SHOULDER INSTABILITY
A Surgeon's Perspective

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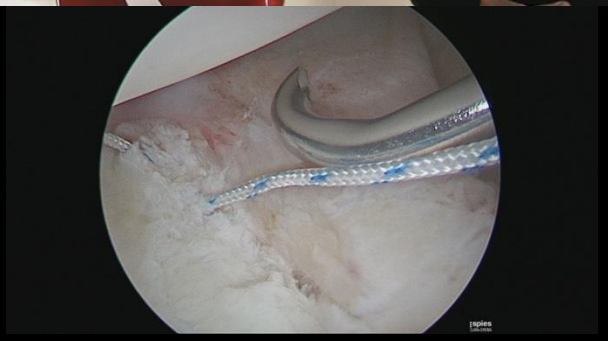
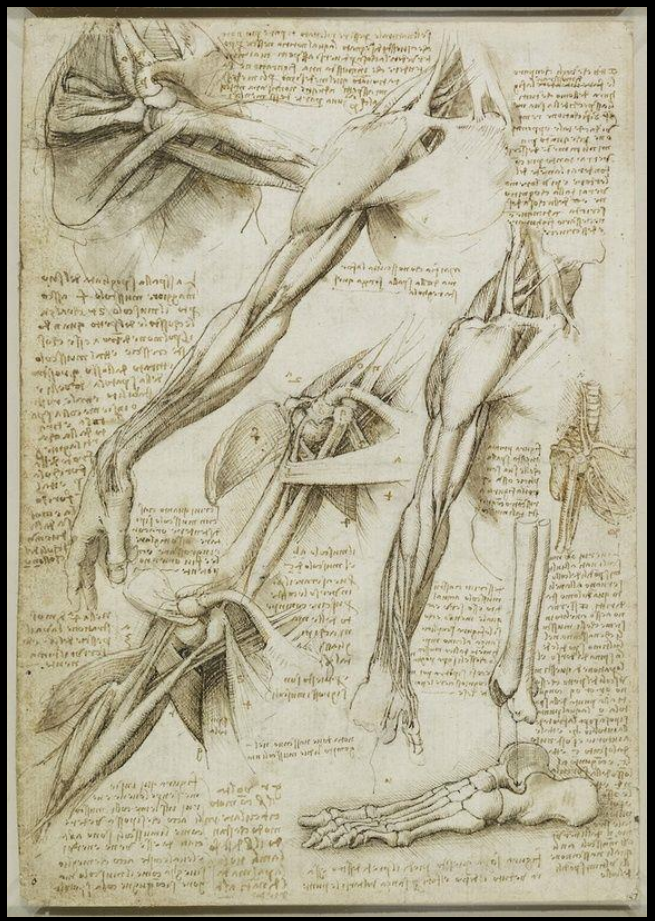
WHY SHOULDER INSTABILITY?

- Diagnosis that brings out the best in sports medicine providers
- Requires team approach to have success
- Opportunity to keep athletes doing what they love…with the right care



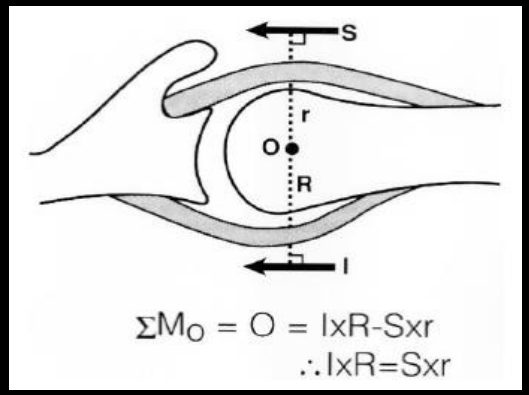
OUTLINE

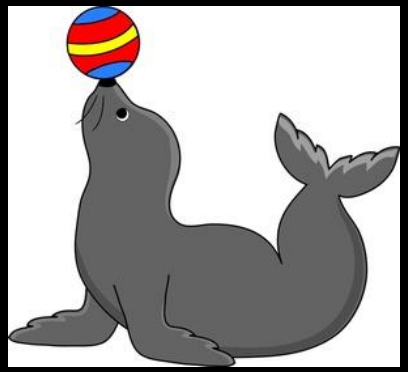
- Pathoanatomy
- Anterior Instability
- Posterior Instability
- MDI



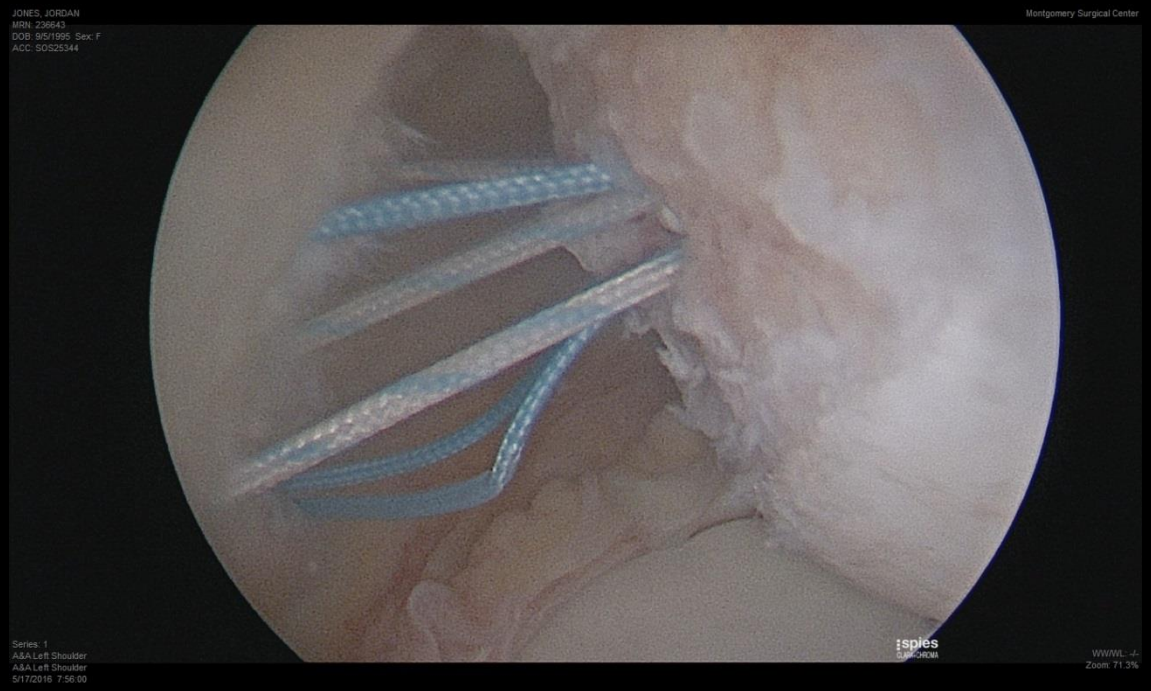
PATHOANATOMY

- Shoulder is dynamic “system”
- There are few static restraints
  - humeral and glenoid version
  - Labrum
  - AIGHL/PIGHL
- Scapula plays HUGE role in constraint
- Instability is cycle of injury, pain, and weakness that allows escape and subluxation events



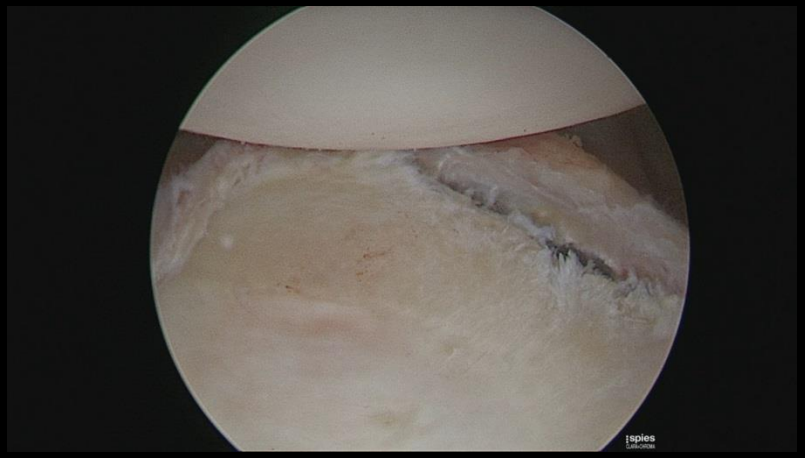


ANTERIOR INSTABILITY



ANTERIOR INSTABILITY

- Most common type of shoulder instability
- More common in contact athletes, military, males



ANTERIOR INSTABILITY ETIOLOGY

- Almost always due to traumatic event!
  - Classically abduction, external rotation
  - Fall on outstretched arm
  - Arm tackling
- Almost Always Structural Pathology!!:
  - Bankhart lesion (soft tissue or bony)
  - HAGL/capsular tears
  - Hill Sachs Lesions
  - Sometimes SLAP or extended labral tears

ANTERIOR INSTABILTY DIAGNOSIS

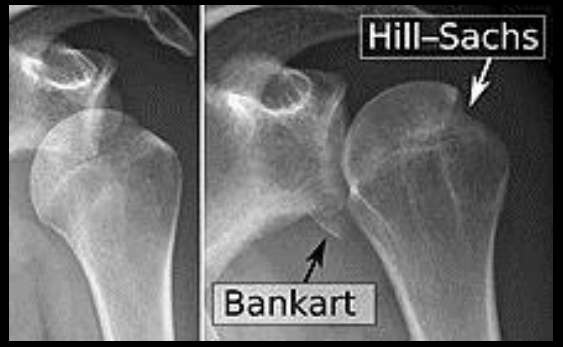
- History
  - Crucial to get into specifics: When, how, position of arm
  - How many times has it come out??
  - Over how long a period of time
  - Prior treatment: ER reductions, surgery?

ANTERIOR INSTABILTY DIAGNOSIS

- Phys Exam:
  - Apprehension/Relocation (midrange apprehension key!)
  - Load and Shift
  - RTC/Scapular function

ANTERIOR INSTABILTY IMAGING

- Good Xrays
- MRI
- CT with 3d Recon helpful
- The little things matter:
  - HAGL tears
  - Bone loss/bony Bankhart
  - Hill Sachs
  - SLAP, posterior extension of labral tears



ANTERIOR INSTABILITY MANAGEMENT

- Literature becoming more clear that best chance for surgical success (no recurrence) is after first dislocation
- I offer stabilization to all Bankhart tears in contact athletes!
- But…In season management is an art!

ANTERIOR INSTABILITY MANAGEMENT

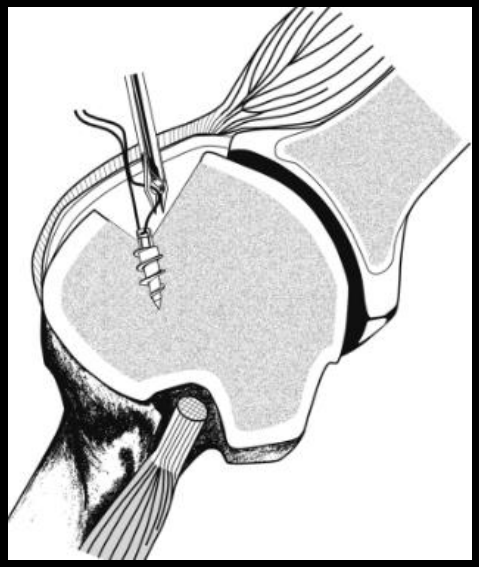
- Surgical decisions:
- Degree of bone loss, remaining competition, previous surgery may make open surgery a better choice!

Evolving Concept of Bipolar Bone Loss and the Hill-Sachs Lesion: From "Engaging/Non-Engaging" Lesion to "On-Track/Off-Track" Lesion

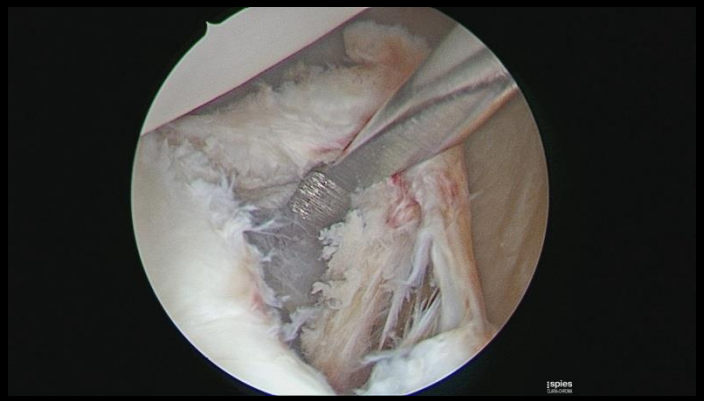
Giovanni Di Giacomo, M.D., Eiji Itoi, M.D., Ph.D., and Stephen S. Burkhart, M.D.

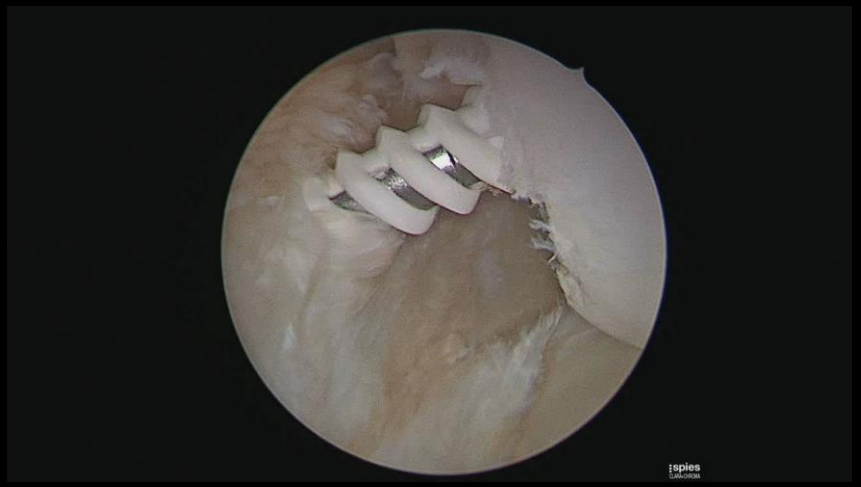
AI Surgery: Arthroscopy

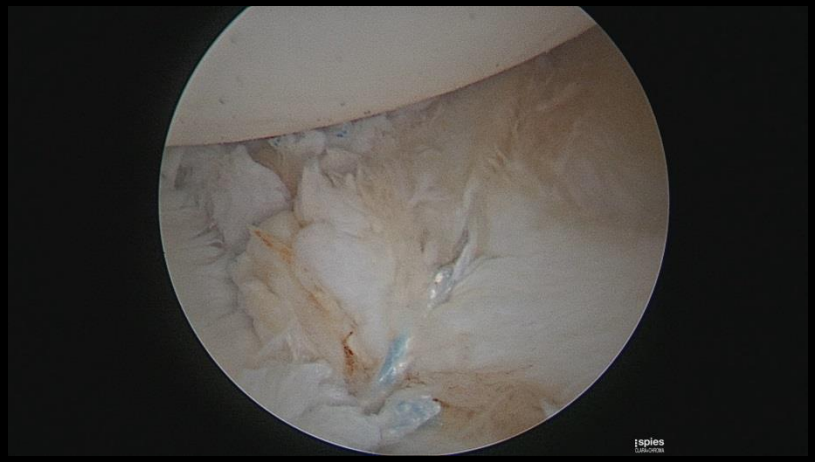
- Lat Decubitus position
- Surgical keys:
  - Low placement of anchors on glenoid face
  - Tightening of AIGHL
  - If bony component…save and fix if possible
  - At least 3 anchors
  - Remplissage when able



AI SURGERY: Scope Concepts







AI Surgery: Open Bone Block procedures

- Latarjet:
  - Gold standard for glenoid bone loss
  - Very low recurrence rate
  - Complication rate 30% in some studies!

- Eden Hybinette
  - Iliac crest, allograft, distal clavicle
  - revisions
  - Massive bone loss

POSTERIOR INSTABILITY

PATHOANATOMY

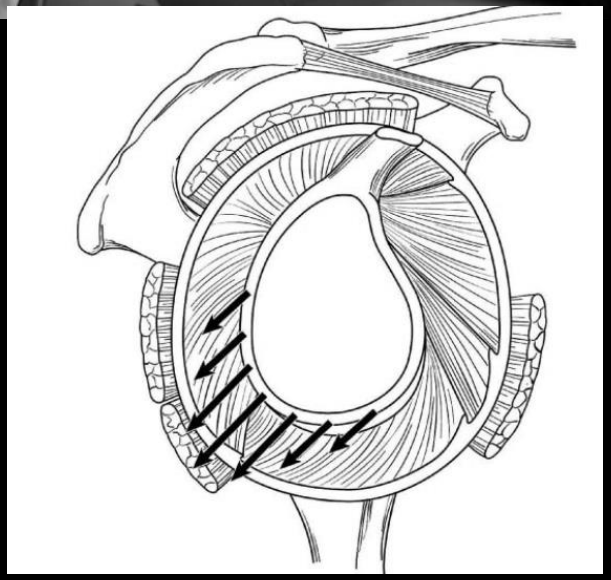
- PI represents 2-5% of all patients with shoulder instability
  - Uncommon, but not in certain populations
  - I think incidence is increasing!
- Can occur as isolated problem as part of combined instability pattern

PATHOANATOMY

- 2 DIFFERENT PATHWAYS
- Traumatic
  - Alcohol
  - Electrocution
  - Seizures
- Acquired/Indolent Onset
  - Multiple traumatic events

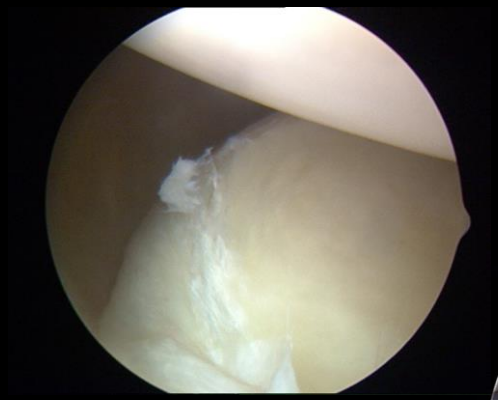
PATHOANATOMY

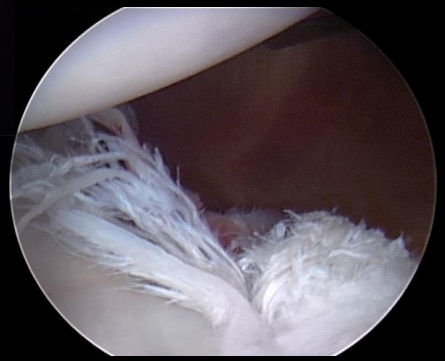
- Positional:
  - Flexion
  - ADDuction
  - Internal rotation

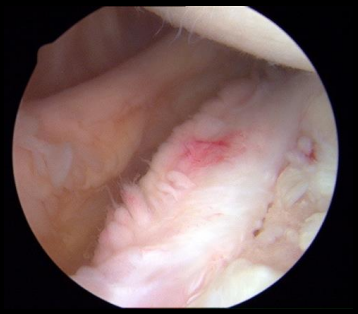


PATHOANATOMY

- Multiple Capsulolabral Injuries and Manifestations
  - Cracks and Fraying
  - Kim Lesion
  - Cysts
  - RHAGL / Capsular rents
  - Floating PIGHL





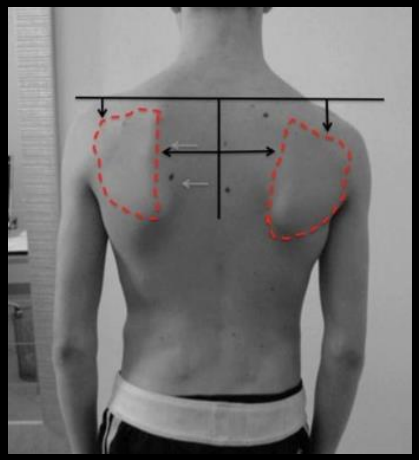


Making the Diagnosis

- Combination of
  - History
  - Phys Exam
  - Imaging
  - “Situational awareness”
- Beware MDI and voluntary dislocators

PHYSICAL EXAM

- Observe scapula
- Load and Shift
- Jerk
- KIm
- Posterior Compression
- Whipple

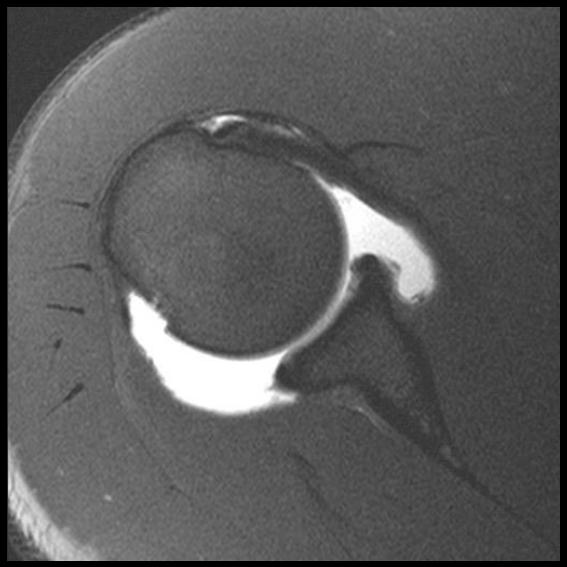


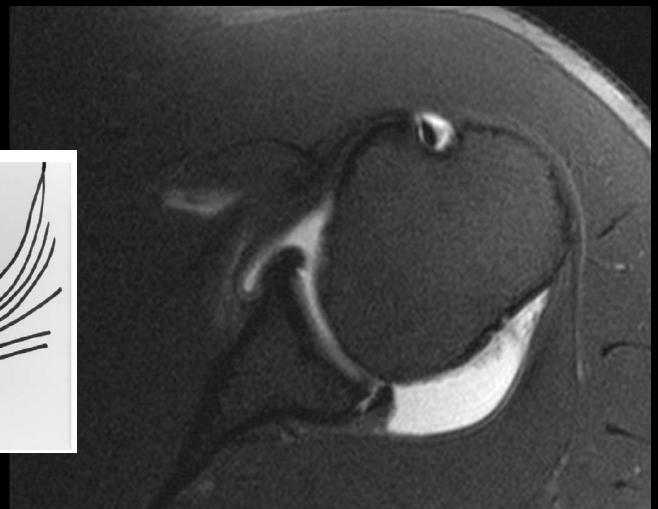
IMAGING

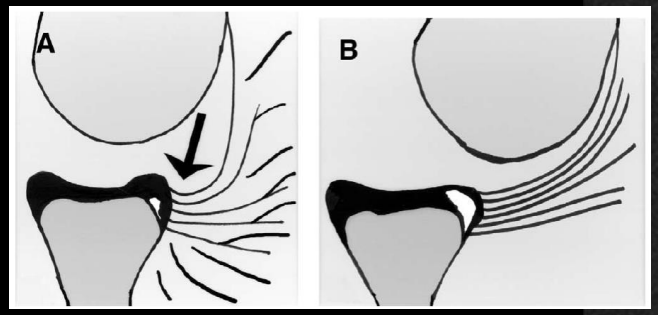
- XR (Axillary)
  - Sometimes can reverse Bankart or Hill Sachs lesion
  - Version/ glenoid dysplasia
- MRI Arthrogram=gold standard

IMAGING

- MRI:
  - Can be subtle!
  - Decreased chondrolabral version or increased retroversion of glenoid
  - sublabral fluid/cysts (Kim lesion)

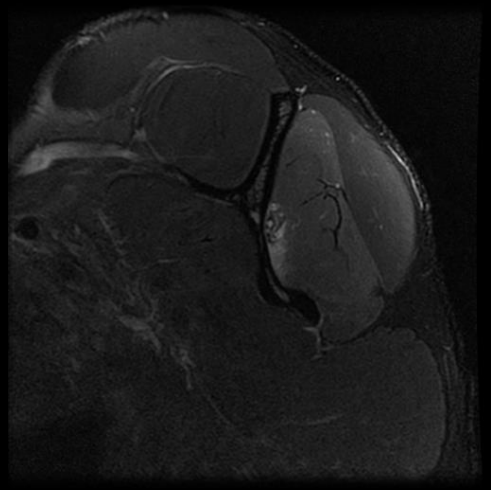


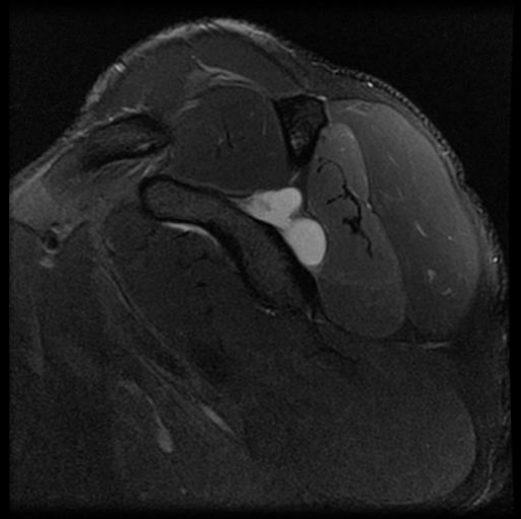


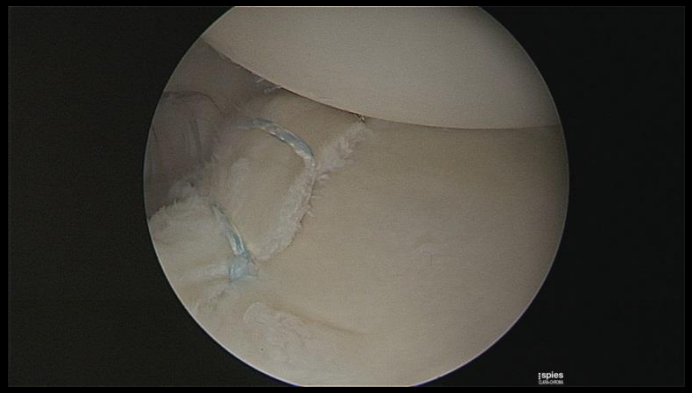


IMAGING: Notice Cysts!

- 30YO cross-fit athlete
- Ext Rotation weakness
- NO other symptoms
- Spinoglenoid NOTCH Cyst communicating with posterior labral tear and and cyst





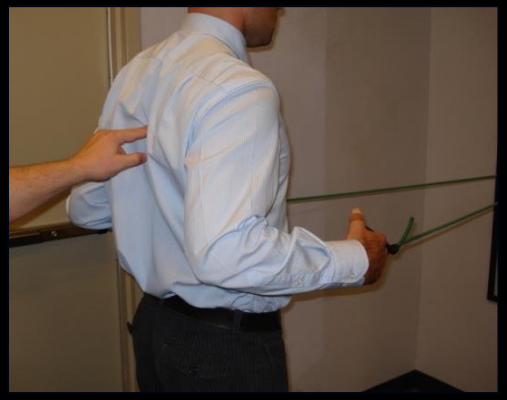


DIAGNOSIS MATTERS

- Collegiate offensive lineman underwent SLAP repair after senior year high school
- Continued pain and subluxation with blocking
- Required revision surgery and redshirt year

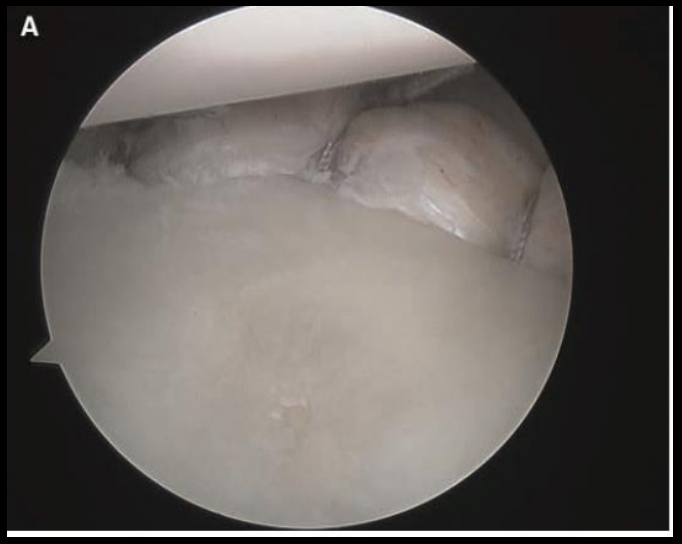
NONSURGICAL TREATMENT

- High Quality PT
  - Scapular strength/stab
  - Perturbation training
- Mcconnell Taping
- Bracing
- 70% success with atraumatic subluxators, only 16% success with traumatic history (Burkhead ’92 AJSM)



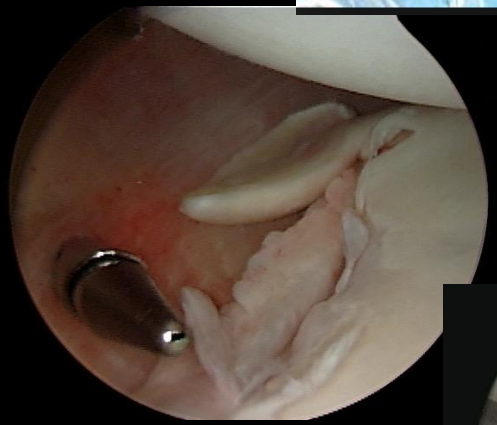
SURGICAL TREATMENT

- Failure of non op treatment
- Certain athletic populations unlikely to avoid provocative maneuvers—>
- ARTHROSCOPIC STABILIZATION!



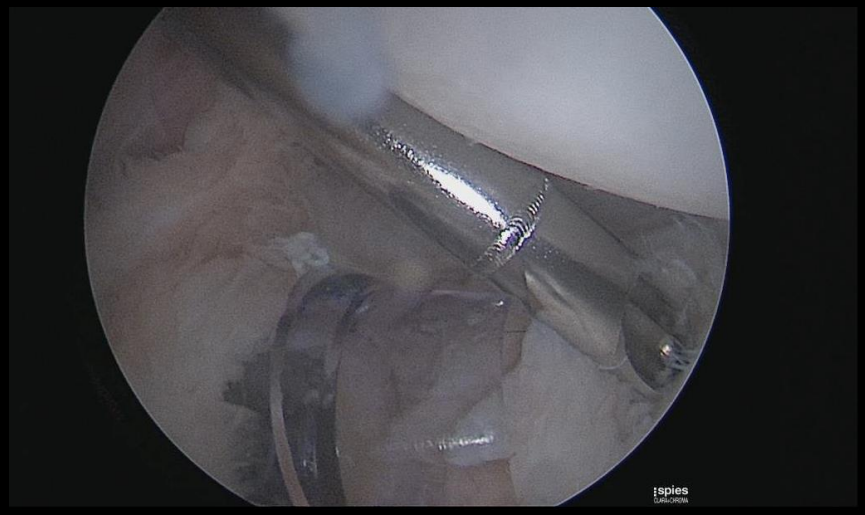
ARTHROSCOPIC EVALUATION

- Assess all associated pathology
  - Loose bodies/chondral flaps
  - SLAP extension
  - Anterior inferior tears
  - Capsular Tears/HAGL
  - RTC pathology



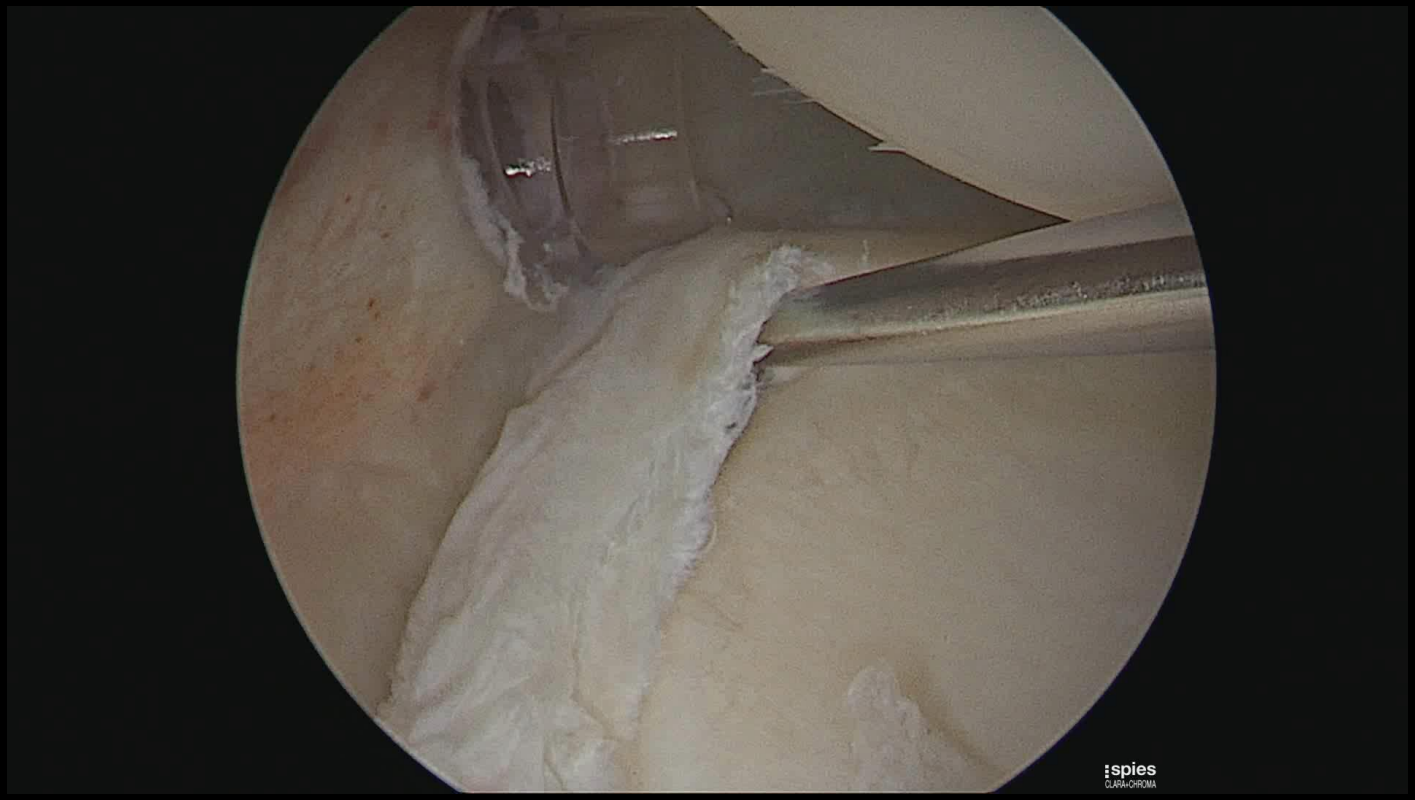
SURGICAL STEPS: view and prep

- View from “skybox” anterosuperior portal
- Crucial to adequately liberate and stimulate tissue
- Can use angled elevator from ANTERIOR portal
- Rasp capsule if trying to plicate
- Can use shaver perc through posterolateral portal



LABRAL PREP

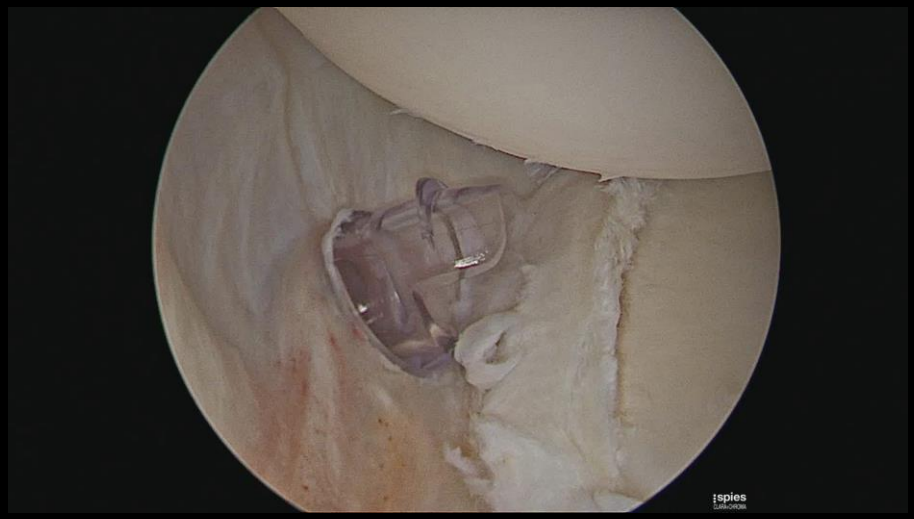
Working from
Anterior portal



SURGICAL TIPS: anchor insertion/choice

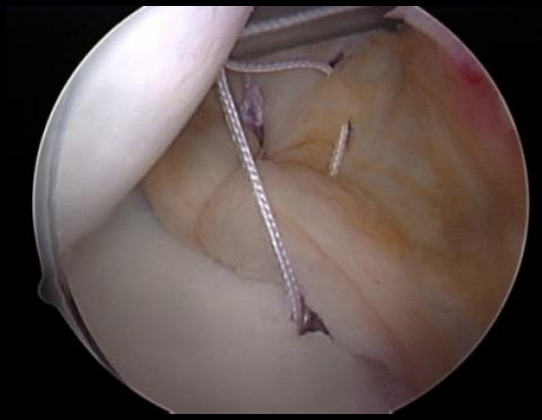
- Place percutaneously with PL instab portal (“angle of attack”)
- Most important anchor is first anchor at low 6 or 7 o’clock
  - Shift PIGHL tissue upwards to this anchor
- Pass and tie as you go, working up the glenoid face
- My first anchor is tied simple stitch then go knotless as I get to midglenoid
  - knot irritation more likely midglenoid and up

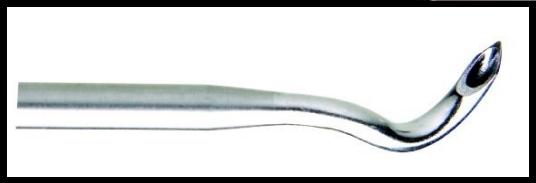
THE CRUCIAL PL PORTAL



SURGICAL STEPS: capsule/labral repair

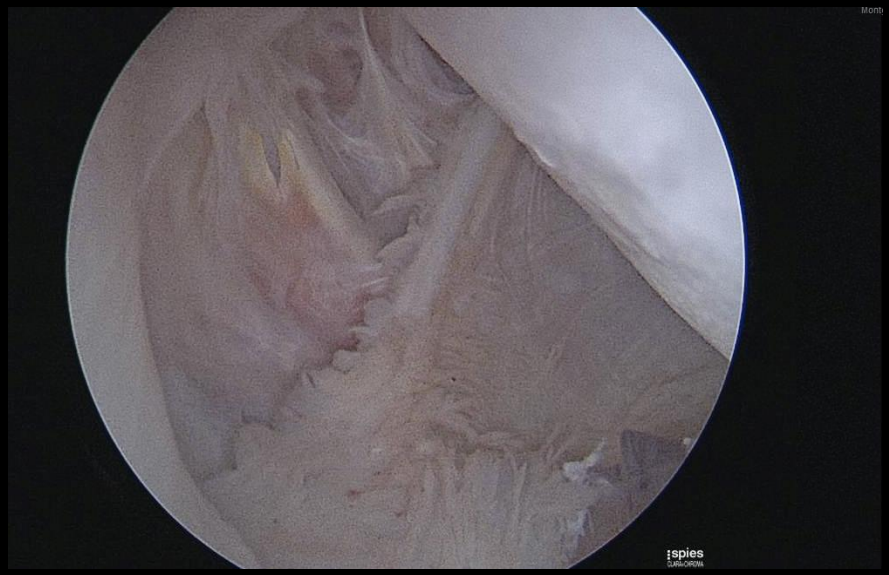
- Plication of capsule can (and usually should) be included in repair suture…tighten PIGHL
- Tighter is better with Football and lifters
  - Careful in throwers and volleyball hitters

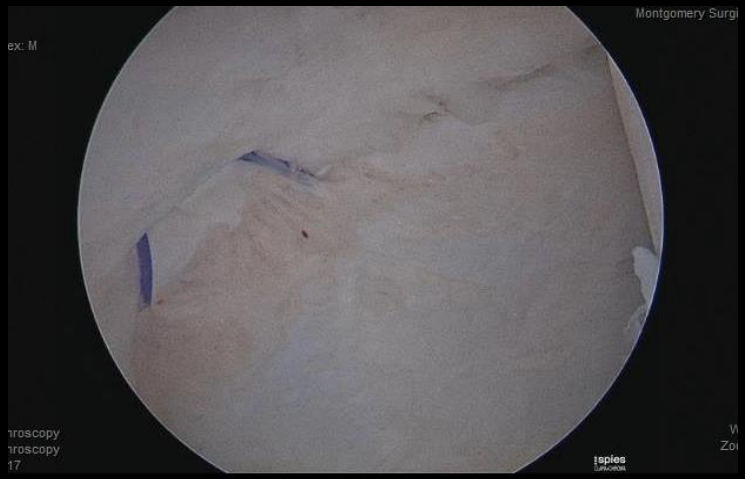




SURGICAL STEPS: capsule

- Look for capsular tears, RHAGL
- Address these as they can lead to failure
- Provide another opportunity to tighten
- I also close and plicate my posterior portal



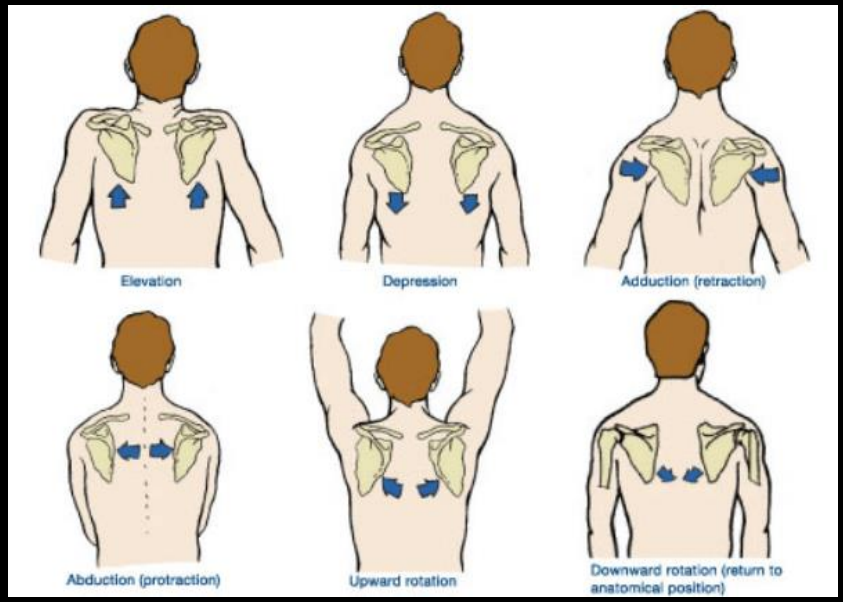


POSTOP REHAB

- 0 – 4 weeks
  - Immobilization
  - Slight ER for posterior instability
- 4 – 8 weeks
  - Scapular stabilization
  - Safe ROM
  - Limited strengthening
- 8 – 12 weeks
  - More advanced rehab
  - sport specific exercise

POSTOP MANAGEMENT

- Cannot overemphasize Importance of scapular control to optimize result
- Bracing during season is preferred for players that can tolerate

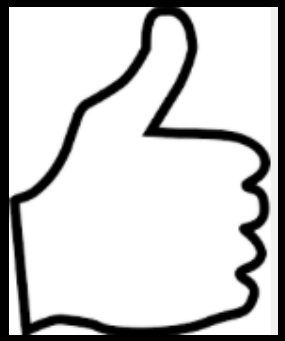


EVIDENCE

LITERATURE REVIEW

	SUCCESS RATE
✦Bahk (A'scopy 2010)	96%
✦Pennington (A'scopy 2010)	93%
✦Bradley (AJSM 2006)	91%
✦Provencher (AJSM 2005)	80%
✦Kim (JBJS 2003)	96%
✦Harryman (JBJS 2000)	85%
✦Bottoni (AJSM 2005)	94%

- Arthroscopic > open stabilization



MULTIDIRECTIONAL INSTABILITY

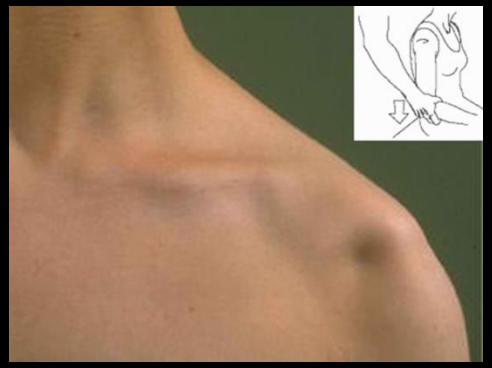
MDI ETIOLOGY

- Collagen disorder
- Global laxity of joint predisposes to a sequence of events
- Loss of scapular control!→fatigue, postural abnormalities→ dynamic instability

MDI DIAGNOSIS

- History:
  - Usually teenager (F>M), atraumatic, pain, fatigue
  - Often overhead athletes (volleyball, swimming)

- Exam:
  - Scap dyskinesis
  - Whipple test
  - Gagey Test
  - Load and shift
  - Sulcus sign



- Imaging:
  - Usually normal, maybe capacious joint

MDI MANAGEMENT

- Nonop first!
  - HIGH QUALITY REHAB x3-6 months
  - Isometrics, taping, bracing, education, neuromuscular conditioning
- Surgical:
  - Pancapsulorraphy with interval closure
    - Plication with multiple sutures

MDI SURGERY

- Arthroscopic and open both acceptable
- Pinch/tuck capsule
- Can plicate to labrum or anchors inserted
- Rotator Interval Closure Key

MDI SURGERY OUTCOMES

- Not as good as we would like, but still effective in correctly selected patients.
- “They all stretch out” -B. Savoie
- Patient age, compliance with rehab play a larger role in outcome than with other dx

THANKS

- Thanks for what you do…its important
- Questions?