

FEMOROACETABULAR IMPINGEMENT

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Presentation

- “I’ve had groin/ Hip pain for 2 yrs, and this MRI says I have a labral Tear”



Labral Tears

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Acetabular Labral Tears Rarely Occur in the Absence of Bony Abnormalities

*Doris E. Wenger, MD**; *Kurtis R. Kendell, MD**; *Mark R. Miner, MD†*; and
Robert T. Trousdale, MD‡

- ▣ 31 patients
- ▣ 87% of patients with labral tears had a structural hip abnormality detectable on radiography.

What Causes Labral Tears?

- ▣ Bony Morphology?
- ▣ Soft Tissue Impingement or Laxity?
- ▣ Trauma: Dislocation/ Subluxation?

Bony Morphology

1. Dynamic Impingement

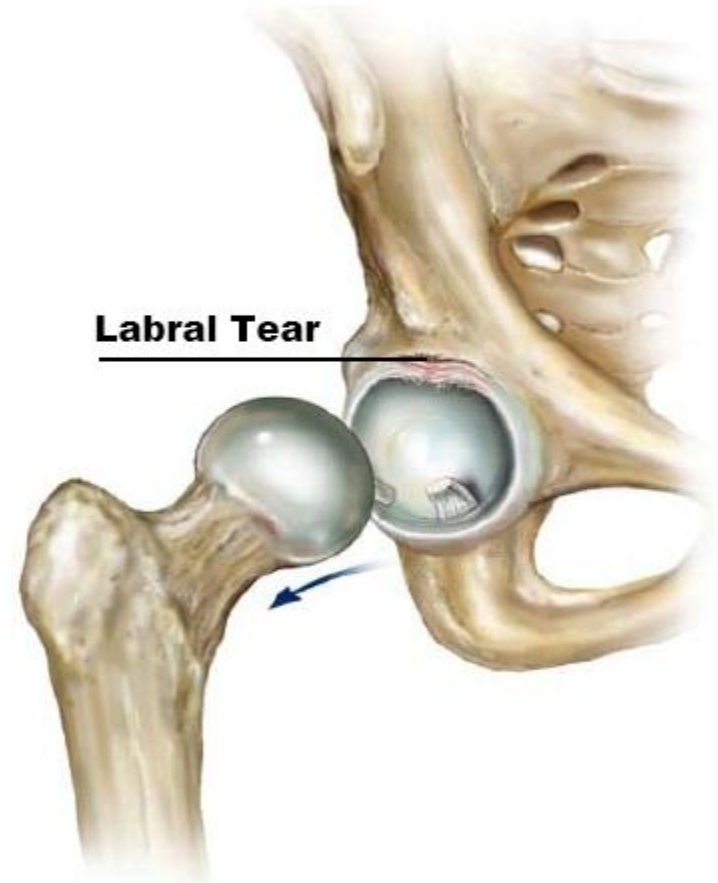
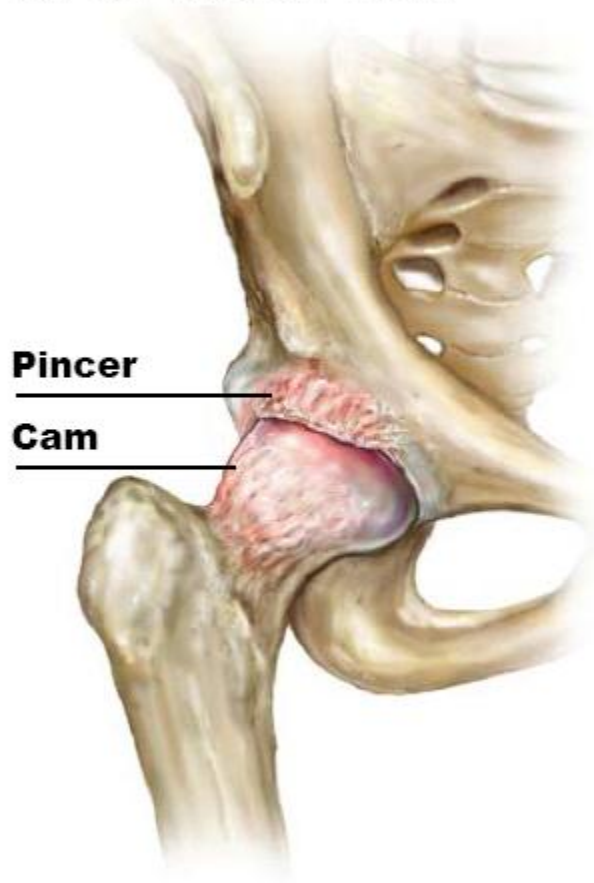
- Pincer
 - Acetabular retroversion (Focal Anterior Overcoverage),
 - Profunda/Protrusio (Global Overcoverage)
- Cam
- Femoral Retroversion
- Coxa Vara

2. Static Overload

- Femoral Anteversion
- Valgus Femoral Neck
- Acetabular Dysplasia (Anterior or Lateral undercoverage)
- → Abnl Mechanics & Overload of Joint/ labrum

Bony Morphology

FAI & Labral Tear



Femoral Retroversion

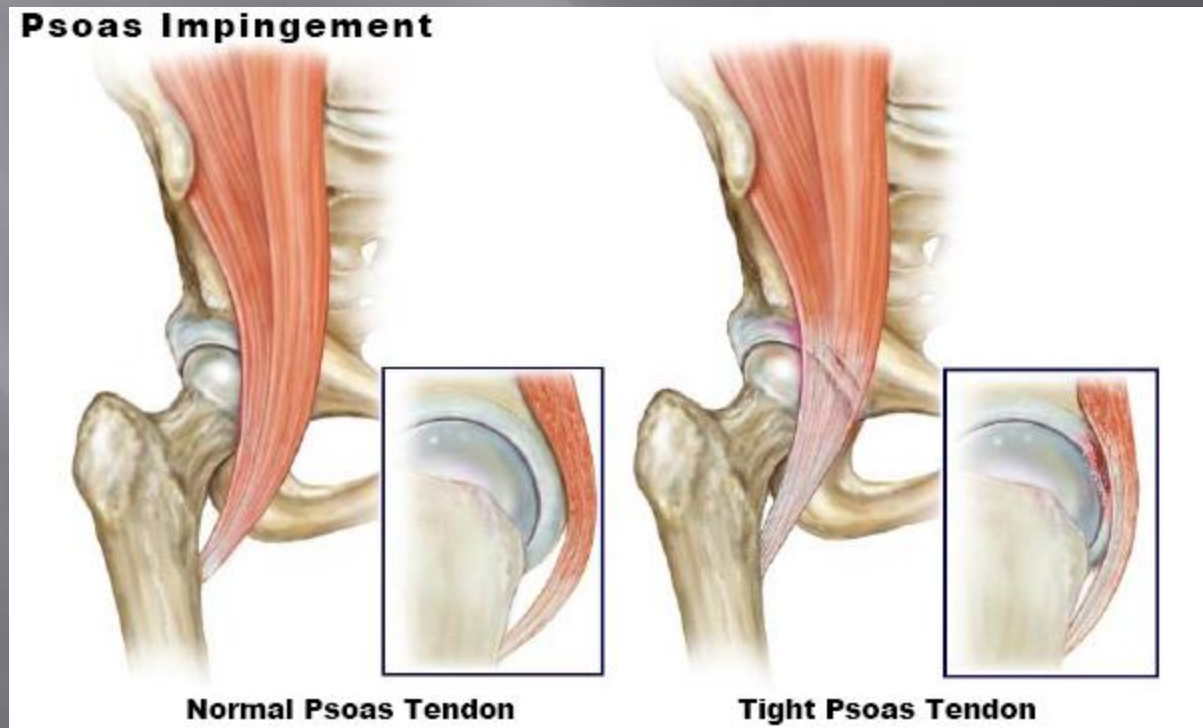


Femoral Anteversion



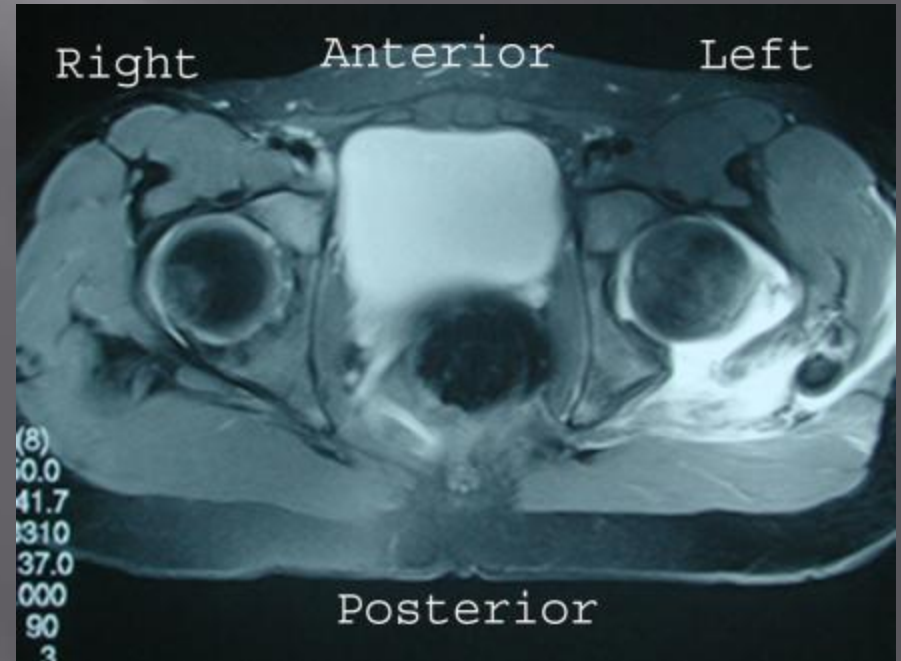
Soft Tissue

- ▣ Psoas Impingement → Dynamic
- ▣ Laxity- Collagen Disorders → Static



Trauma

- ▣ Subluxation / Dislocation
 - ▣ Capsulolabrous Injury
 - ▣ Loose Body
 - ▣ Possible Etiology → Dynamic Impingement & Static Overload likely predisposes patients to event (Abnl mechanics)



Labral Tears

1. Dynamic Impingement
 - Pincer (Focal / Global)
 - Cam
 - Femoral Retroversion
 - Coxa Vara
 2. Static Overload
 - Femoral Anteversion
 - Valgus Femoral Neck
 - Acetabular Dysplasia (Anterior/Lateral)
- ▣ Soft Tissue
 - Psoas Impingment
 - Laxity- Collagen Disorders
 - ▣ Trauma
 - Subluxation/Dislocation
 - ▣ Capsulolabrous Injury (Bankart of Hip)

Labral Tears

1. Dynamic Impingement
 - Pincer (Focal / Global)
 - Cam
 - Femoral Retroversion
 - Coxa Vara
 2. Static Overload
 - Femoral Anteversion
 - Valgus Femoral Neck
 - Acetabular Dysplasia (Anterior/Lateral)
 - →?? Mild, CEA 18-25
- Soft Tissue
 - Psoas Impingment
 - Laxity- Collagen Disorders
 - Trauma
 - Subluxation/Dislocation
 - Capsulolabrous Injury (Bankart of Hip)

Can Be Addressed Arthroscopically

Diagnostic Challenge

- ▣ HX -Location of pain: Groin / ASIS
-Snap/ Click in certain positions
(reproducible)
- ▣ Exam -Impingement Sign (FADIR)
-Internal Rotation Deficit (Fnl 30 deg.)
-Circumduction Maneuver
-(from Flex/ ABD/ER → Extension + IR)
-External Rotation & Extension Pain
- ▣ Studies - X-rays: AP, Elongated Lateral,
False Profile
- Diagnostic Injections
-MRI- cartilage / Psoas
-CT Scan w/ Version Analysis

Case 1: 26 y/o Male

- Martial Arts
 - 2 years of Left Hip Pain, failed conservative treatment
 - + Impingement Sign
 - 5 degrees of Internal Rotation
 - He brings in an MRI which shows a labral tear
-
- PLAN: Hip Injection, CT scan



Case 1: CAM



82 Degrees (nl 30)

Case 1: Labral Injury

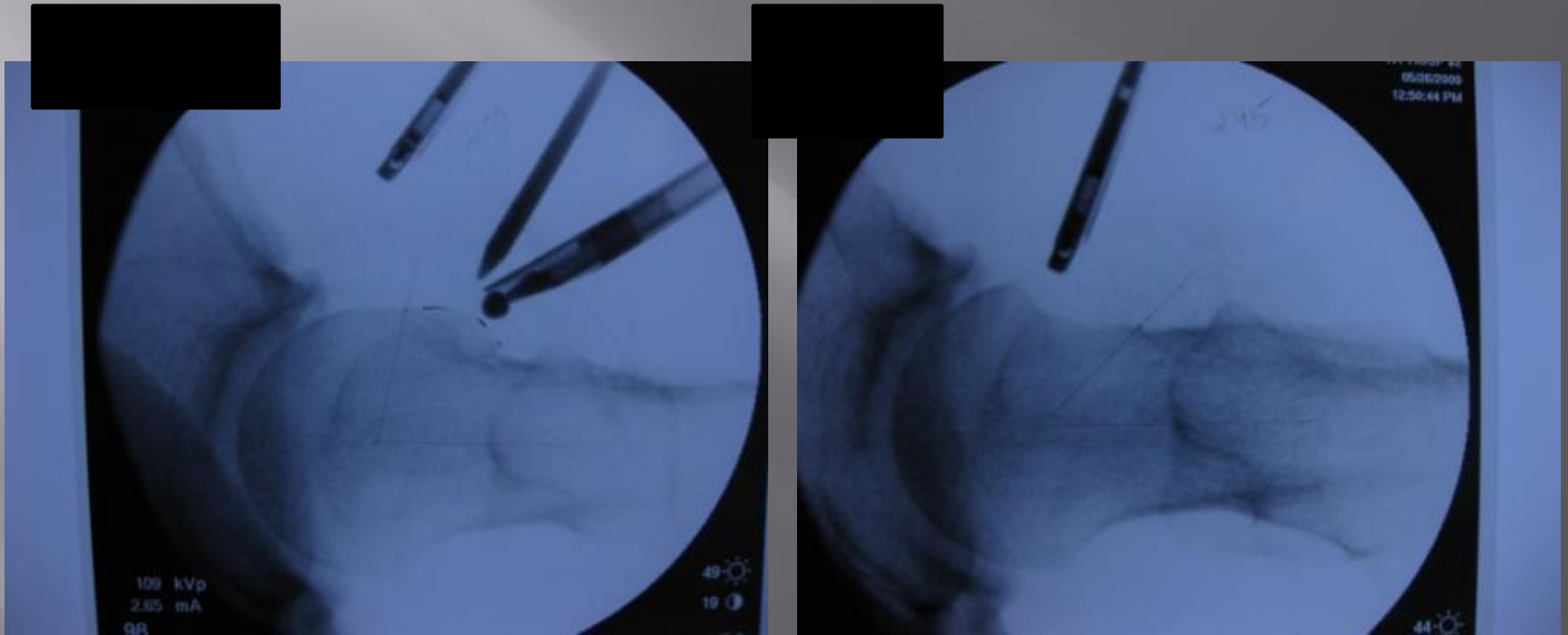


CAM → Detachment labrum at the zone of transition from the articular cartilage

Case 1: CAM lesion



Case 1

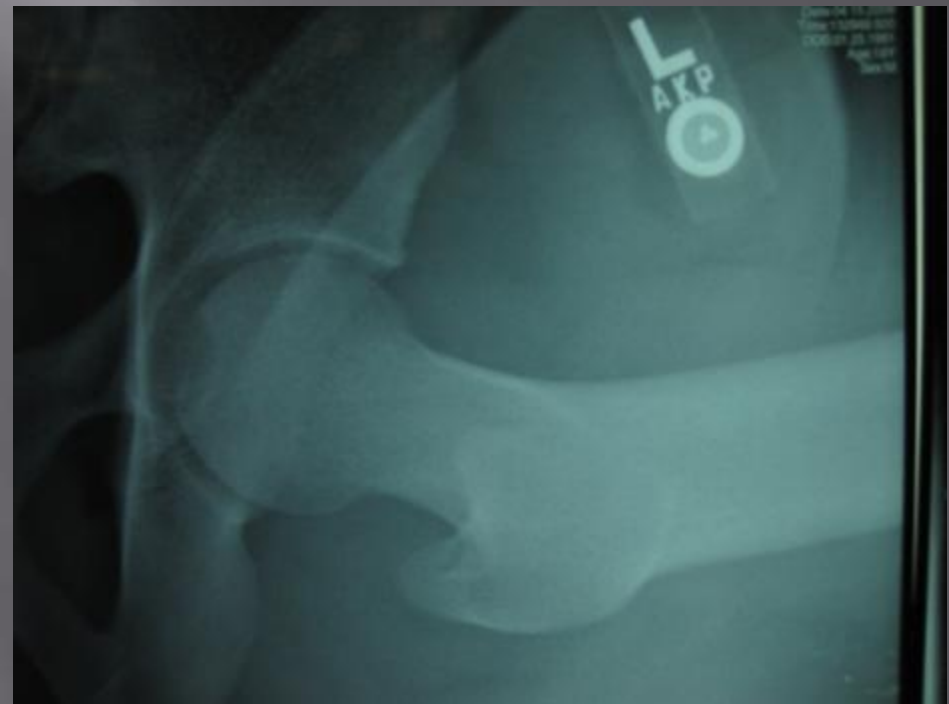
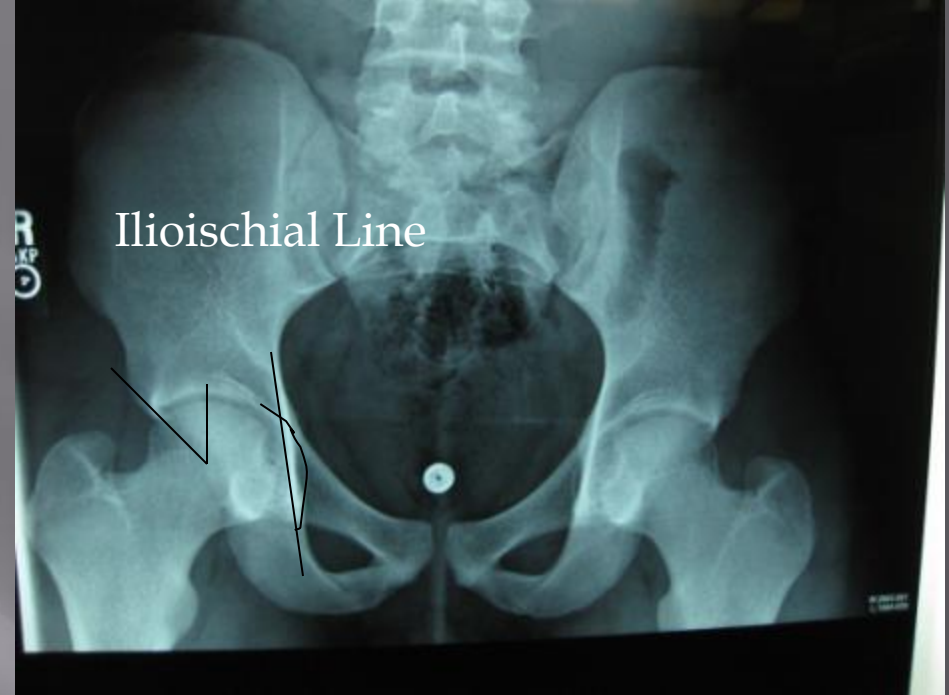


Alpha 78 degrees

45 degrees Post-op

Case 2: 18 y/o Male

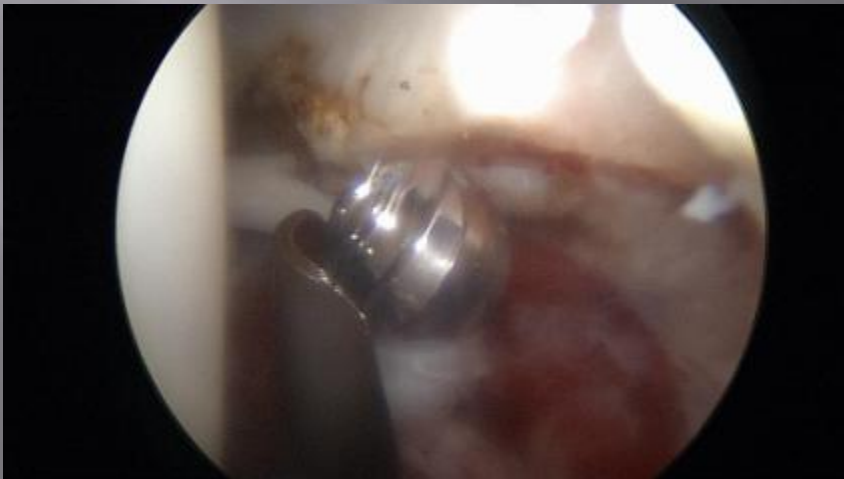
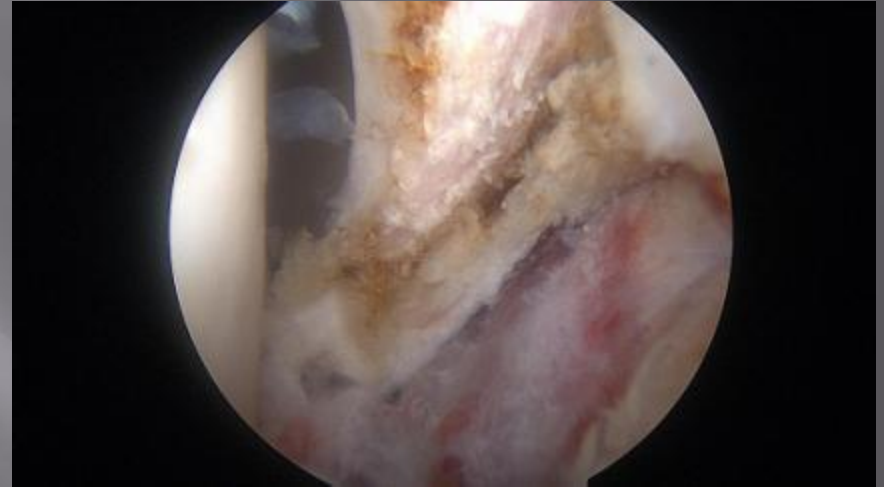
- Football player
- Left Hip pain for 2-3 years, failing conservative measures
- + impingement sign
- 0 degrees of internal rotation
- Brings in MRI showing a chronic labral tear
- PLAN: Hip Injection, CT Scan



CT scan: Coxa Profunda



Global Overhang



Case 3: 40 y/o Male

- Active, plays softball
- 8 years of Left hip pain, on and off, worse over the last year
- Pain with sitting for long car rides, failed conservative measures
- +impingement Sign
- IR 10 degrees

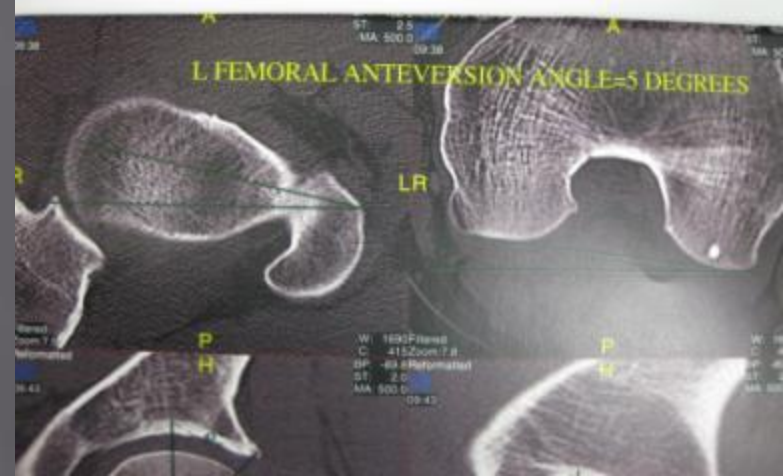
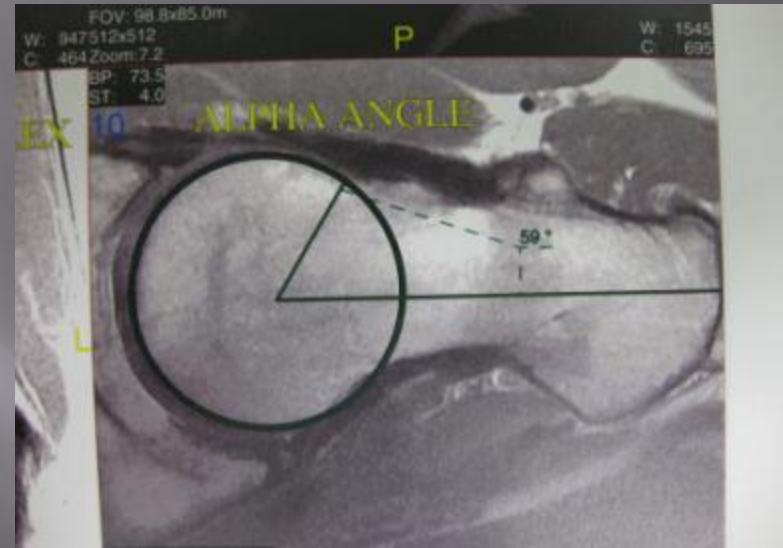
•MRI shows labral tear

•Xrays: pincer trough, calcified labrum, small CAM

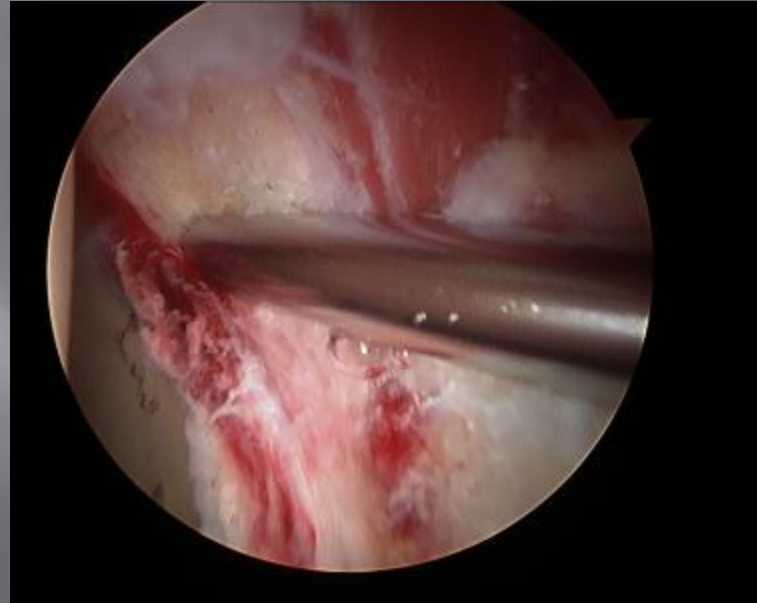
•PLAN: Injection, CT scan



CT Scan: Pincer, CAM, Femoral Retroversion

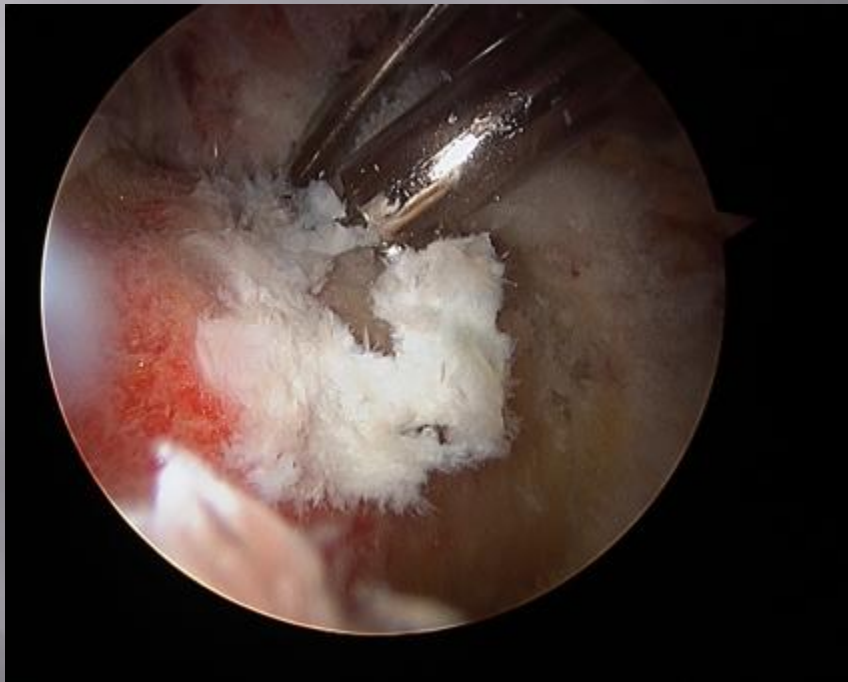


Labral Injury & Pincer



- labral crush between pincer and neck
- tears are within the substance of the labrum

CAM



Case 4: 30 y/o Female

- Car accident 9 mo. Ago
- R Hip pain since then
- Has been progressively worsening
- C/o Snapping in the anterior hip
- Had PT for 5 mo. w/o improvement

• Pain in the groin and adjacent to the ASIS

- + impingement sign
- IR 35 degrees
- + snapping with circumduction

• MRI shows anterior labral tear, and increased signal around psoas

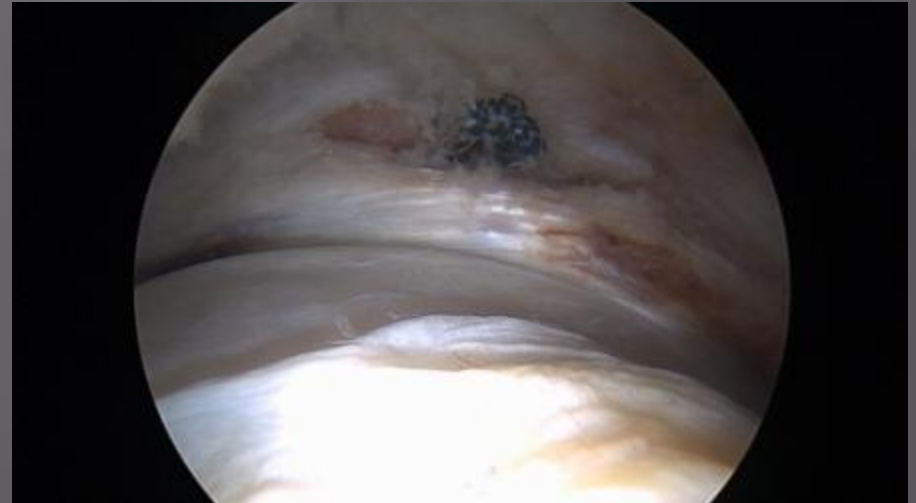
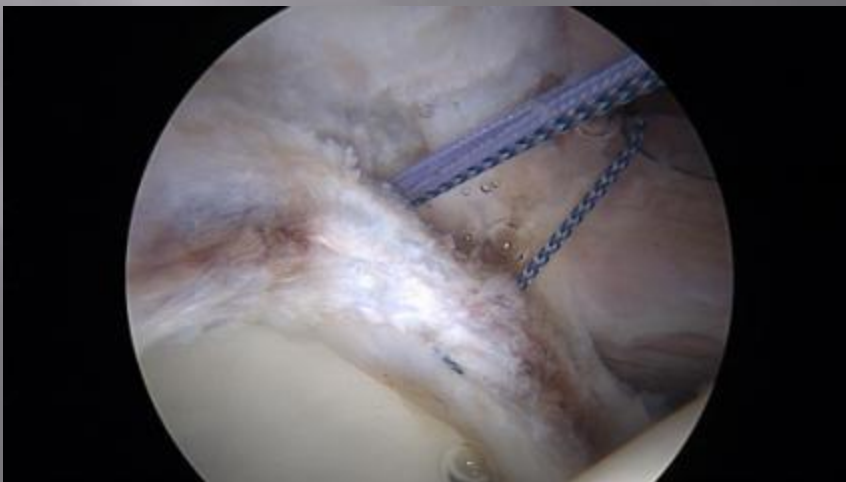
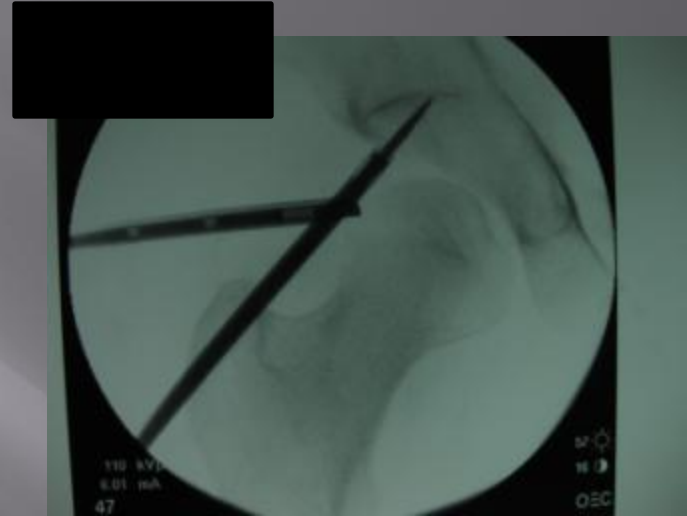
• PLAN: Hip Injection to confirm



Psoas Impingement & Labral Tear



Labral repair



OUTCOMES

Study	No. of Hips	Mean Age (yrs)	Mean Duration F/U (mths)	Procedure	Return to Play	Outcomes Data	Failures
Byrd et al 2001	44	29	26	Arthroscopy, labral debridement, loose body removal		93% good to excellent results	1 case of meralgia paresthetica
Guanche et al 2005	8	36	14	Arthroscopy, labral debridement	8/8 return to pre-injury level of competition		
McCarthy et al 2003	13	24	18	Arthroscopy, labral debridement		92% good to excellent results	1 failure with recurrent sx
Phillipon et al 2007	45	31	20	Arthroscopy, osteoplasty, labral debridement/repair, microfracture	42/45 return to pre-injury professional athletics	78% still active in prof sports at 20mth F/U	3 failures with progressive OA
Saw et al 2004	6			Arthroscopy, labral debridement	5/6 return to professional soccer		
Iizaturri et al 2007	14	31	30	Arthroscopy, osteoplasty, labral debridement, microfracture		Mean WOMAC 77→88 Improved ROM in all SCFE and LCP patients	No AVN, infection, fractures
Santori et al 2000	58	37	42	Arthroscopy, labral debridement		67% good to excellent results	33% dissatisfied with procedure
Potter et al 2005	33	35	26	Arthroscopy, labral debridement		68% good to excellent results in non-disability pt 39% good to excellent results in disability pt	
Farjo et al 2000	28	41	34	Arthroscopy, labral debridement		71% good to excellent results if no preop OA 21% good to excellent results in +preop OA	8 failures requiring conversion to THA
O'Leary et al 2001	22	34		Arthroscopy, labral debridement		90% good to excellent results	1 conversion to THA 1yr s/p arthroscopy

Outcomes: Debridement Alone

- ▣ Labral Debridement Alone
 - Up to 93% G/E out to 26mo (N=44). -*Byrd Arthroscopy 2003*
 - Up to & 67% out to 42 mo (N=58) -*Santori Arthroscopy 2000*
 - ▣ Only 21% G/E in OA- *Santori 2000*
 - Only 39% G/E outcomes (N=33) in disability -*Potter AJSM 2005*

Outcomes: Debridement & FAI

- ▣ FAI & Labral Debridement
 - 90% G/E results @ 10 mo. (N=100) –*Larson Arthroscopy 2008*
 - 84% @ 24 mo.(N=19), *Ilizaliturri -J Arthroplasty 2008*
 - 78% active in Pro sports @20 mo. (N=45) –*Philippon Knee Surg Sports Trauma Arth 2007*

Do patients do worse if treat the labral tear alone?

- ▣ Recent studies suggest FAI is the critical issue:
- ▣ *Phillipon et al 2007: Revision Hip Arthroscopy*
 - 37 patients at mean of 21 months after surgery
 - (95%) for femoroacetabular impingement
- ▣ *Heyworth et al 2008: Revision Hip Arthroscopy*
 - 19/24 unaddressed FAI (79%)
 - 7/24 psoas impingement lesions (30%)

Outcomes: Labral Repair / Psoas

- ▣ Labral repair- No quality studies
 - -Philippon- Review Arthroscopy 2005
 - -400 repairs “all excellent”, “most return to sport”
- ▣ Psoas Release- 100% (N=15) athletes RTP by 9 mo. And had significant improvement in Subjective outcome scores- *Anderson AJSM 2008*
 - Not addressing has lead to recurrent sx, and revision arthroscopy
 - ▣ 30% of Revision Arthroscopy Cases – *Heyworth Arthroscopy 2007*

Hip Arthroscopy: Complications in 1054 cases. *Clarke MT et al. CORR 2003*

- ▣ Prospective data analysis 1989-2001
- ▣ Lateral decubitus w/ boot traction
- ▣ Overall rate 4.2%
 - 3 sciatic neurapraxia (2-3h)
 - 1 femoral neurapraxia (6h)
 - 1 vaginal tear
 - 1 trochanteric bursitis
 - 4 portal bleeding/hematoma (no sutures)
 - 2 instrument breakage (1 remained)
 - 2 arthrotomy
 - 1 infection (no prophylactic abx used)
 - 30 lack of visualization

Complications of hip arthroscopy. *Sampson TG. Clin Sports Med 2001*

- ▣ 530 consecutive procedures
- ▣ 5.5% (34) complication rate
 - 0.5% (3) permanent
 - ▣ severe scuffing of articular cartilage (2)
 - ▣ osteonecrosis (1)
 - 5% (31) transient
 - ▣ neurapraxias, fluid extravasation, instrument failure

Thank You

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