterior
- Hip Joint
- Hip Flexors
- Iliopsoas
- Stress fracture
- Inguinal Disruption
- L3 nerve root
- Iliofemoral Impingement
- Microinstability

Lateral
- Greater trochanter
- Iliobial band
- Meralgia paresthetica
- Gluteus Medius Tear

Posterior
- Referred pain: spine
  - Stenosis, disk, facets
  - SI joint
- Hip extensors
- External rotators
- Hamstrings
- Piriformis

INTRA-ARTICULAR SYMPTOMS

- Groin pain associated with hip activity
- Complaints of pain in the front, side or back of the hip
- Pain may be described as a dull ache or sharp pain
- Patients may complain of a locking, clicking, or catching sensation in the hip
- Pain often occurs in the inner hip or groin area after prolonged sitting or walking
- Difficulty walking uphill
- Restricted hip movement
- Low back pain
- Pain in the buttocks or outer thigh area
Demographics: 17 yo female, high school soccer player

CC: "Right hip pain"

HPI: • 9 months of RIGHT hip pain – "front of hip"
• Insidious onset
• Initially worse with soccer, daily sitting, deep flexion exercises, and activity/pivoting
• IN SEASON at time of presentation
• Feels the pain in the front of the hip/groin. Some lateral pain, some radiation into buttock with increased activity
• No numbness or tingling
• Mild ipsilateral SI pain
• TREATMENT SO FAR: rest, NSAIDs, home exercises

PMH: None

PSH: None

Allergies NKDA

HISTORY

"The Layer Concept" – The Anatomical Approach to Determining Hip Pain

Layer 1 – Osseous Layer
Layer 2 – Inert Layer
Layer 3 – Dynamic Layer
Layer 4 – Neuro-mechanical Layer

EXAM

Antalgic gait

Tender over hip flexors, TFL, gluteus musculature

Limitation motion:

Flexion: 110 (pain with terminal)
IR: 5 degrees
ER: 40 degrees

Strength:

3/5 hip flexors
4+/5 adductors
4/5 glutes

Special Tests:

++ FADIR
++ Subspine sign (deep flexion)
+ Butterfly test
+ lateral rim impingement
+ anterior pain with FABER
IMAGING

Mixed impingement

LABRAL TEAR
Early chondrolabral cartilage changes

Decision point:

1. Timing/patient demographics
   • in season athlete? what part of the season?
   • sport?
   • level of athlete?
   • occupation/life plans
   • recency of injection?

2. What has treatment to date consisted of?

3. Treatment Options available
   • Short period of shut down, trial of NSAIDS
   • Skilled hip centric PT*
   • Intra-articular injection
Injection and PT

- Ultrasound guided

- Important component of assessment
  - Evaluates relief of pain associated with triggering activities
  - Provides key insight on etiology of pain
    - Intra vs extra-articular

Helps guide treatment algorithm
May help calm down intra-articular symptoms and keep in the game

HIP CENTRIC Physical therapy (more to come)

Outcomes of intra-articular corticosteroid injections for adolescents with hip pain

- 19 hips, mean age of 15.1
- All treated with IA injection
- Mean follow up 29 mo
- 10/19 (52%) went on to need surgery
- Avg time to conversion: 12.8 months
- CAM/Pincer present in 90% of those needing surgery - these patients more likely to need surgery
- No diff in presence of labral tear in op and non-op group (100% vs 87%, p=0.47)
- Adolescents with no bony abnormality - 90% improved with CSI alone

HIP CENTRIC PT**
+++ Dry Needling
...back to our patient

- 2 weeks of shut down
- 14 day trial NSAID
- Underwent intra-articular injection
- Skilled hip centric PT

Pain free, completed 8 weeks PT
Was able to compete through rest of the year

Maintained strength, but increase in intra-articular symptoms at end of year

Femoral head coverage: 38 deg
Alpha: 74 deg
Acetabular version:
1:00: -3 deg
2:00: 5 deg
3:00: 10 deg

Acetabular inclination: 7 deg
Femoral version: 15 deg
Subspine: Type II

Surgical management
What does the literature say?

**SURGERY VERSUS PT?**

**HOS ADL/SS, mHHS all improved at avg 29 months**

**70‐90% good to excellent (mid term f/u)**

**88% return to sport after surgery**

**26 hips in 24 professional soccer players**

**96% return to professional level**

**Avg time to return = 9.2 months (1.4‐24)**

**Avg 70 games played after surgery**

**Cartilage damage with no impact…**

**50 Athletes aged 13‐23**

**92% RTS at preinjury level**

**RETURN TO SPORT**

- **26 hips in 24 professional soccer players**
- **96% return to professional level**
- **Avg time to return = 9.2 months (1.4‐24)**
- **Avg 70 games played after surgery**
- **Cartilage damage with no impact…**

**TAKE HOME**

- Recognize intra‐articular Hip pain in the athlete/soccer player, and know when to send (more to come)
- Most non‐structural hips can be treated conservatively with good therapy, +/- injection
- Many in season athletes can be managed with preventative PT, therapeutic PT, and possible injection
- Some structurally abnormal hips will need surgical management at some point

...BUT WHEN?