Broad Shoulders: Shoulder Review & Updates

Chairperson:

Xinning "Tiger" Li, M.D.

Professor of Orthopaedic Surgery

Sports Medicine and Shoulder Surgery

Boston University School of Medicine – Boston Medical Center

Fellowship Director – BU Sports Medicine

Team Physician – Boston University Athletics

Tuesday, March 26th, 2024

10:10-10:50am

Rotator Cuff Tears: Evaluation & Management in 2024

Andrew Jawa
Chief of Shoulder Arthroplasty
New England Baptist Hospital
Associate Professor
Tufts University School of Med.

Boston Sports & Shoulder Center

Conflicts of Interest

Consultant/Speaker Bureau
- Depuy-Synthes

Designer
- Depuy-Synthes
- Ignite Orthopaedics

Royalties
- Depuy-Synthes
- Ignite Orthopaedics

Ownership/Equity
- Boston Outpatient Surgical Suites
- Ignite Orthopedics

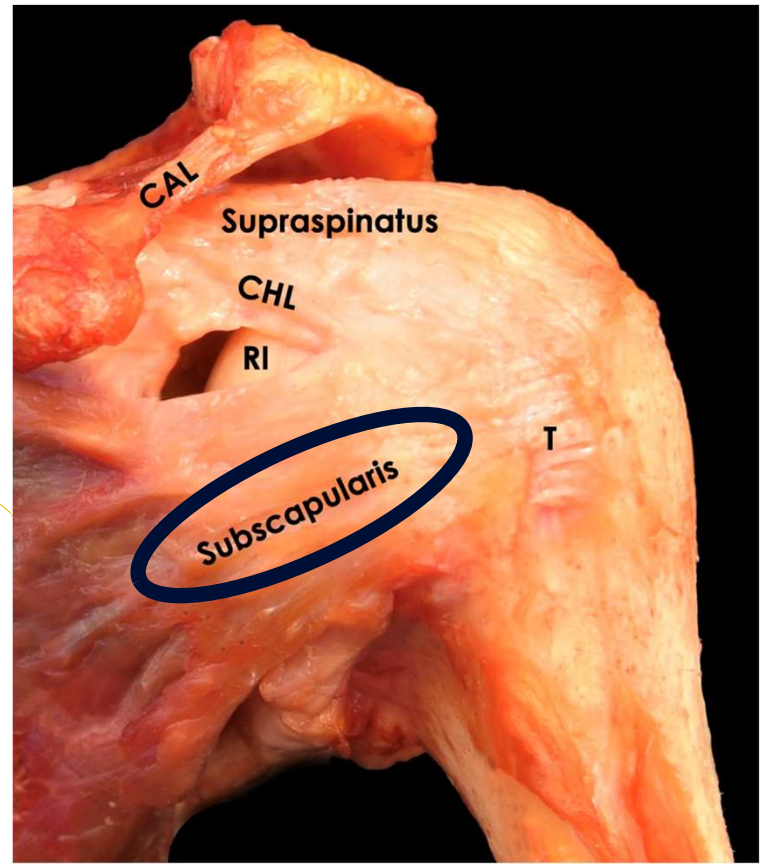
Editorial Board
- Journal of Shoulder and Elbow Surgery

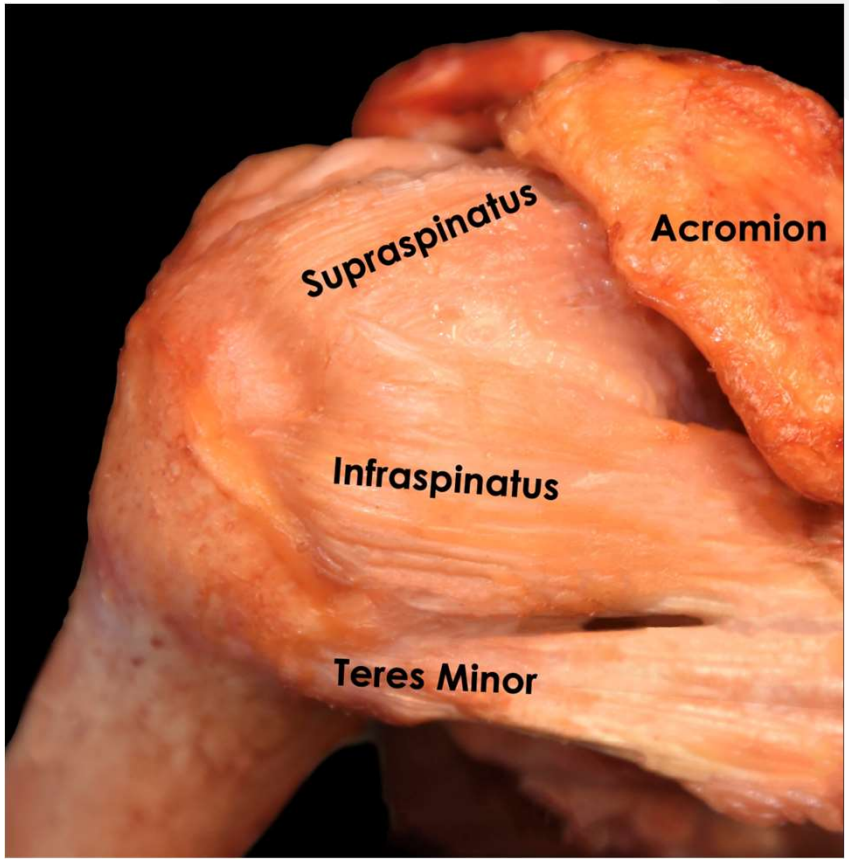
Game Plan

- Anatomy
- Incidence
- Treatment Options/Outcomes
- Irreparable Rotator Cuff Tears

Rotator Cuff: Anatomy

Anterior

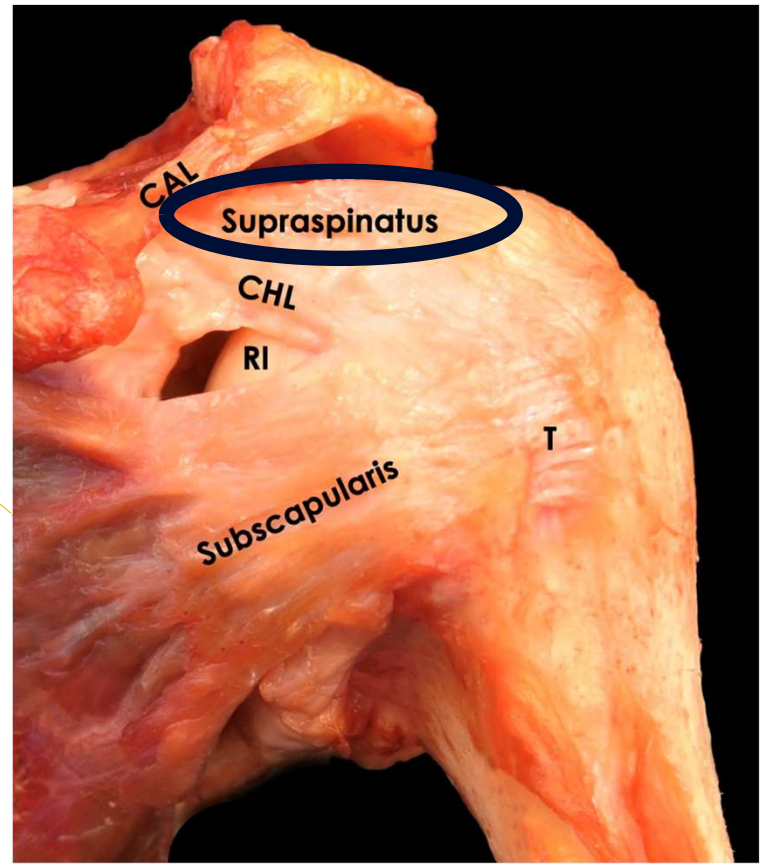


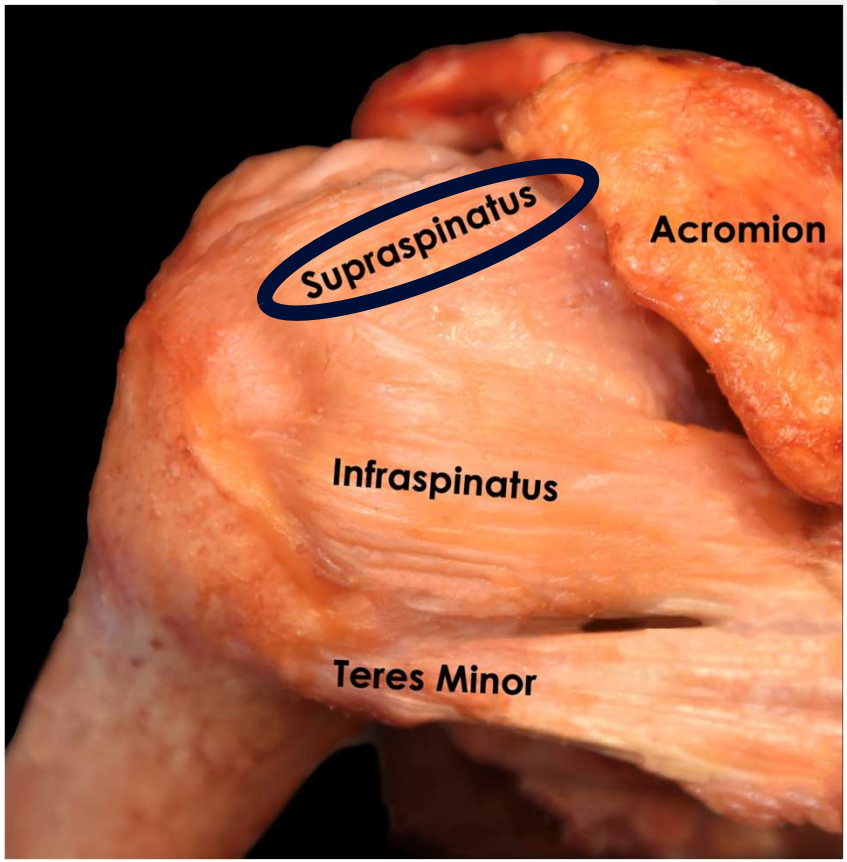


Posterior

Rotator Cuff: Anatomy

Anterior

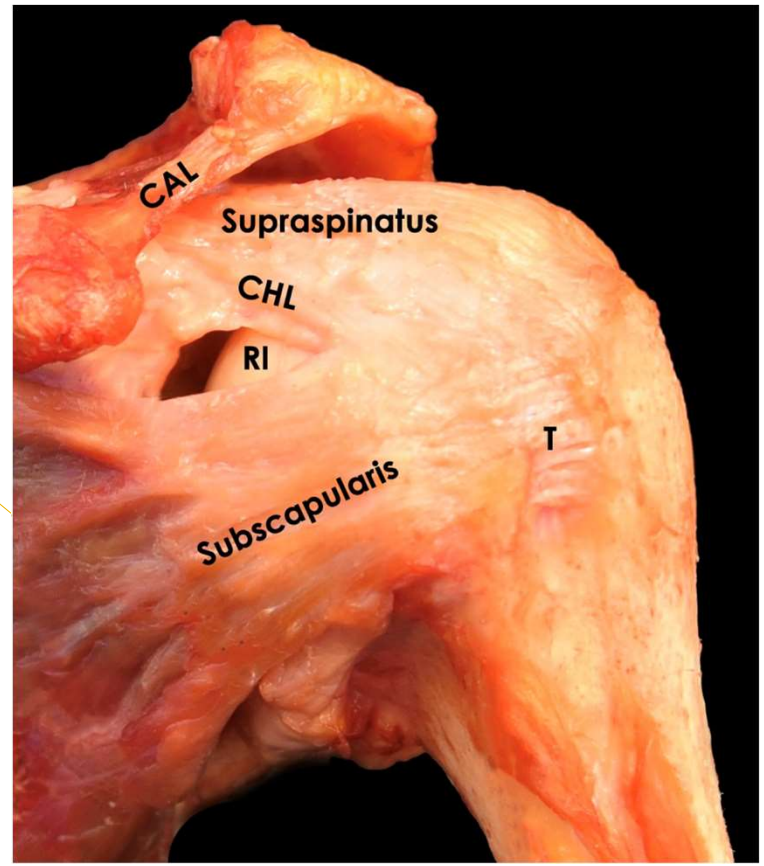


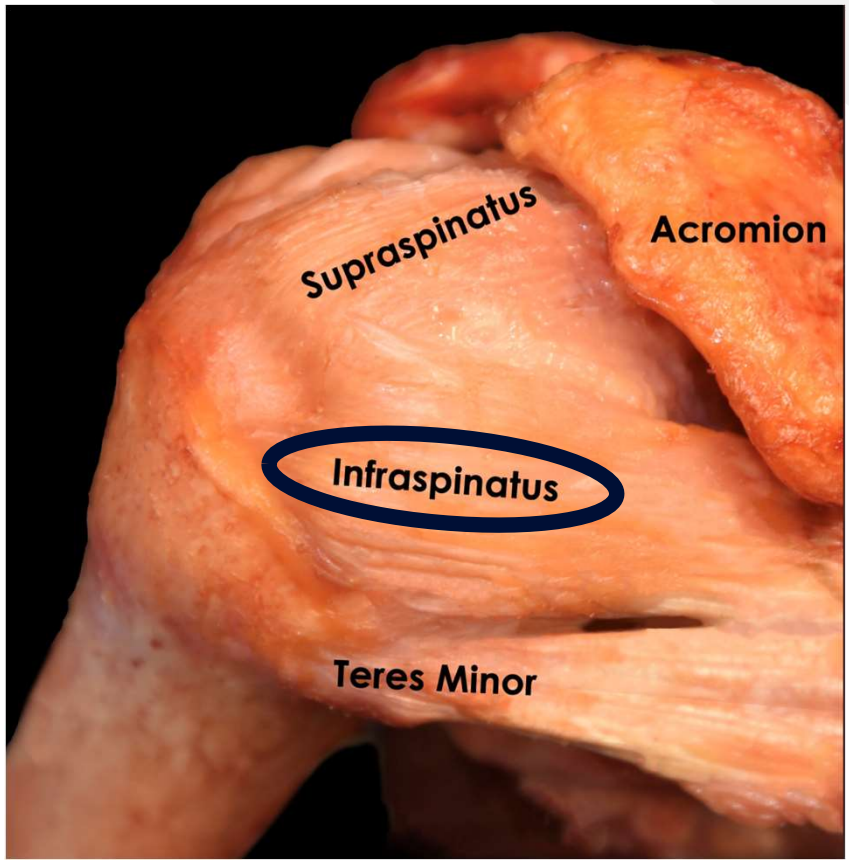


Posterior

Rotator Cuff: Anatomy

Anterior

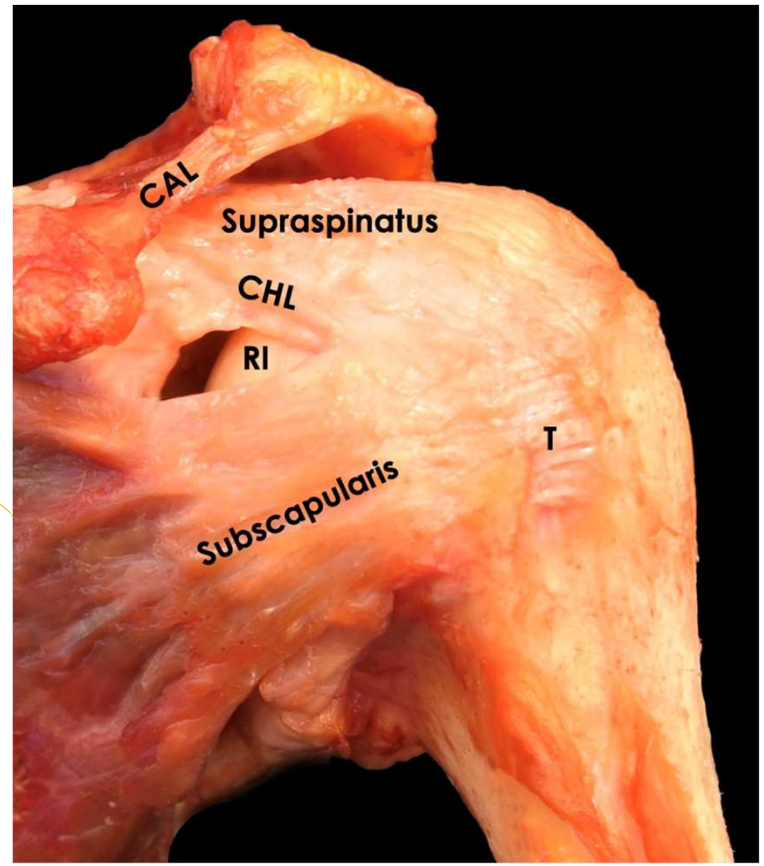


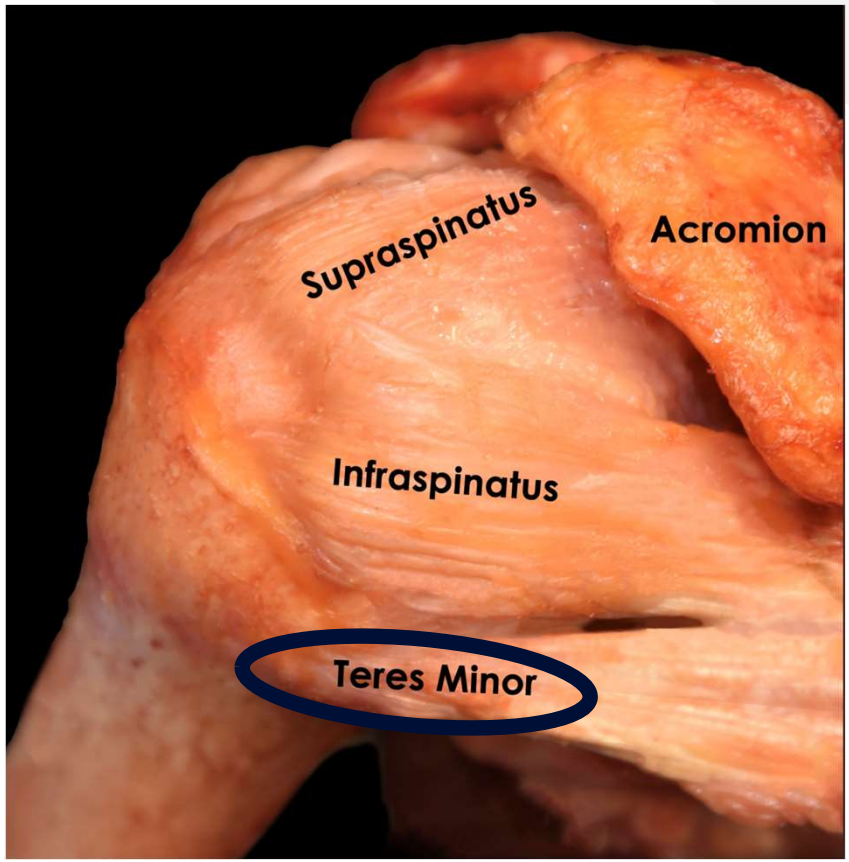


Posterior

Rotator Cuff: Anatomy

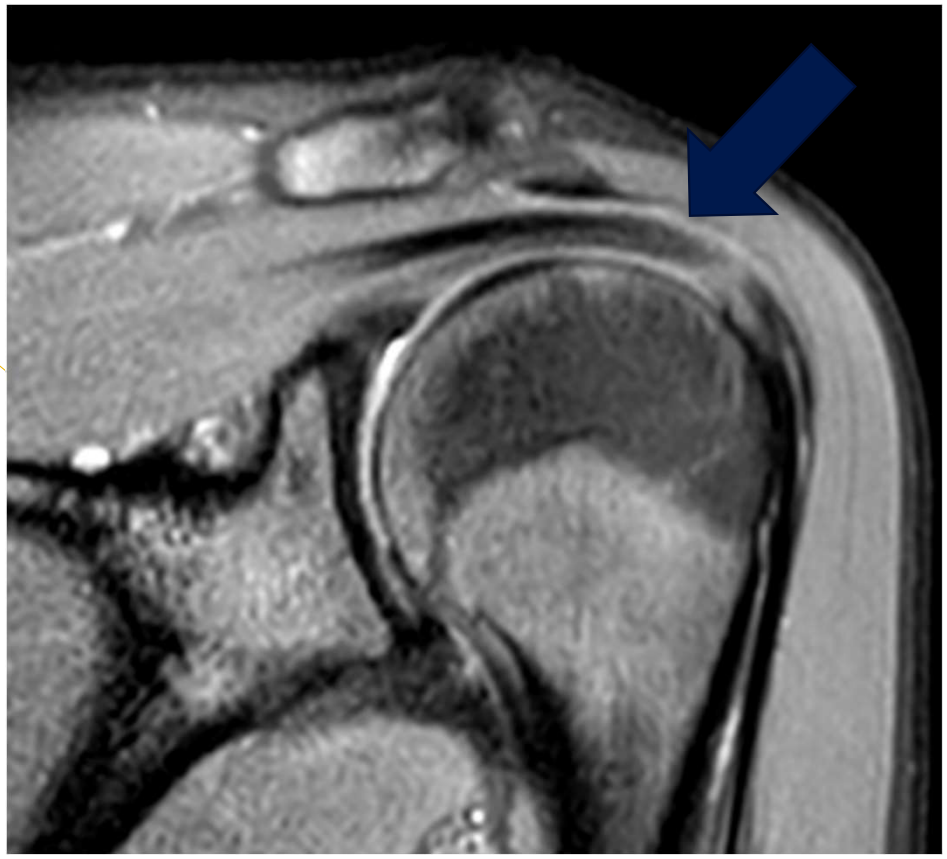
Anterior

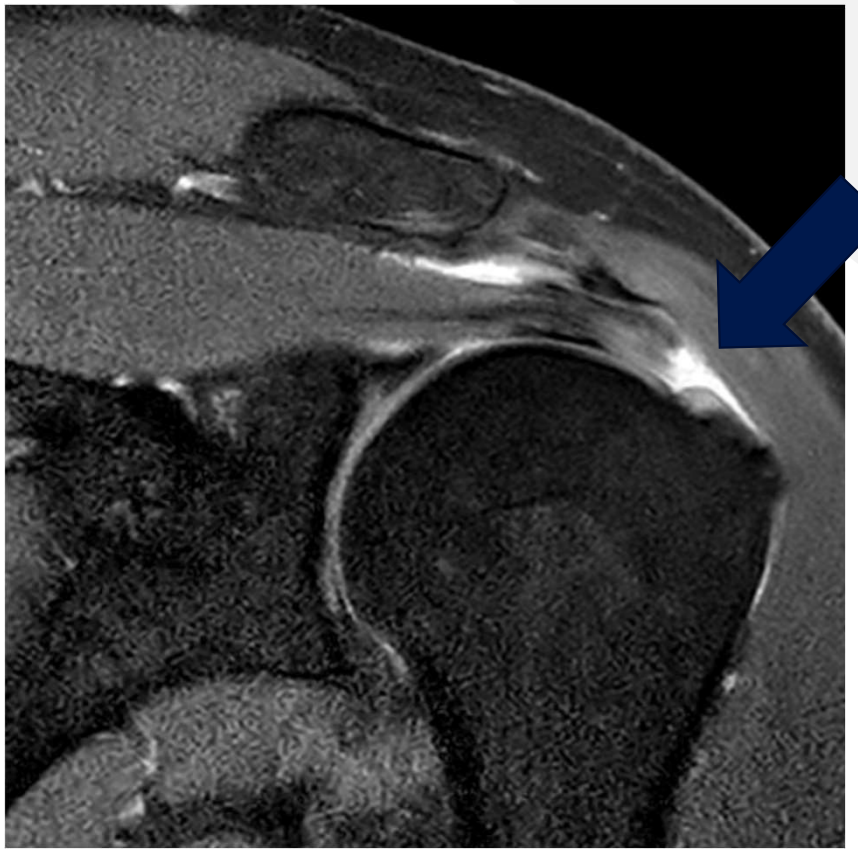




Posterior

Rotator Cuff Tear





Rotator Cuff Tears are Common!

Prevalence and risk factors of a rotator cuff tear in the general population

Atsushi Yamamoto, MD*, Kenji Takagishi, MD, PhD, Toshihisa Osawa, MD, PhD, Takashi Yanagawa, MD, PhD, Daisuke Nakajima, MD, Hitoshi Shitara, MD, Tsutomu Kobayashi, MD, PhD

JSES, 2010

- 20% Overall Incidence
- 25% 60-70 years old
- 50% in their 80's

Symptoms

- **PAIN**
  - Deltoid
  - Sleep Disturbance
  - Reaching, Lifting and Pulling
- **WEAKNESS**
  - Overhead

Rotator Cuff Tears

Acute Traumatic Tears

- 15% of all tears
- Better healing
- Often operative

Attritional/Degenerative Tears

- 85% of all tears
- Nonoperative

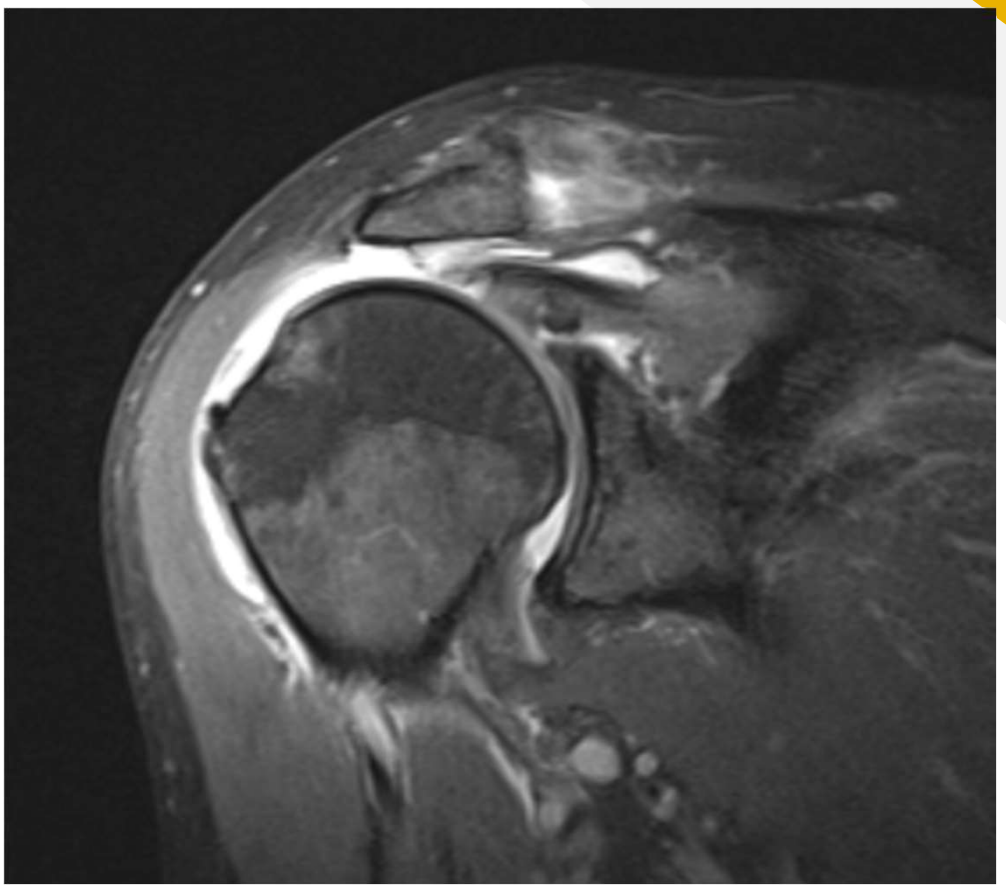
Acute Traumatic Tears

- Different than Degenerative tears
- **Operative Treatment**

Case:

70 y/o F Dislocated

Inability to Lift



Clinical Outcome @ 1 Year

2024
Work Related Injuries
Workshop




Degenerative Rotator Cuff Tears

- Most treated nonoperatively!
  - Medications (NSAIDs/Tylenol)
  - Injections
  - ***Physical Therapy***

Corticosteroids

Injections Prior to Rotator Cuff Repair Are Associated With Increased Rotator Cuff Revision Rates

Alexander E. Weber, M.D., Nicholas A. Trasolini, M.D., Erik N. Mayer, B.S., Anthony Essilfie, M.D., C. Thomas Vangsness Jr., M.D., Seth C. Gamradt, M.D., James E. Tibone, M.D., and Hyunwoo Paco Kang, M.D.

- ≥ 2 injections had 2x increased odds of revision RCR
- Injection within 1 month associated with highest rate of revision

Increasing Numbers of Shoulder Corticosteroid Injections Within a Year Preoperatively May Be Associated With a Higher Rate of Subsequent Revision Rotator Cuff Surgery

Vishal S. Desai, B.S., Christopher L. Camp, M.D., Venkat Boddapati, B.A., Joshua S. Dines, M.D., Stephen F. Brockmeier, M.D., and Brian C. Werner, M.D.

- ≥ 2 injections had 2x increased odds of revision RCR

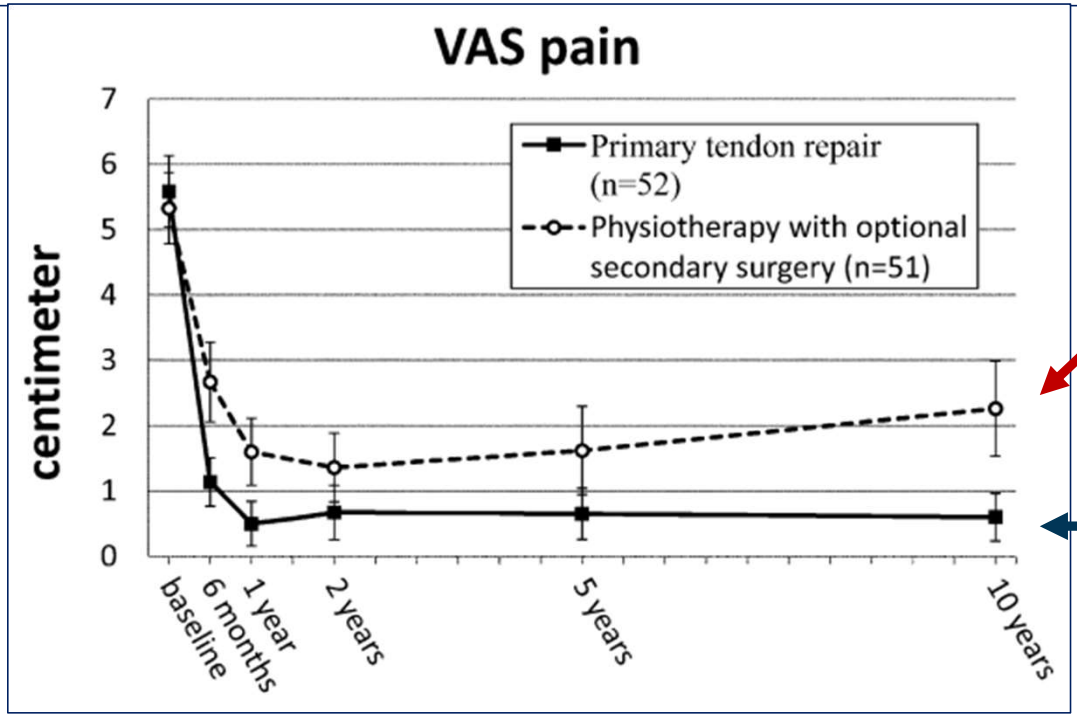
Adverse Impact of Corticosteroid Injection on Rotator Cuff Tendon Health and Repair: A Systematic Review

Richard N. Puzzitiello, M.D., Bhavik H. Patel, B.S., Benedict U. Nwachukwu, M.D., M.B.A., Answorth A. Allen, M.D., Brian Forsythe, M.D., and Matthew J. Salzler, M.D.

- Single injection within 1 year of surgery → increased risk of revision RCR
- ≥ 2 injections associated with increased adverse events
- Increased risk of infection when injection is within 1 month

At a 10-Year Follow-up, Tendon Repair Is Superior to Physiotherapy in the Treatment of Small and Medium-Sized Rotator Cuff Tears

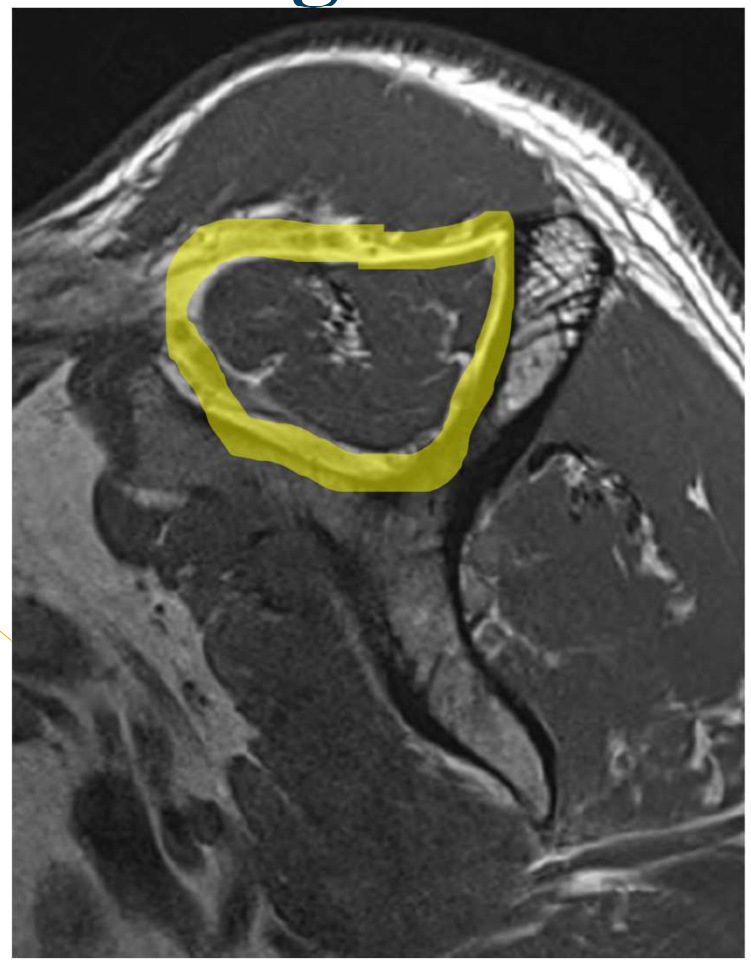
Stefan Moosmayer, MD, PhD, Gerty Lund, PT, Unni S. Seljom, PT, Benjamin Haldorsen, PT, Ida C. Svege, PT, Toril Hennig, OT, Are H. Pripp, PhD, and Hans-Jørgen Smith, MD, PhD

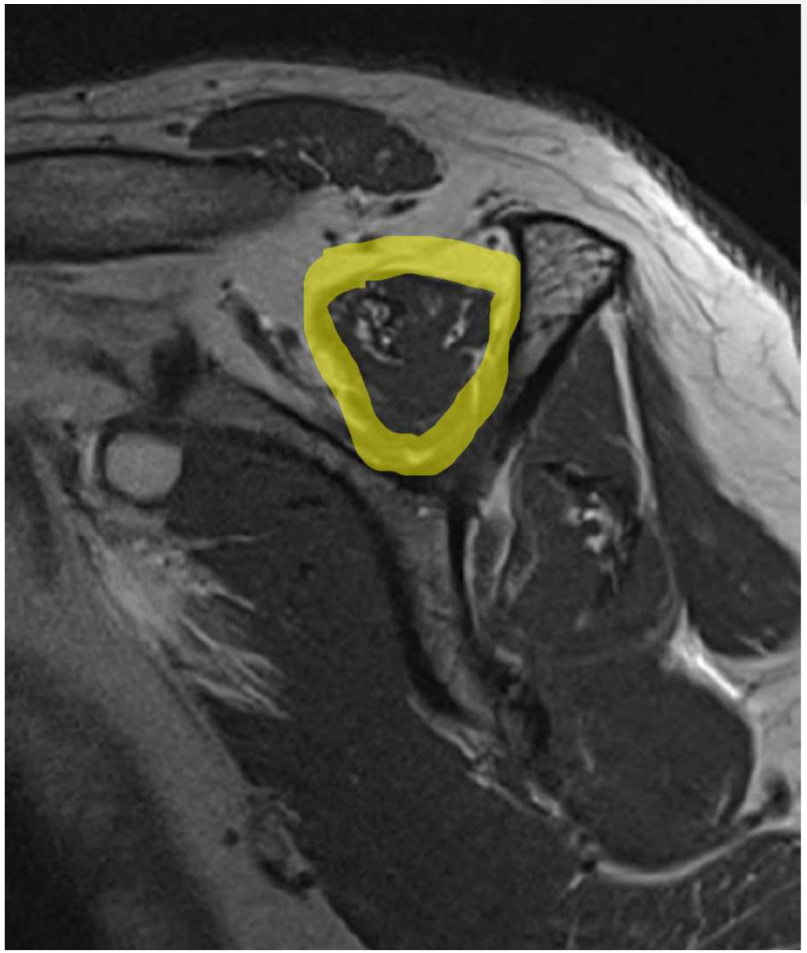


PT

Surgery

Nonoperative Treatment: Muscle Degeneration

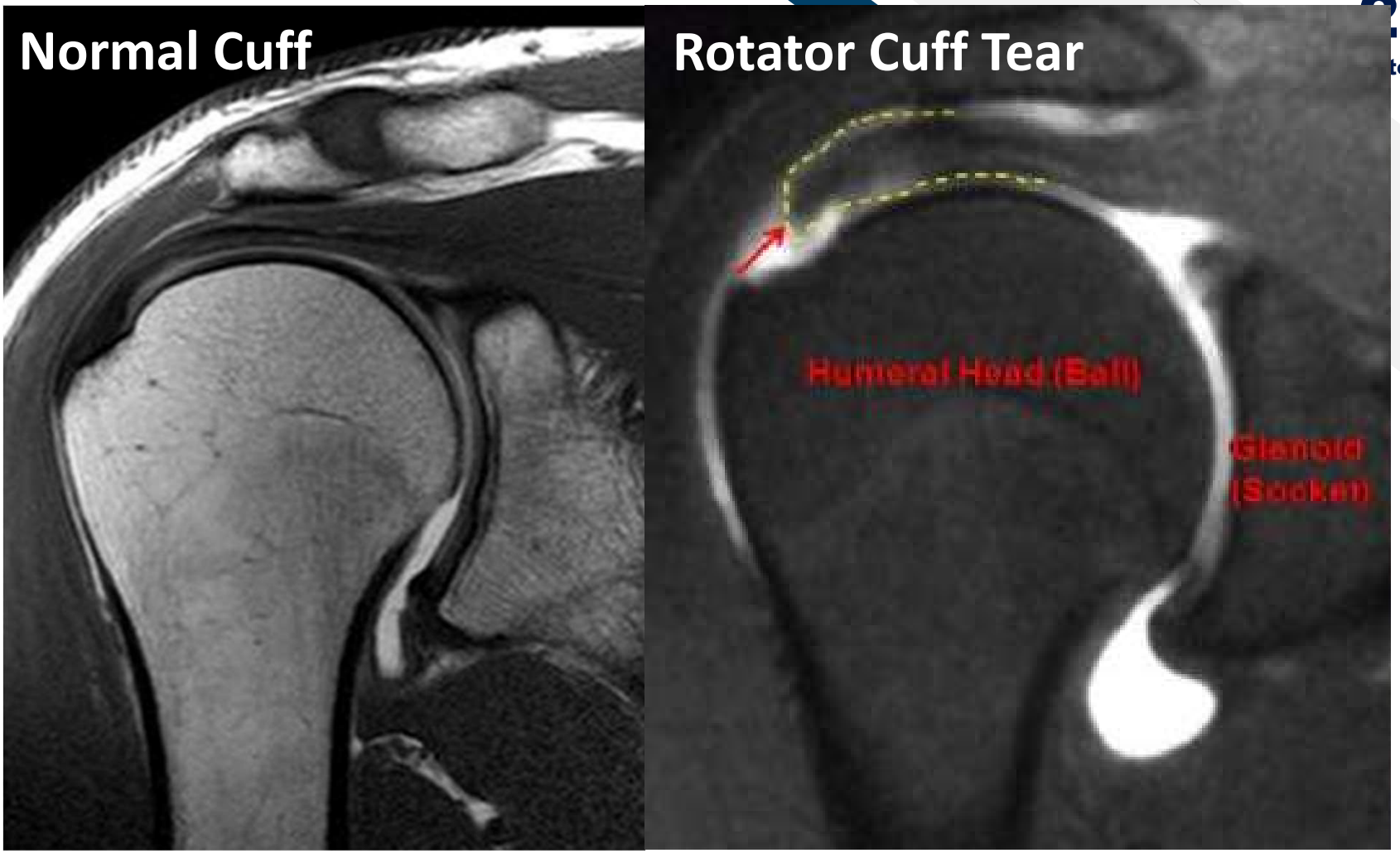




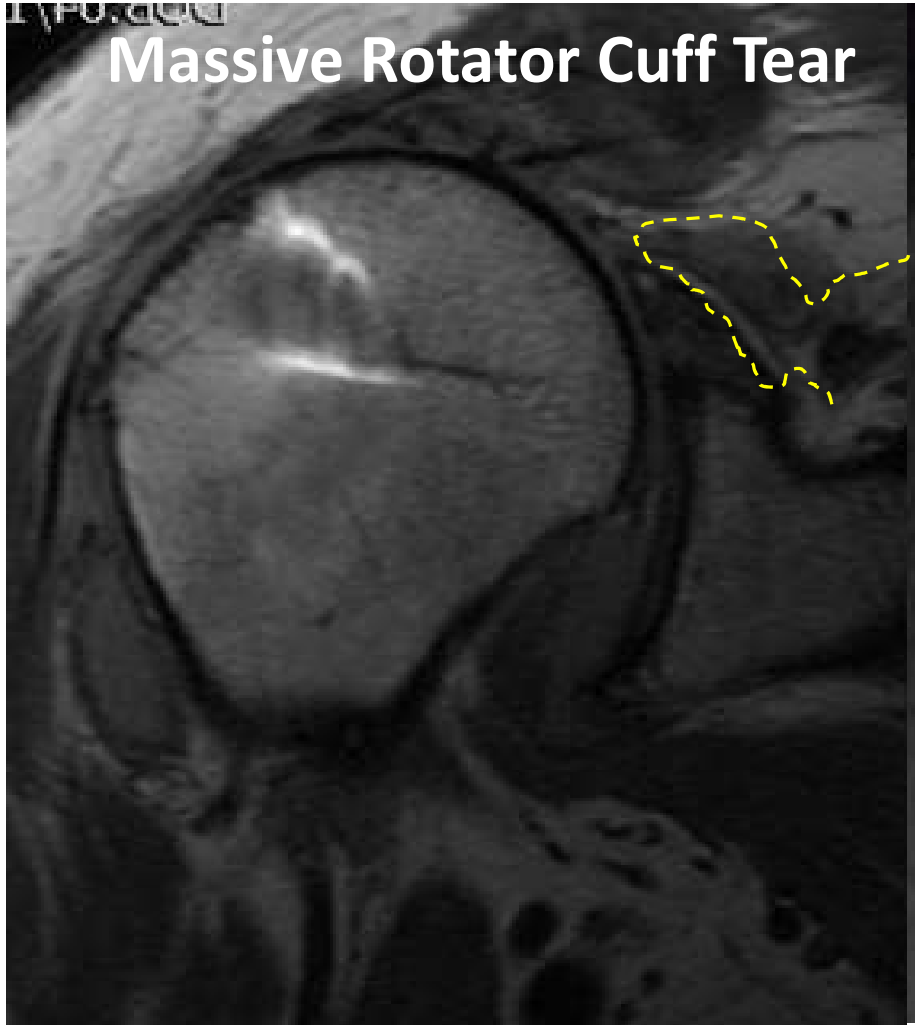
Rotator Cuff: Take Home Message

1. Acute Tears Should be Fixed
2. Degenerative/Chronic tears
   - PT or limited cortisone
   - Surgery is reasonable → PAIN
3. Shared decision making

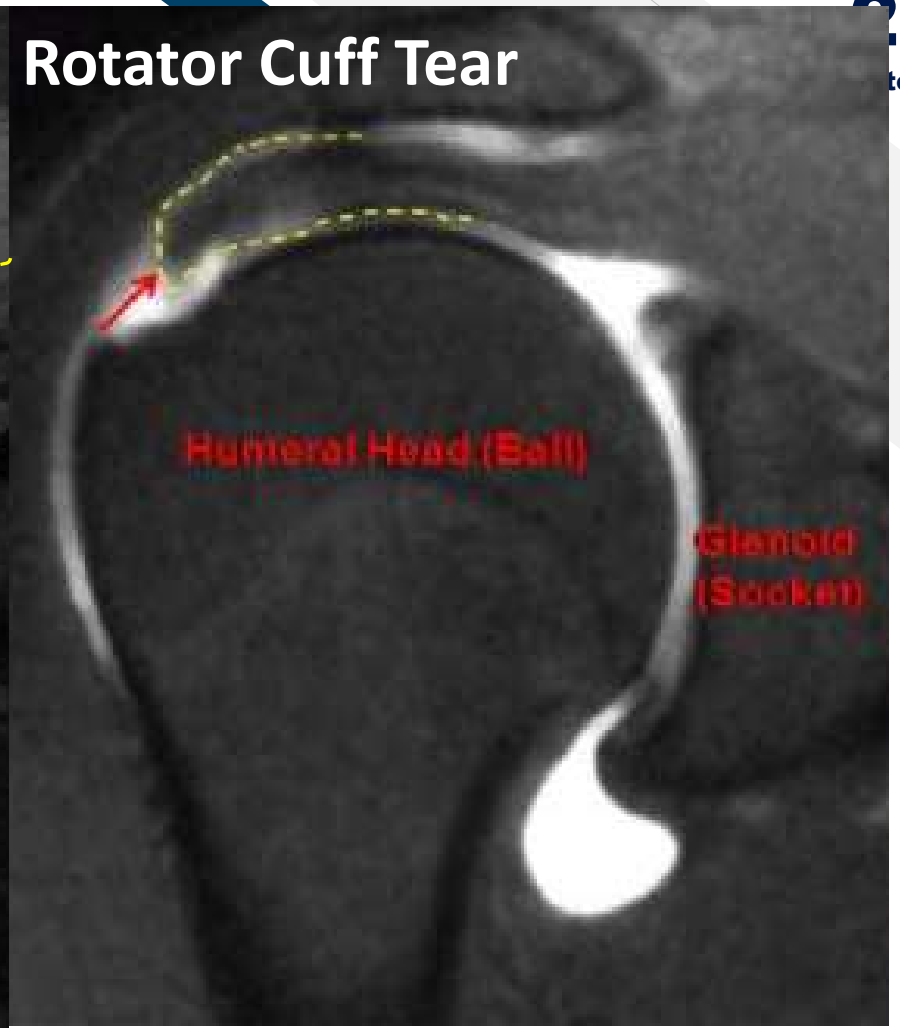

Irreparable/Massive
Rotator Cuff Tears


Normal Cuff
Rotator Cuff Tear
Humeral Head (Ball)
Glenoid
(Socket)

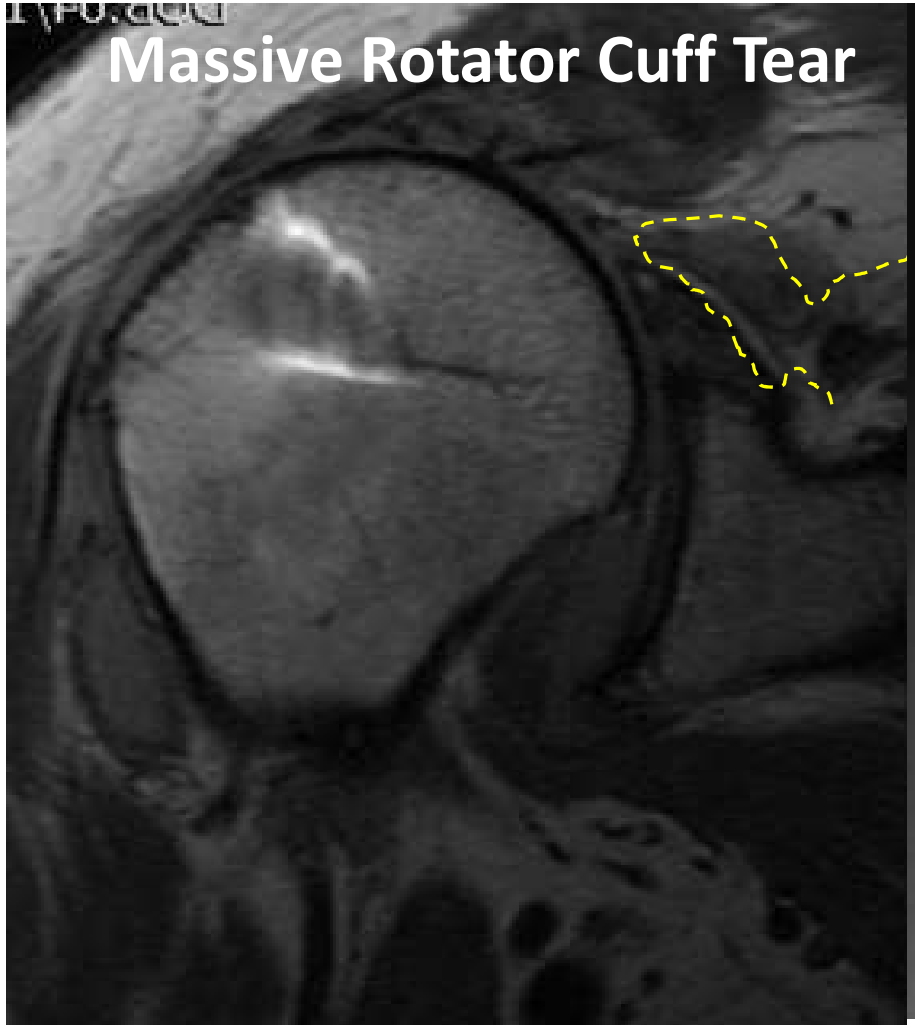
Massive Rotator Cuff Tear



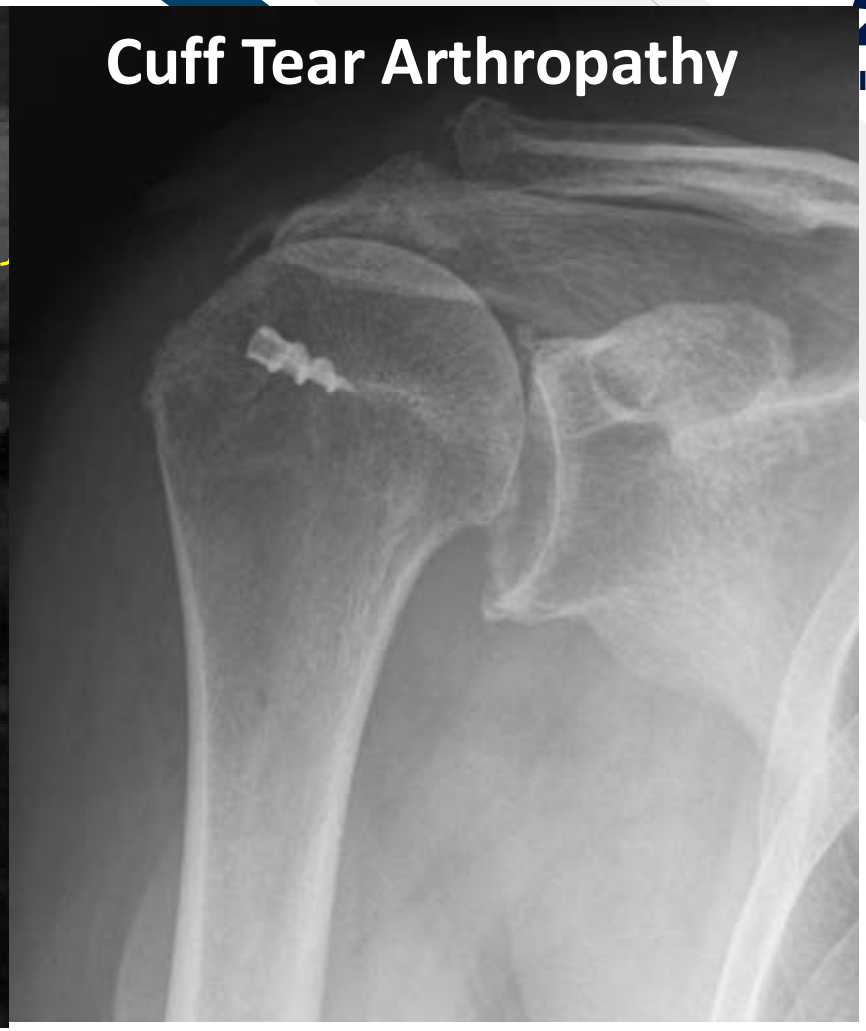
Rotator Cuff Tear

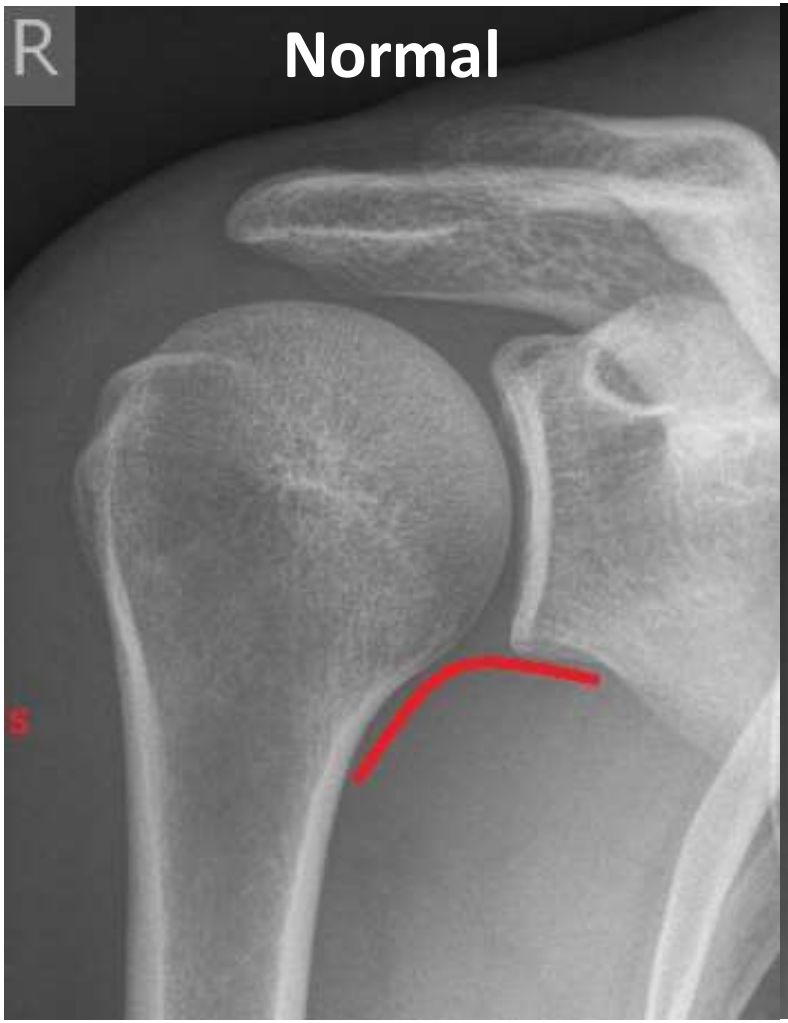


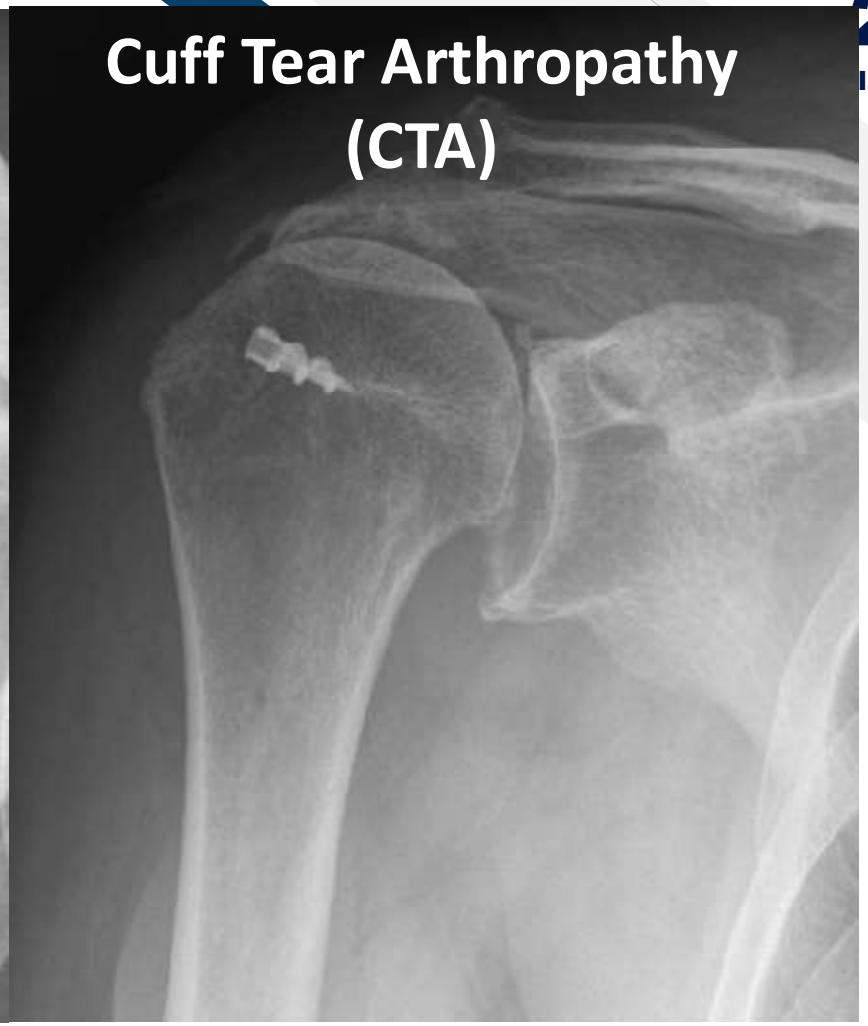
Massive Rotator Cuff Tear



Cuff Tear Arthropathy



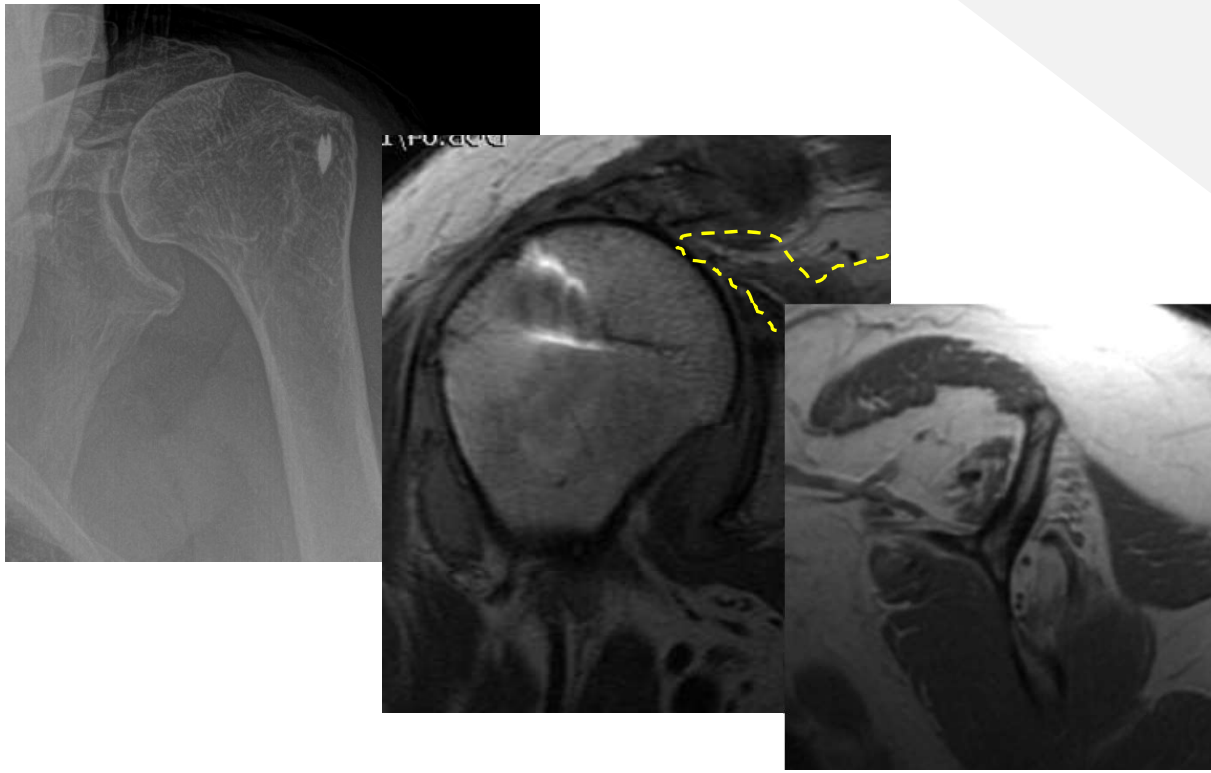

R
Normal


Cuff Tear Arthropathy
(CTA)

Irreparable Rotator Cuff Tears

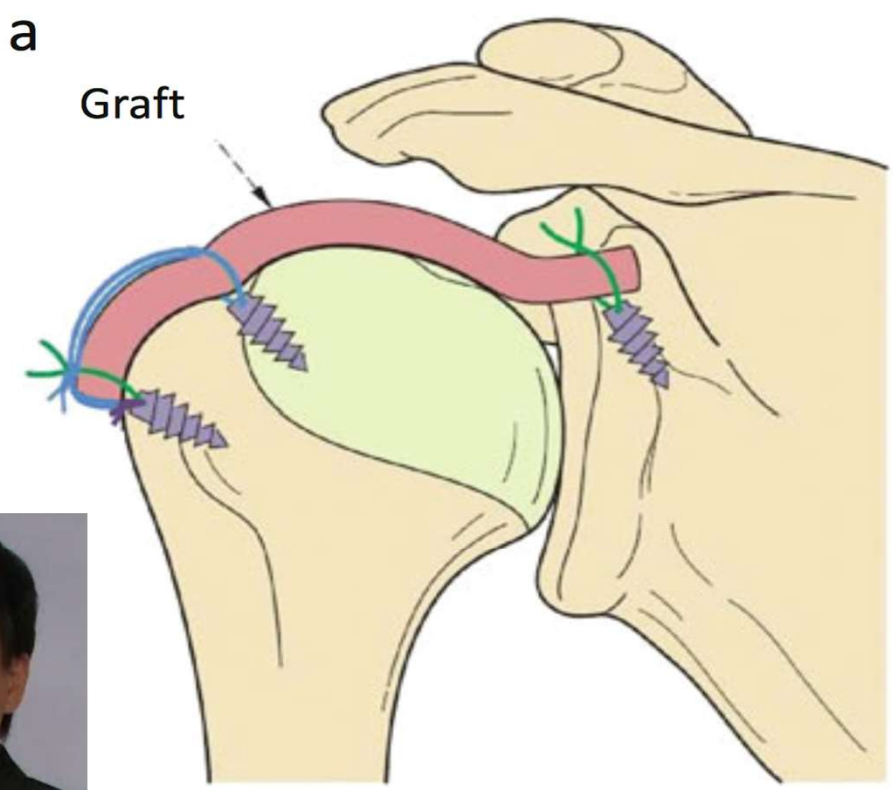
What makes a tear irreparable?

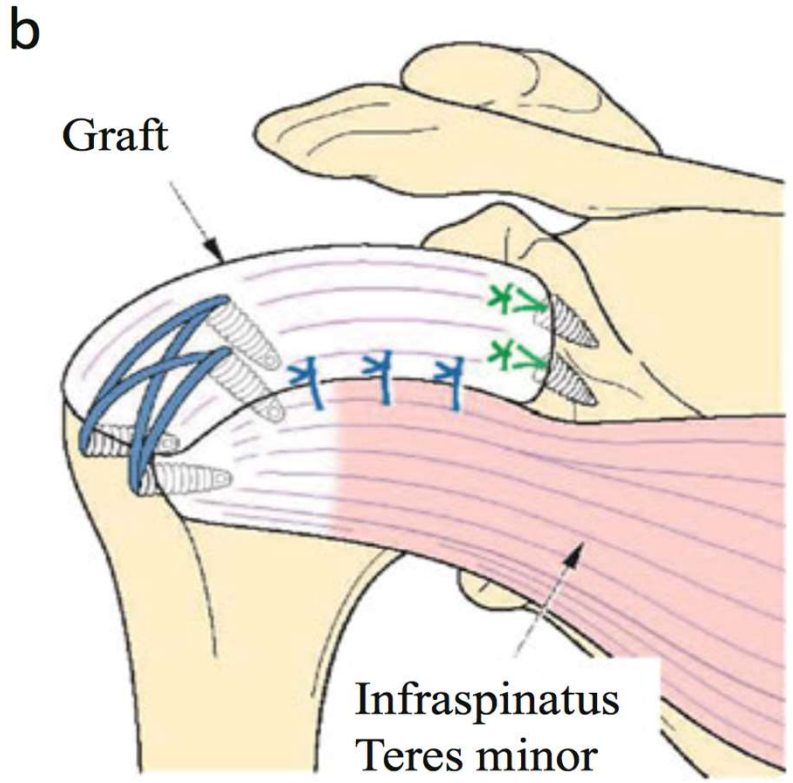
- Chronicity
- Size
- Muscle Atrophy



Superior Capsular Reconstruction

Very Mixed Results!



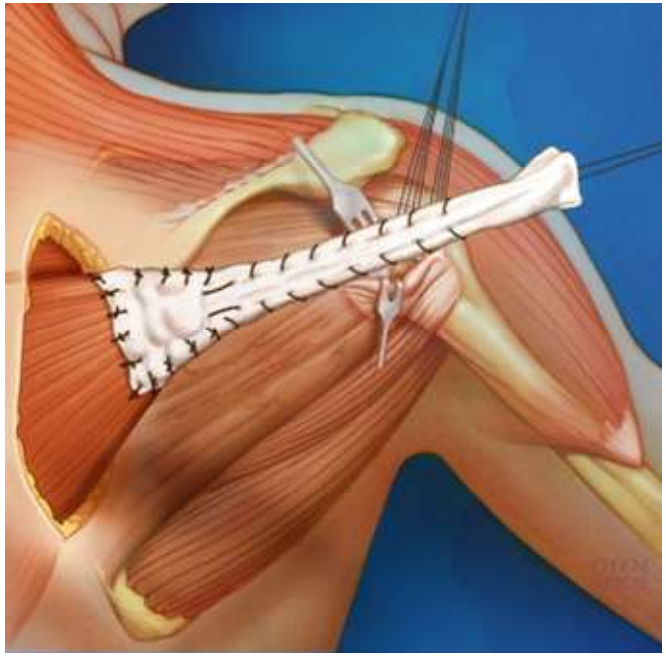


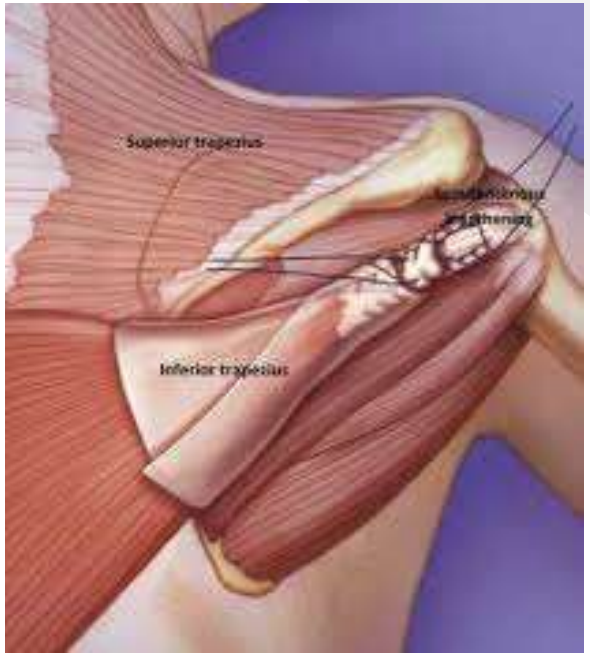
2024

Work Related Injuries Workshop

Lower Trapezius Tendon Transfer

Weakness>Pain

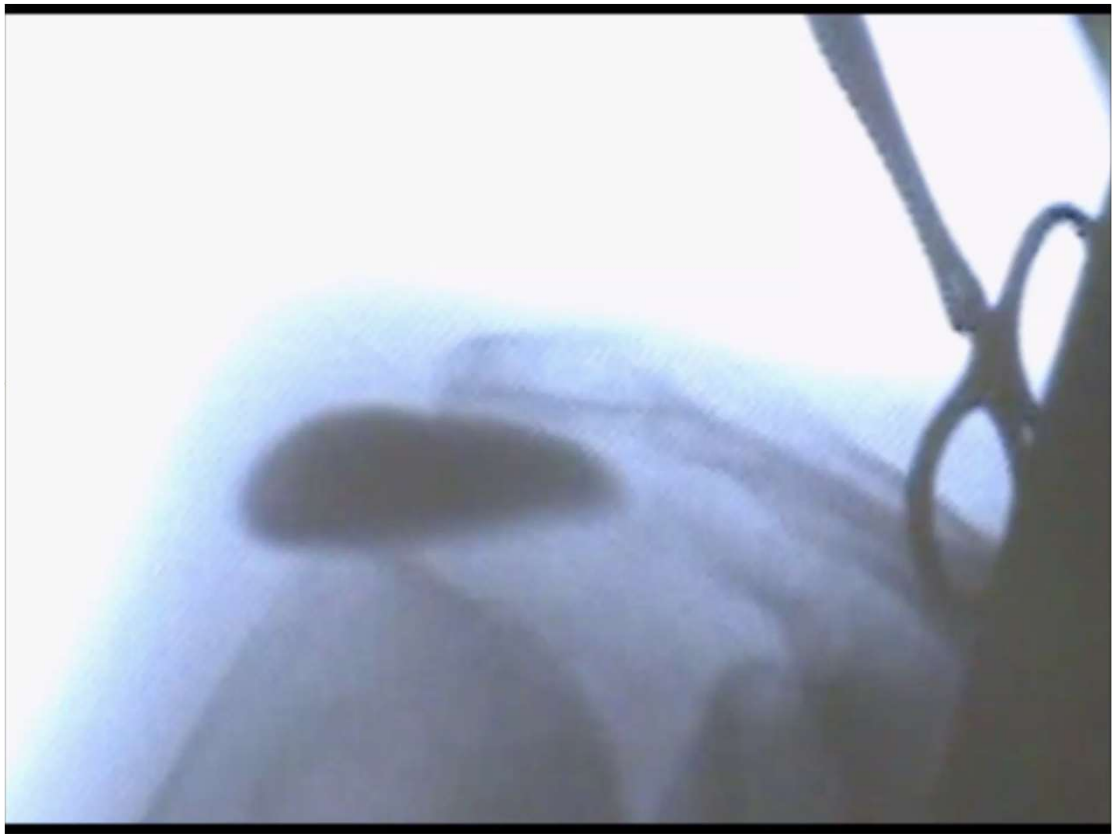




InSpace Subacromial Balloon

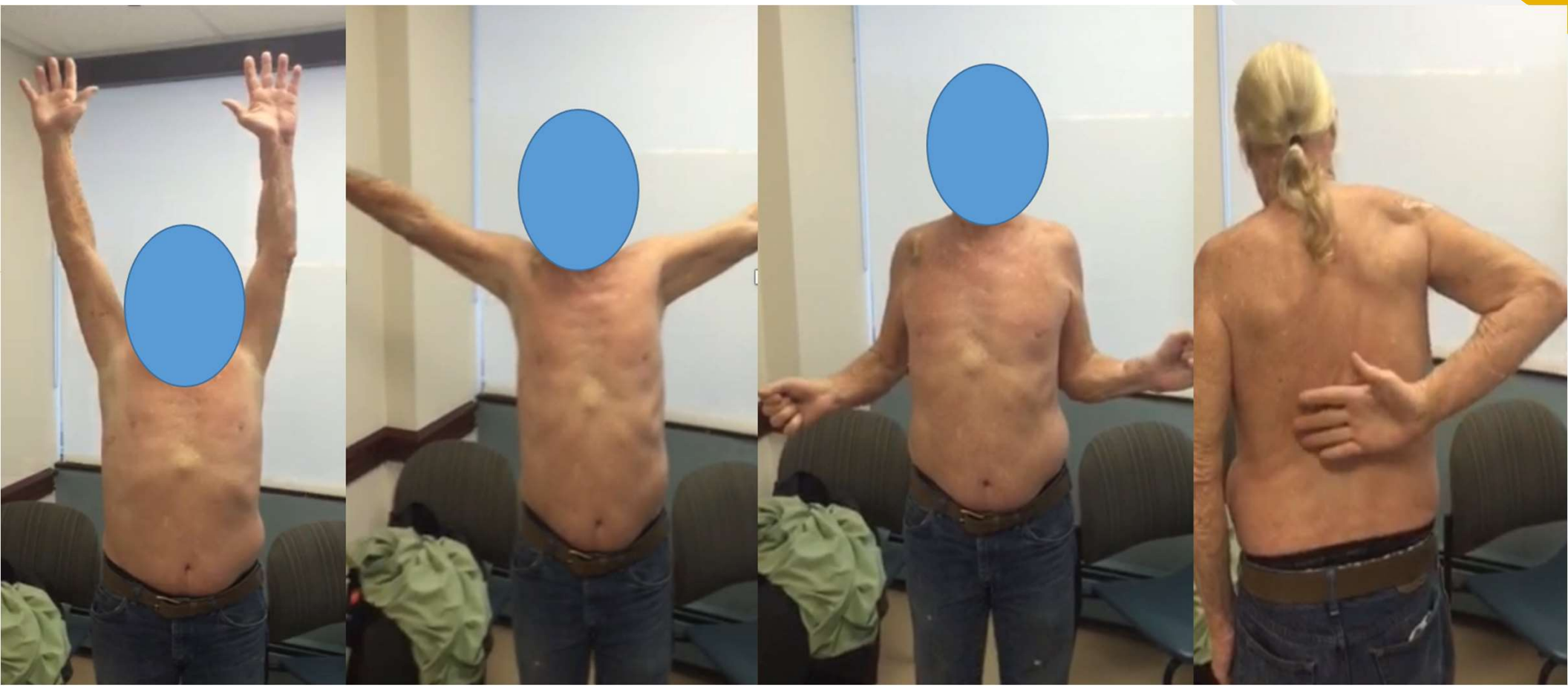
- Biodegradable polymer
- Subacromial space
- Massive tears, without arthritis

InSpace Subacromial Balloon



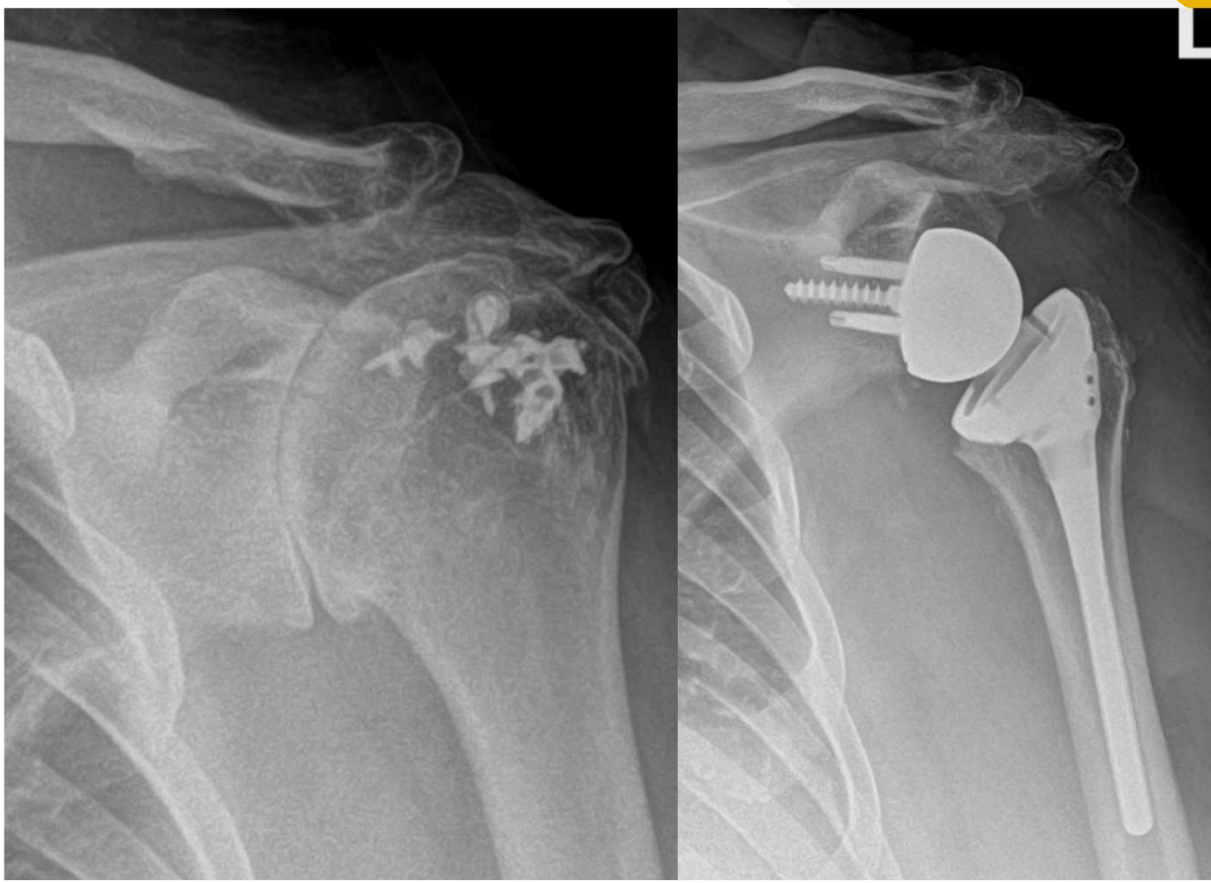
- Pushes down head
- Dissolves
- Similar to SCR

2 week follow up



Reverse Shoulder Arthroplasty

- Last Choice
- 90% Success Rate
- Complications



Take Home Points

- Traumatic Cuff Tears-Operative
- Avoid Too Many Injections
- Massive Cuff Tears
  - Lots of Solutions-None are Perfect

Treatment of the First Time Dislocator

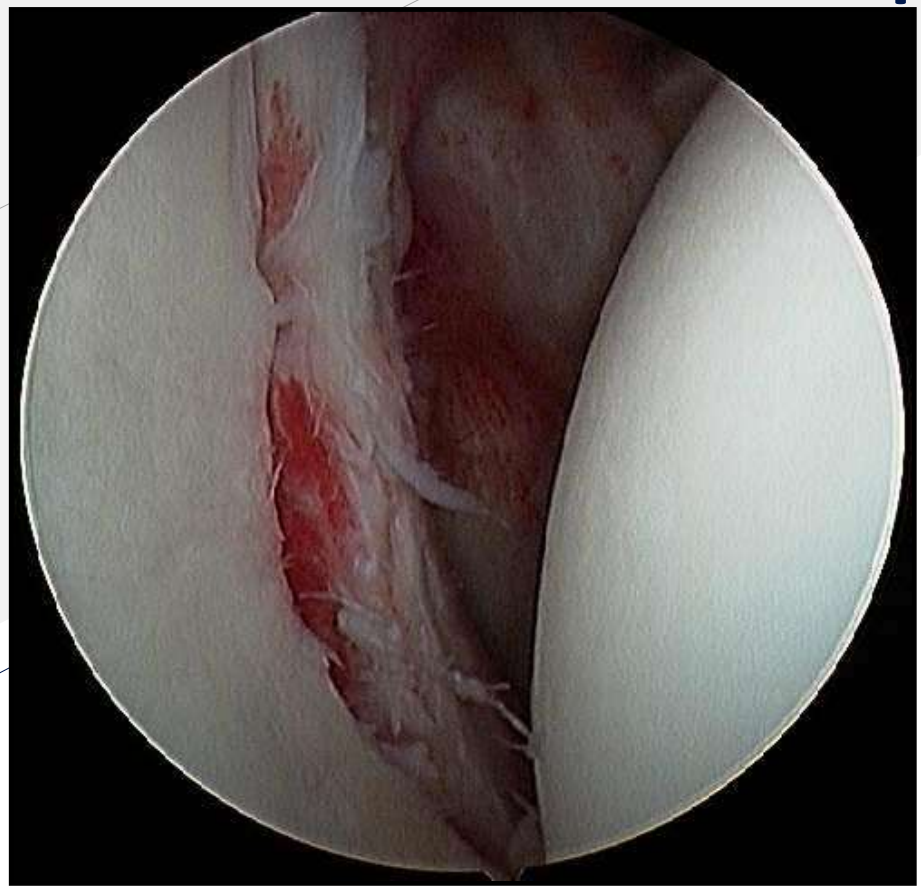
Suzanne L. Miller, MD

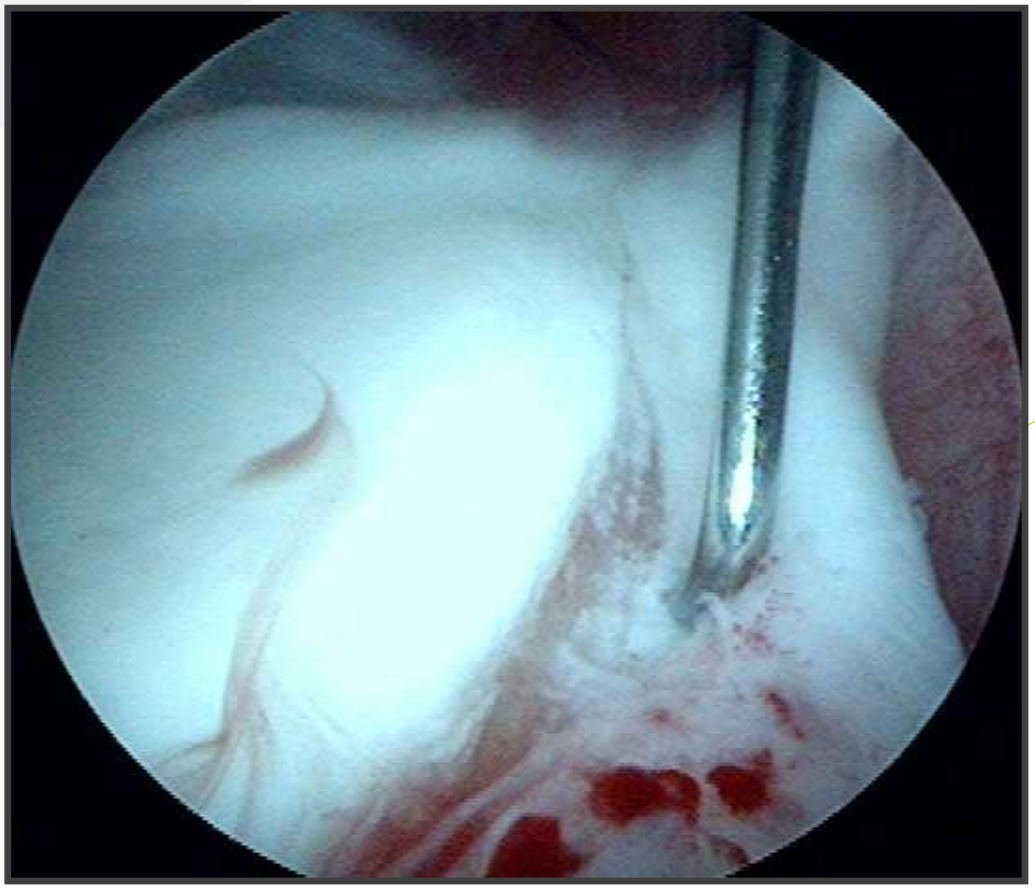
Sports Medicine Orthopedic Surgeon,

Boston Sports & Shoulder Center

New England Baptist Hospital

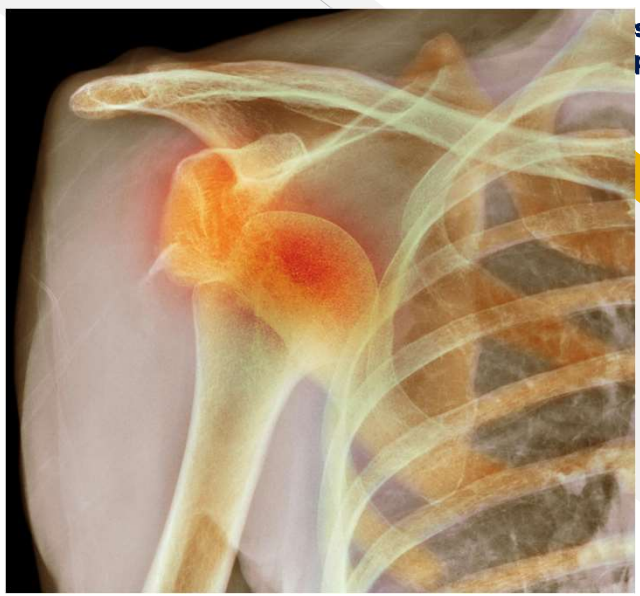
The First Time Shoulder Dislocation
When to Operate ???





History

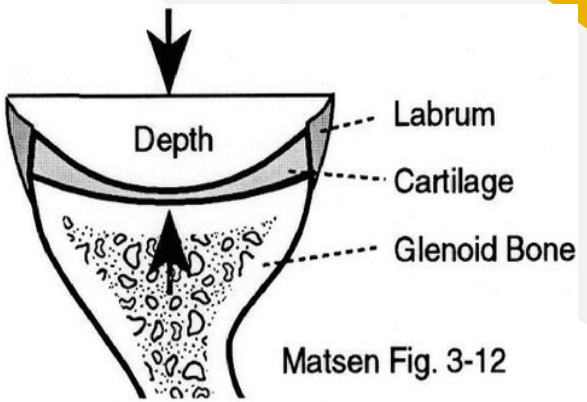
- **Shoulder is the most common joint to dislocate**
- **Typically a traumatic event**
  - 95% are anterior dislocations

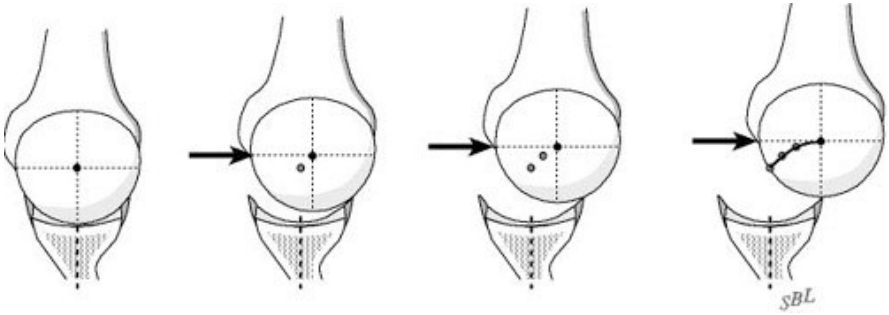


- **Can surgery change the natural history?**
- **Should surgery be offered after a first time dislocation?**

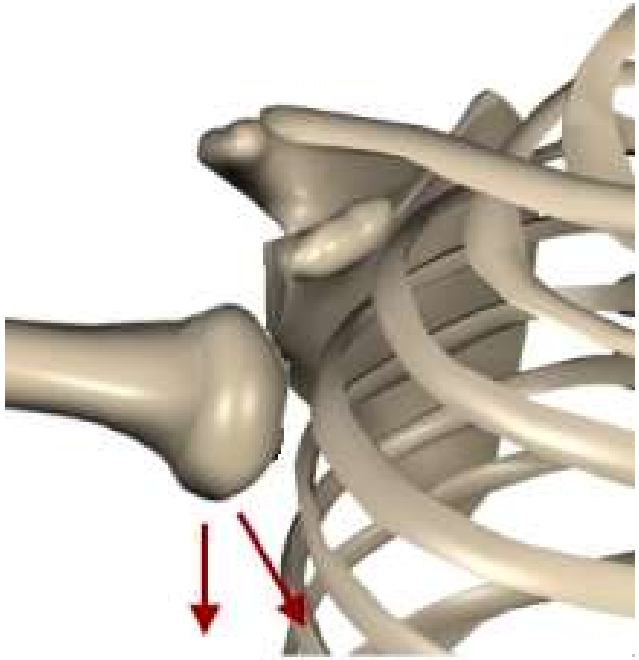
Anatomic Contributions

- **Labrum**
  - Fibrocartilage Structure
  - Doubles the AP depth of the glenoid (2.5 mm → 5 mm)

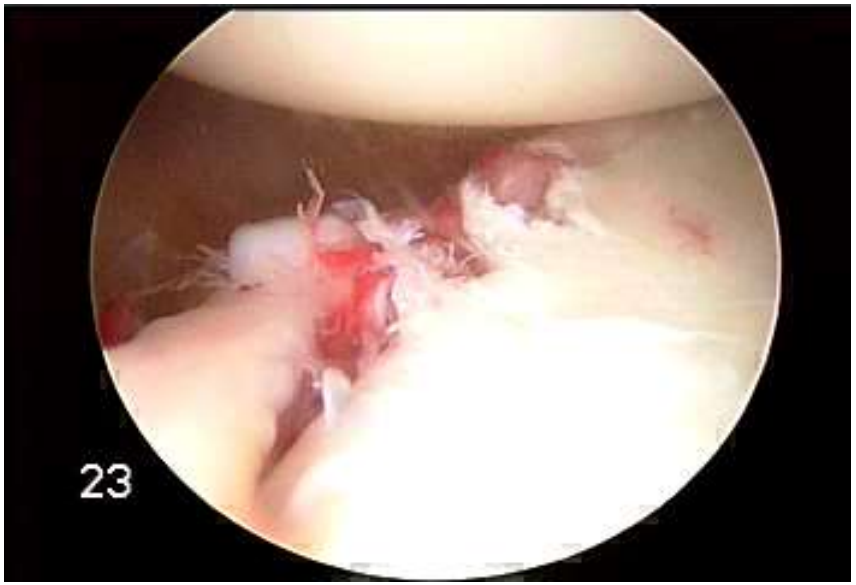


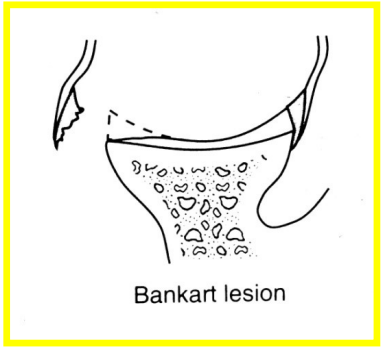


Anterior Dislocations 95% time:



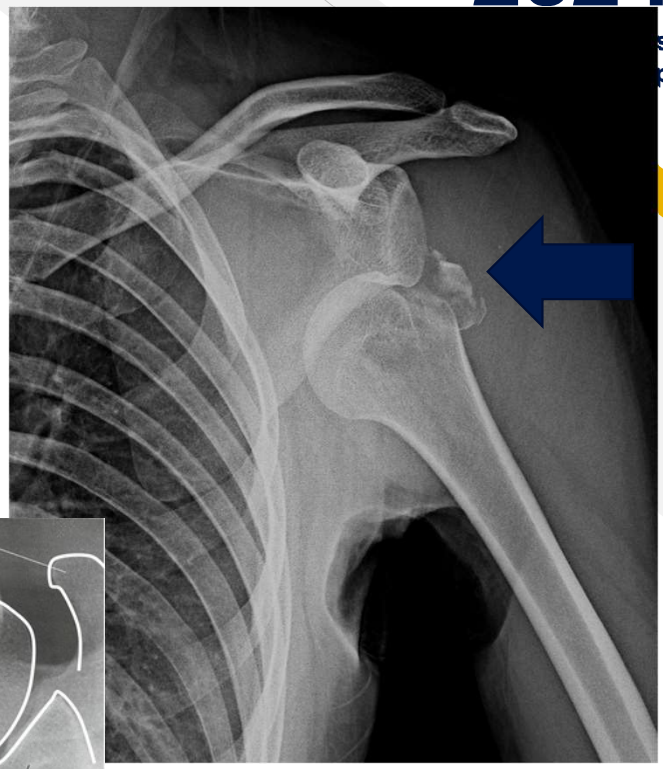
- Can cause anterior labral tear (Bankart lesion) 80%

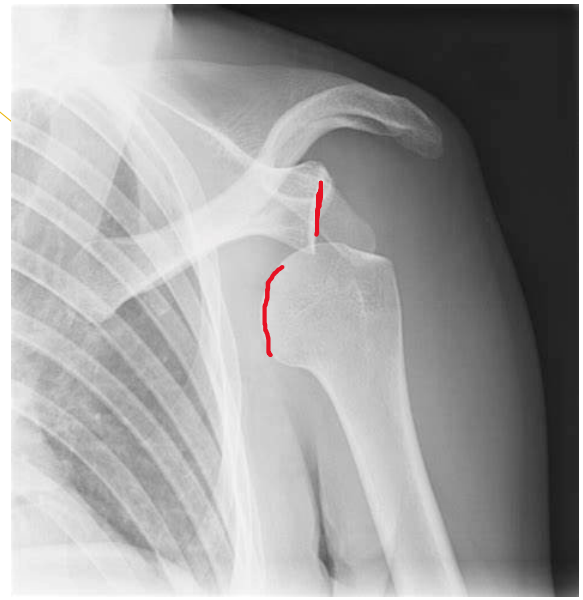


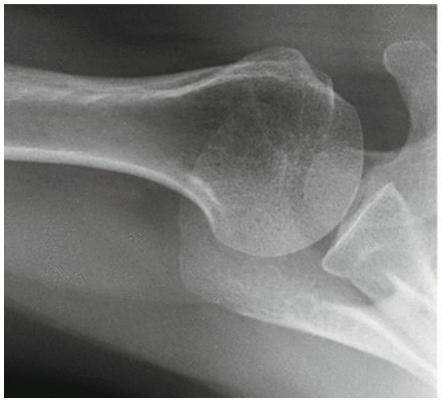


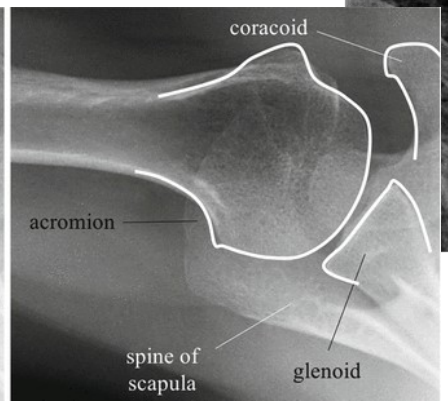
Imaging

- **Radiographs**
  - 3 views- AP, axillary, outlet
  - Axillary most important to determine if reduced
  - Look for fractures

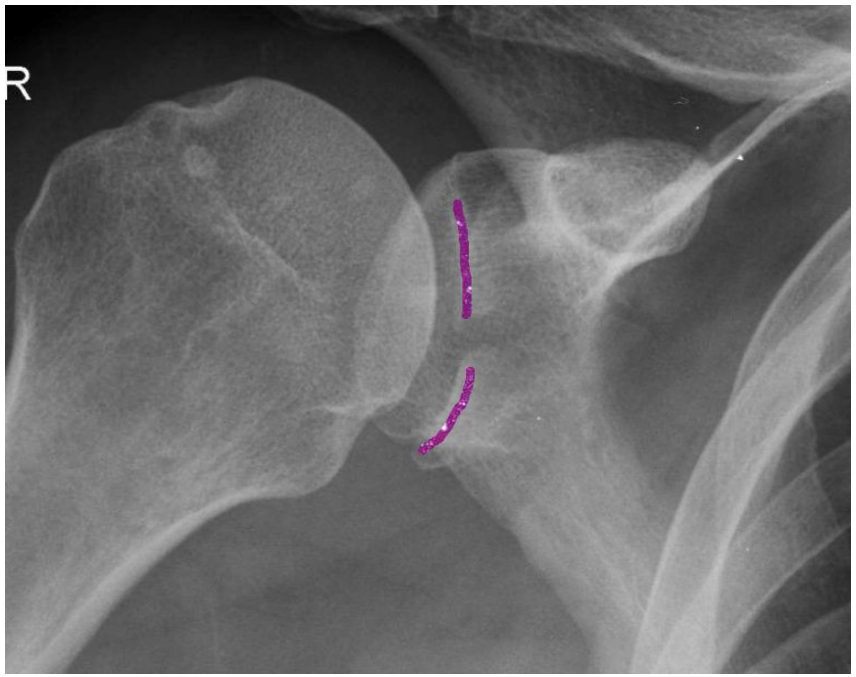


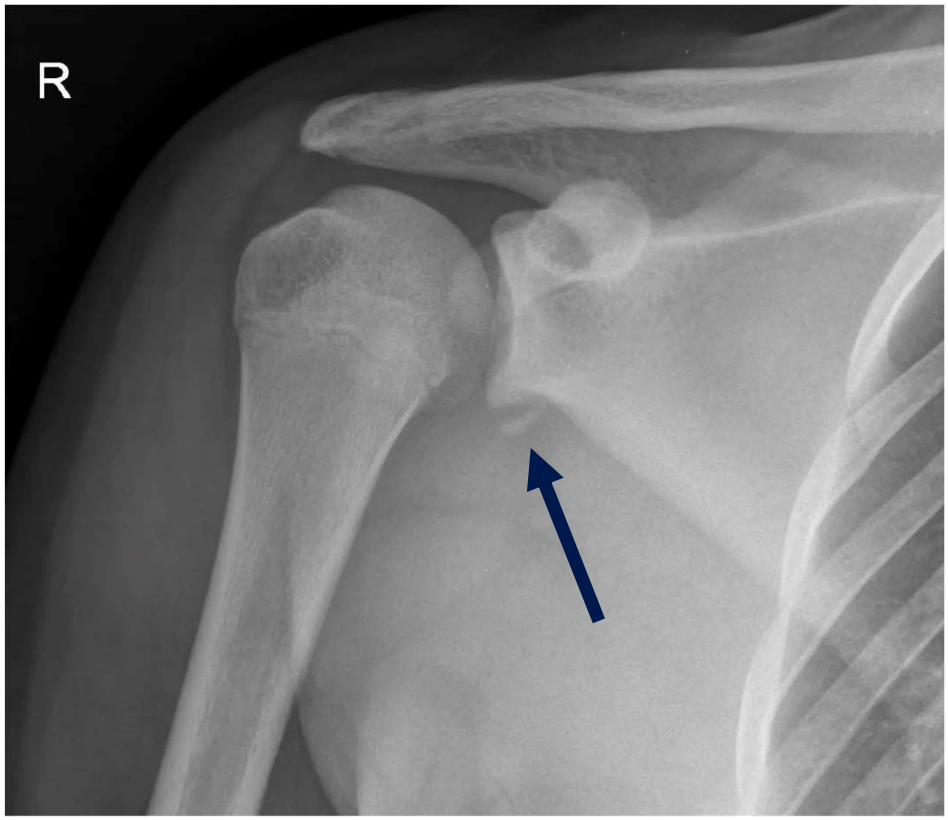




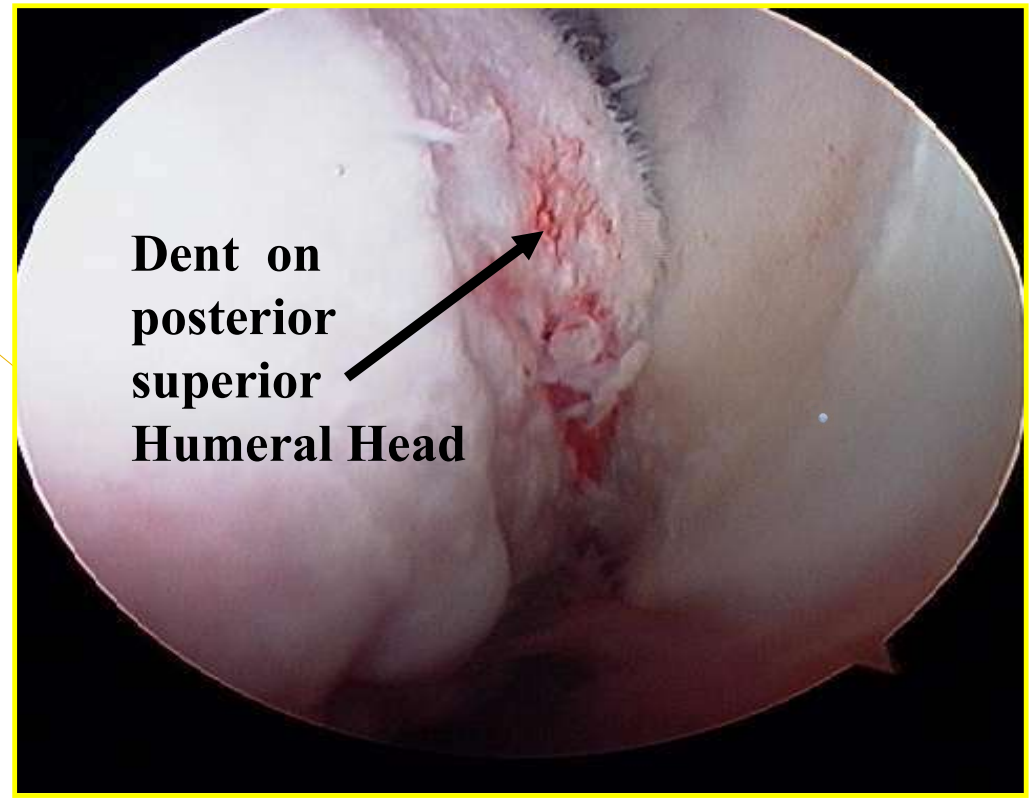


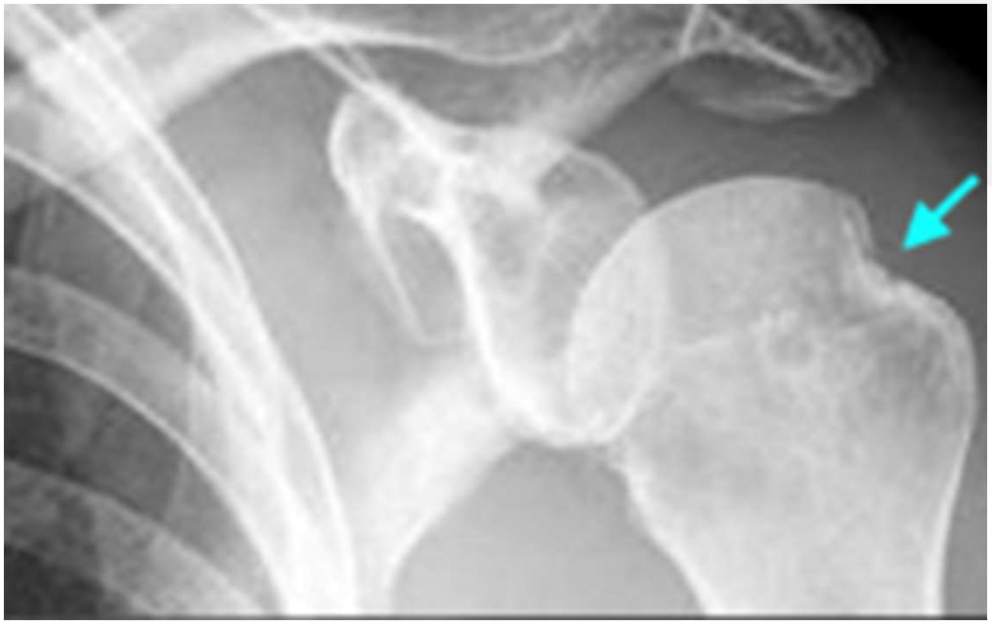
Bony Bankart





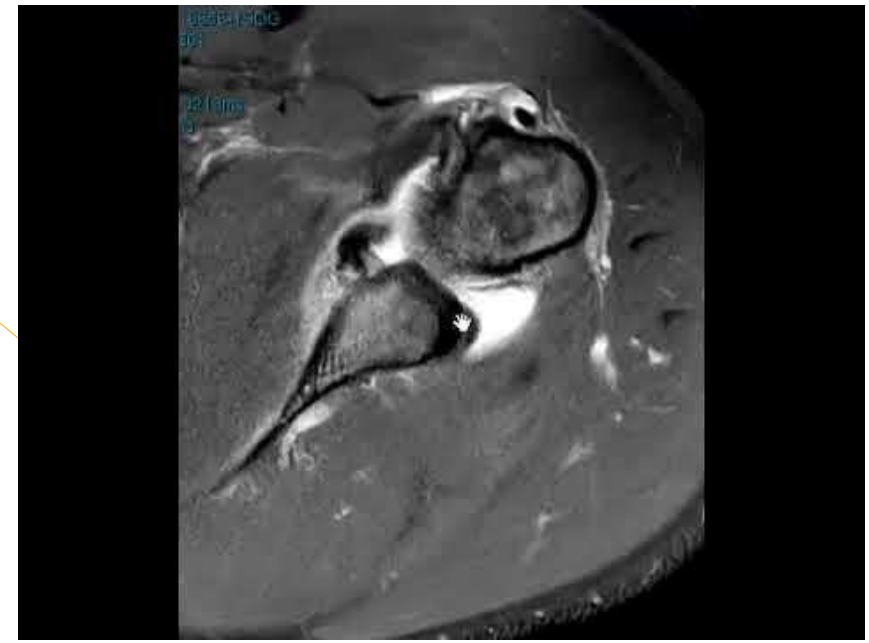
Hill-Sachs Lesion

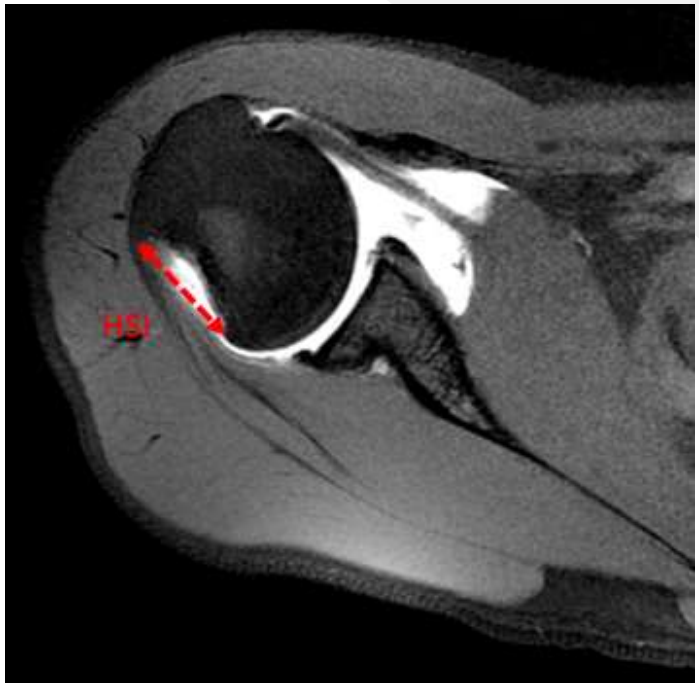




Imaging

- **MRI**
  - Evaluate labral/ligament damage
  - If acute injury do not need an arthrogram





3 Major reasons to support immediate surgery

- **1. Unacceptable high risk of recurrent dislocations**
  - Influenced by age (Hovelius; JBJS 2008)
  - 12-22 yo- 72%
  - 23-29 yo- 56%
  - >30- 27%
- **2. Recurrent instability causes progressive soft tissue and bone injury**
  - 40% osteoarthritis with several dislocations vs 18% with 1 episode
  - Increased instability episodes = rate of post op OA increased
- **3. Improvement in quality of life with surgery**

Treatment of First Time Shoulder Dislocation

- **Need to consider several factors**
- **Age?**
  - Younger patients <25 y/o chance of redislocation >50%
  - Older patients >40 must check for rotator cuff tears
    - Chance of redislocation is very low!!!
- **Occupation?**
- **Sports?**
  - **Contact?**

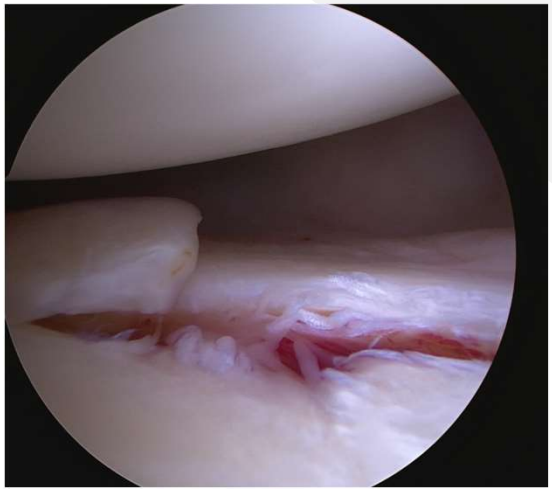
Shoulder Dislocation

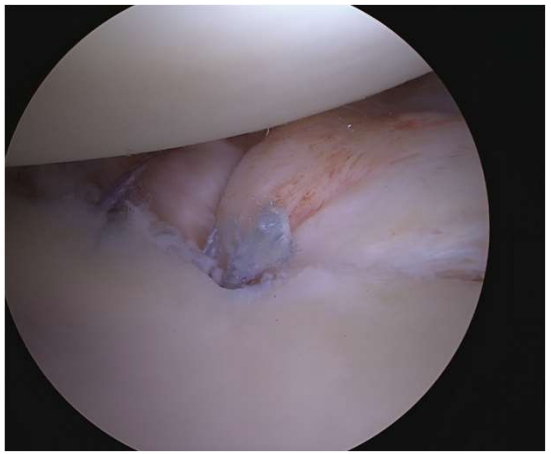
- **Conservative Treatment**
  - 1st time dislocates **???**
  - External Rotation Brace for 3 weeks
  - Therapeutic physical therapy exercises

  BUT:
  - >50% patients <25 y/o will redislocate

Can we change the natural hx with surgery?

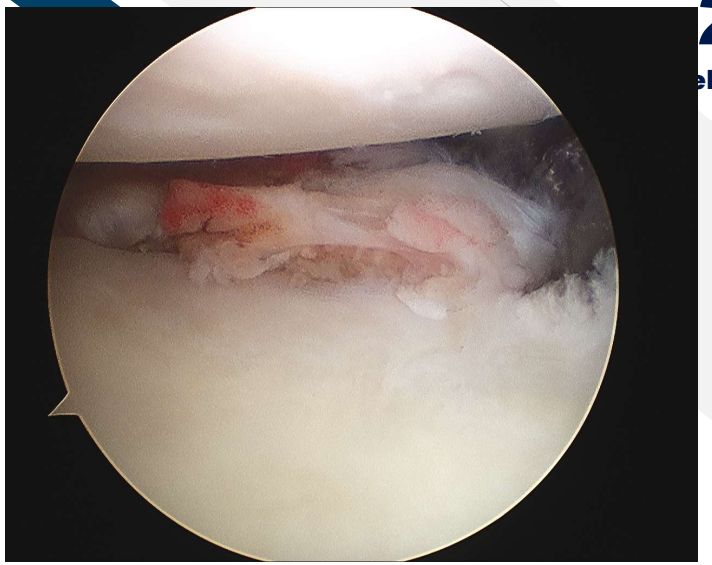
- ***Jakobsen; Arthroscopy 2007***
- 2 year fu
  - Nonop- 54% had recurrent instability
  - Surgery- 3% after open surgical repair
- ***Bottoni; AJSM 2004 <26 yo***
  - Nonop- 75% recurrence
  - Operative- 11% recurrence
- ***Kirkley; Arthroscopy 2005 <30***
  - Nonop – 47% recurrence
  - Operative- 16% recurrence

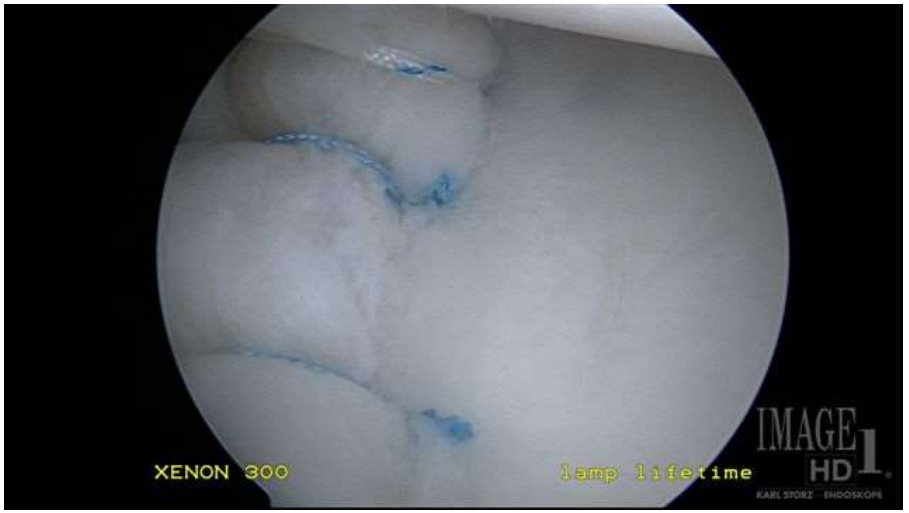




Surgical Indications

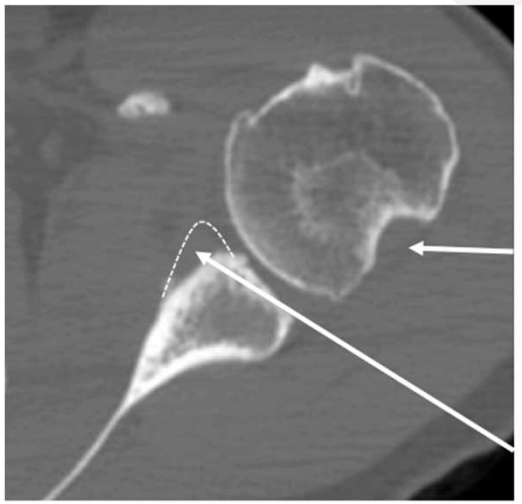
- Younger <20-25 patient 1st time dislocation
  - Contact athlete
  - Heavy manual labor
  - Reduces odds of future dislocation to about 10-15%
- Bony Bankart
- Associated rotator cuff tears
  - Usually over age 40





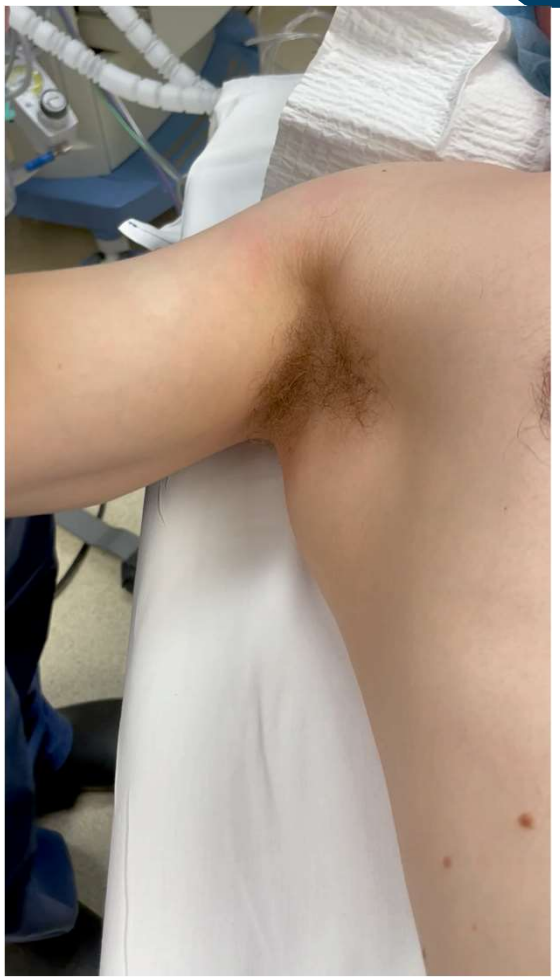
Other advantages to early surgery

- Arthroscopic surgery more difficult after multiple dislocations
  - Poor labral tissue quality
  - Stretching of ligaments and capsule
  - Bone loss
    - May require more complex surgery

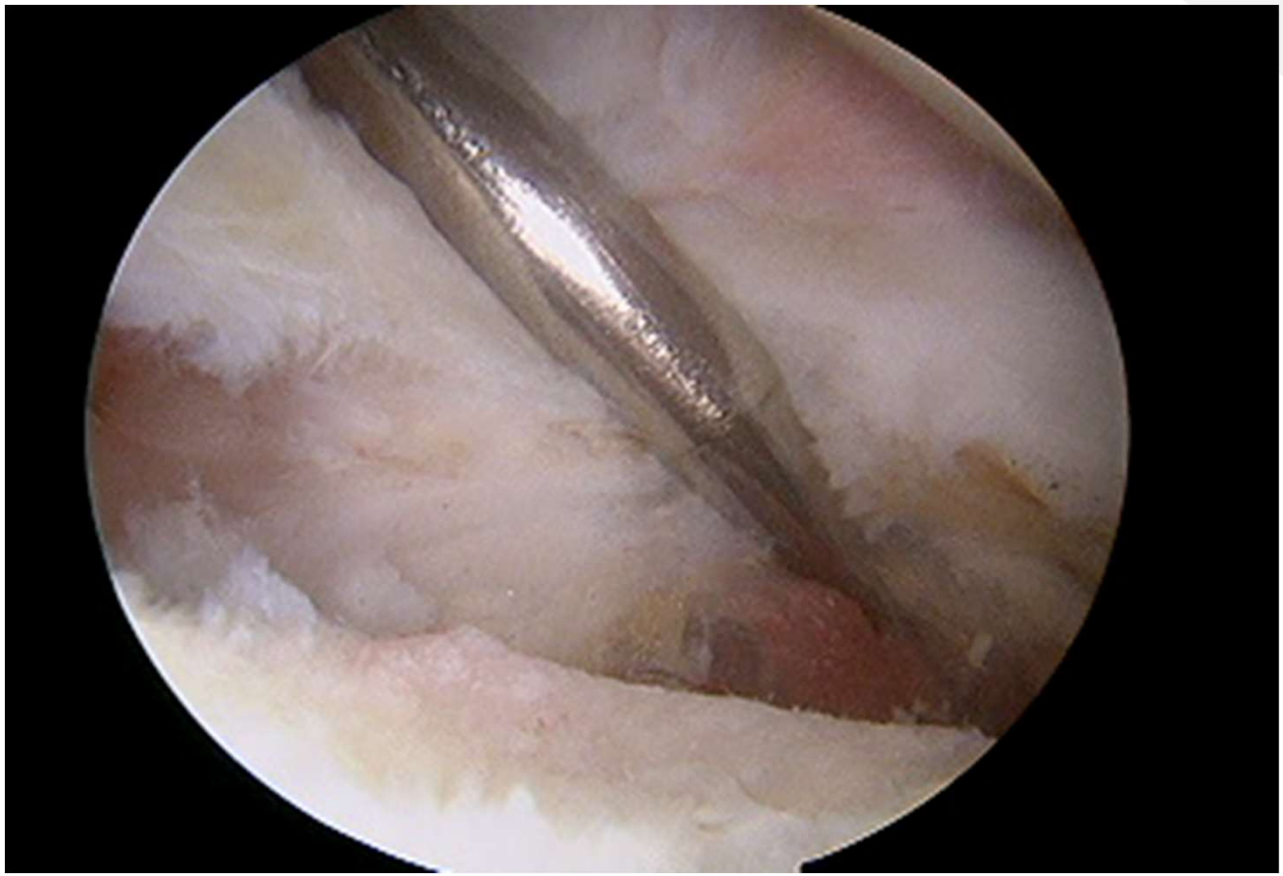


- CT scan – axial view
- Hill-Sachs lesion
- anterior glenoid bone loss

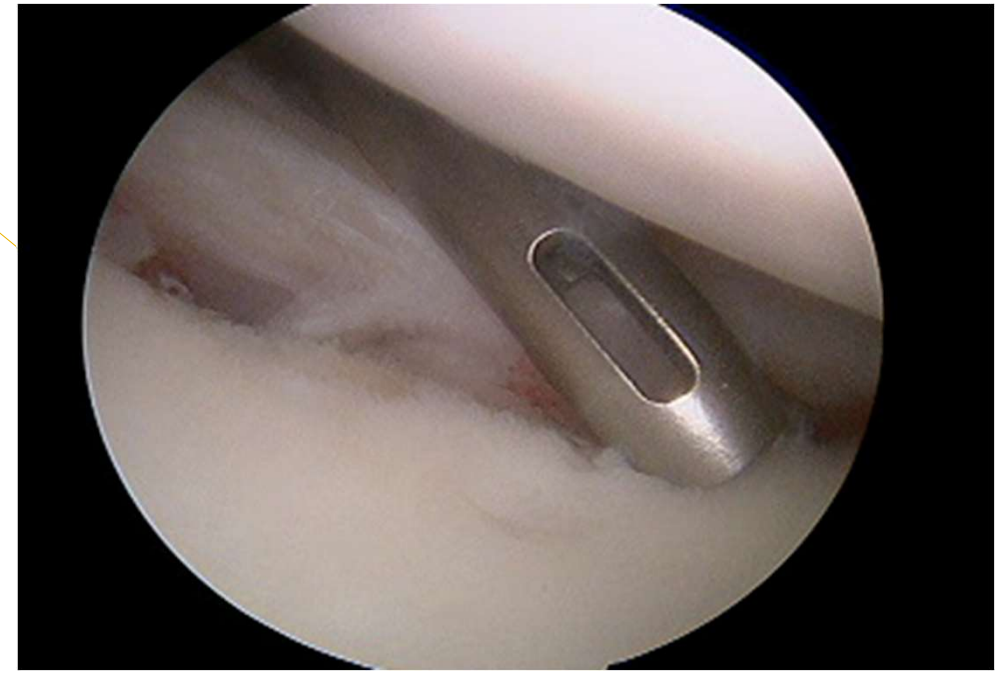
Exam Under Anesthesia

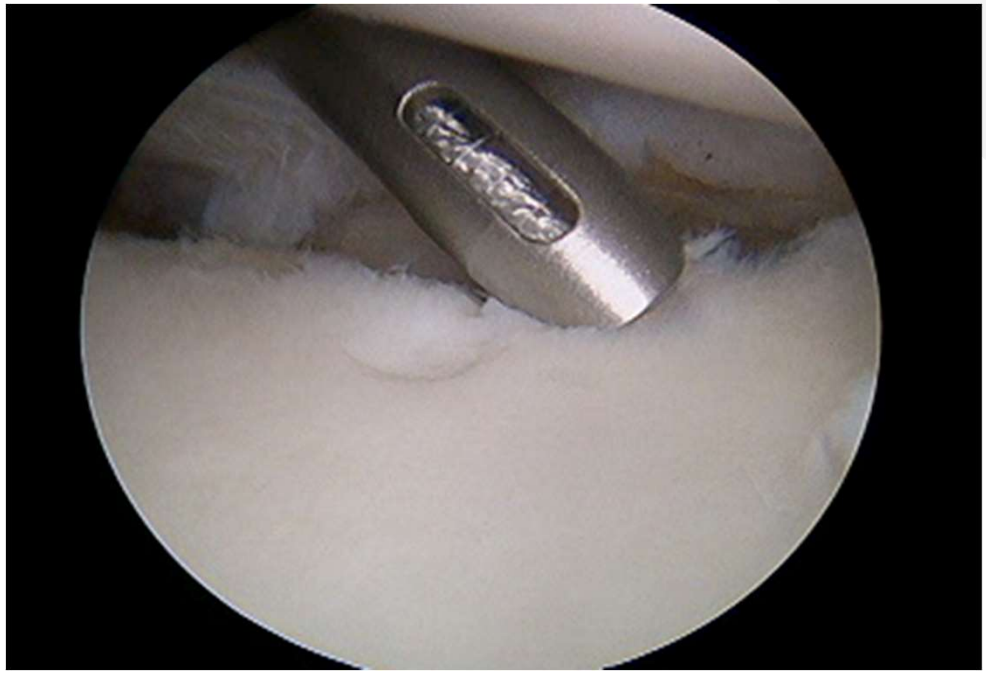


Labral Tear

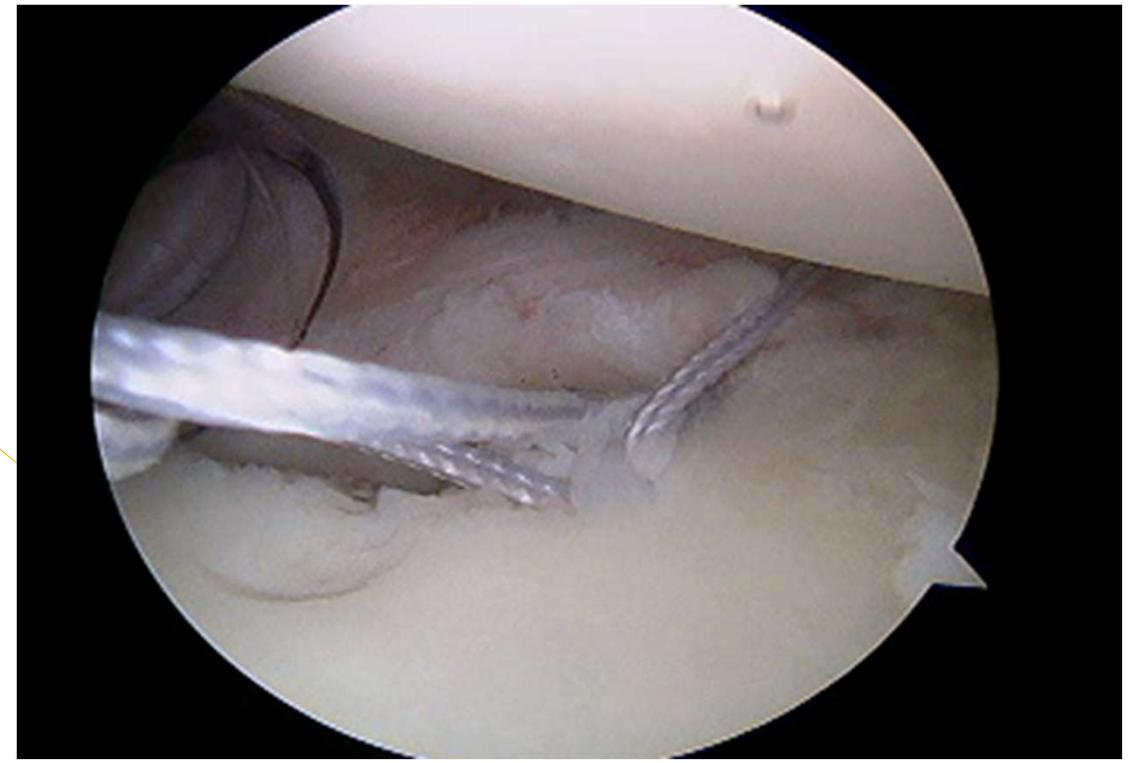


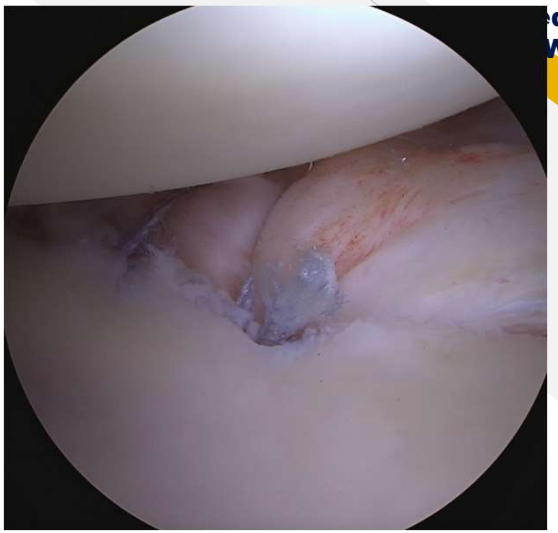
Drilling for anchor

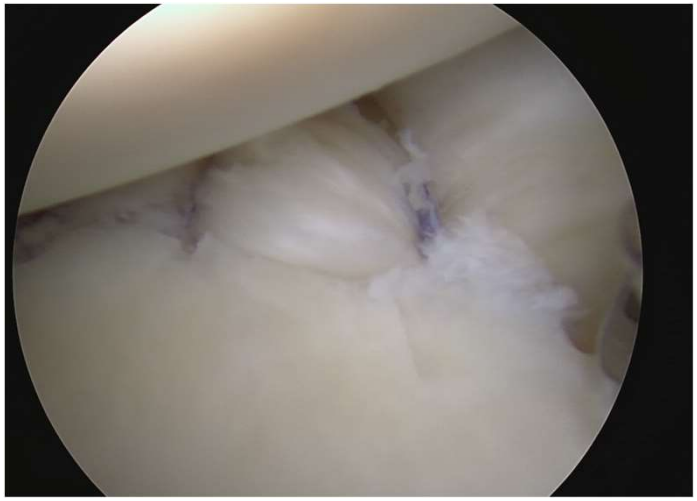




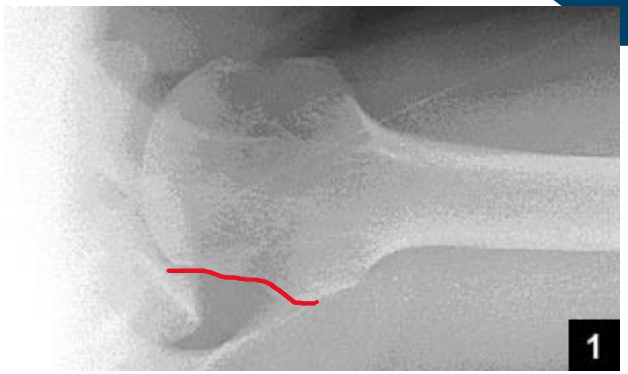
Repair

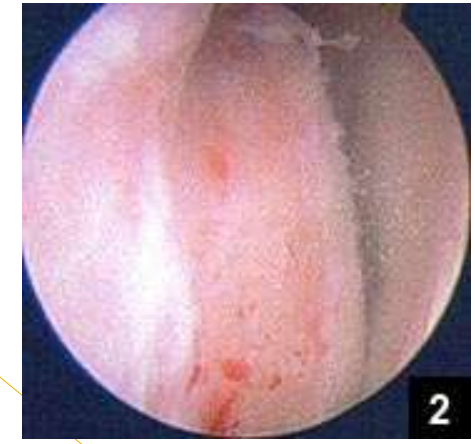


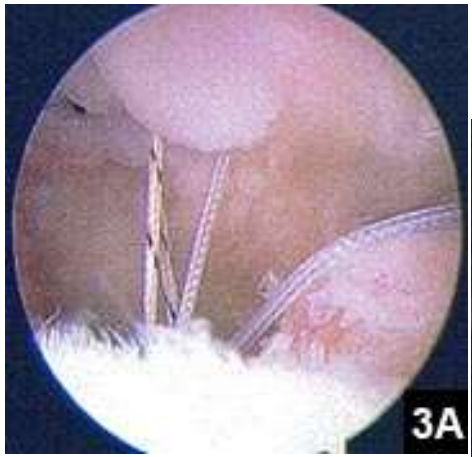


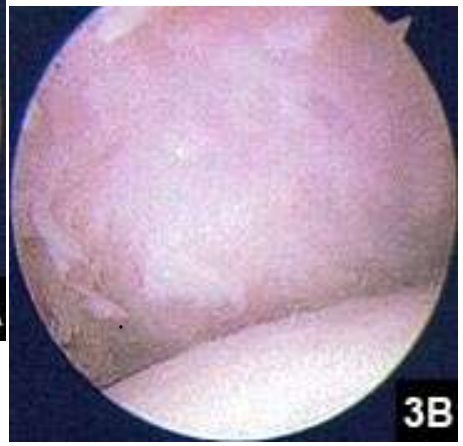


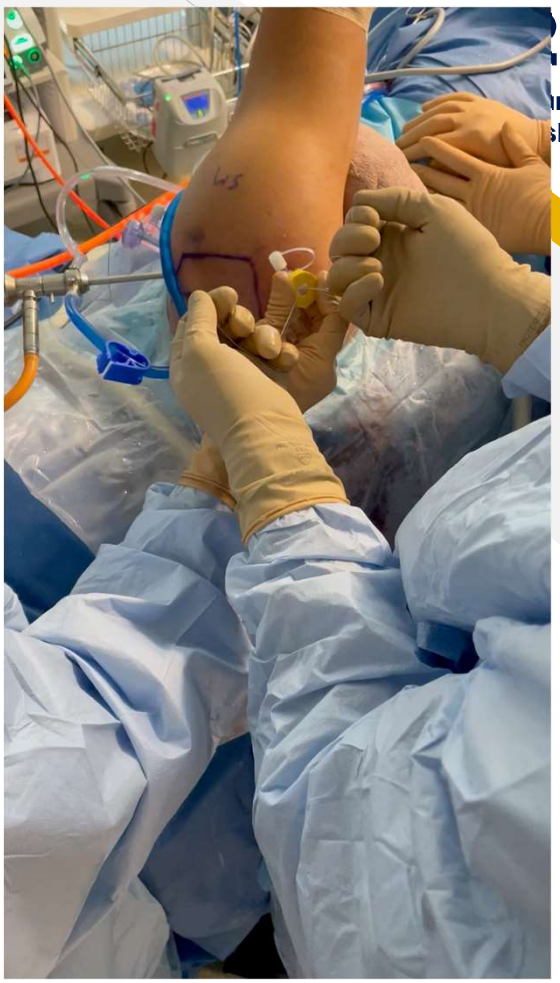
Remplissage







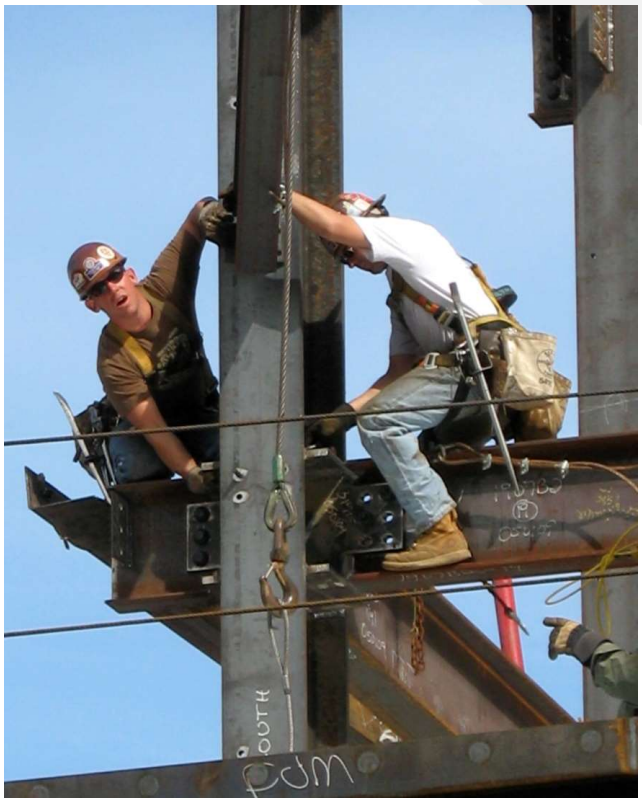




Return to Work

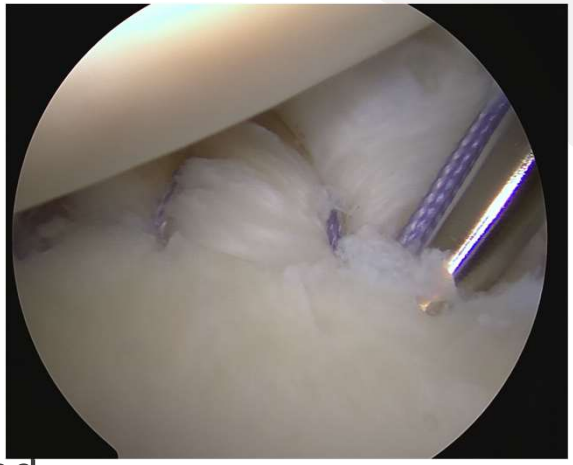
- After Nonsurgical treatment
  - Physical therapy after 3 weeks
  - Return to sedentary job after 3 weeks
  - Most can return to work full duty 8-10 weeks after dislocation

- After Surgery
  - 4-6 weeks sling
  - PT starts 2-3 weeks after surgery
  - First 3 months focus on ROM
  - 3-6 months focus on strength
  - 6 months full duty allowed



Conclusions

- There is no absolute consensus on treatment in the literature
- Traditional immobilization in a sling is being challenged in certain populations
  - Young <25
  - Contact athlete
  - Heavy manual labor
- Every case has to be looked at individually
- Shared decision making with patient understanding risks and benefits



THANK YOU!!!!!

Shoulder Case Discussion

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Disclosures

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AAOS: Board or committee member
AAOS Now: Editorial or governing board
American Journal of Sports Medicine: Editorial or governing board
American Orthopaedic Association: Board or committee member
American Shoulder and Elbow Surgeons: Board or committee member
Arthroscopy Association of North America: Board or committee member
BMC Musculoskeletal Disorders: Editorial or governing board
DePuy, A Johnson & Johnson Company: Paid consultant
FH Ortho: IP royalties; Paid consultant
Journal of Bone and Joint Surgery - American: Editorial or governing board
Journal of Medical Insight (JOMI): Editorial or governing board
Orthopedic Reviews: Editorial or governing board
World Journal of Orthopaedics: Editorial or governing board

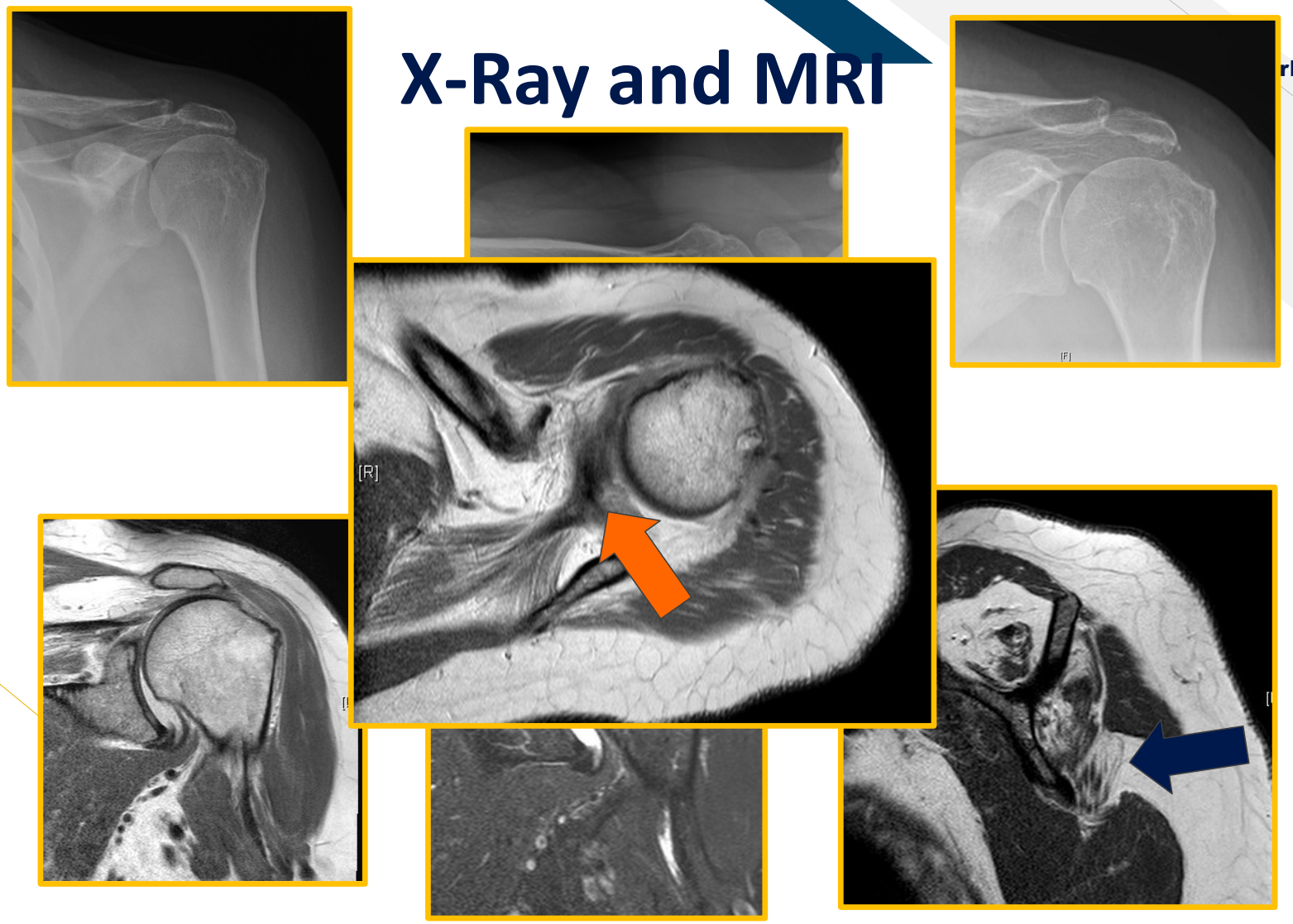
Patient - T.P.

- 50 yr old Female, RHD, 3 years of progressive Left Shoulder Pain and Loss of Function
  - No Single Traumatic Event
  - Pain Started while at Work 3 years ago
- Pain with Work, Activities and at Night
- Unable to lift the shoulder for 12 months
- Unable to do ADL with the Left Shoulder
- SSV ~15%
- No Neck pain or any radiating pain
- NASIDs and PT, one Injection (PCP)

- PMH: None
- PSH: Hysterectomy
- Medications: Naprosyn and Tylenol
- Allergies: Percocet
- SH: No tob, No Alcohol and No Drugs
  - House cleaner
  - Spanish Speaking only
  - Unable to work for > 6 months
- ROS: Non contributory

Exam

X-Ray and MRI



Massive Cuff Tear
Not Repairable

- Causation?

- Legal Proceedings
  - What is the process?
  - What do I need to put in the Notes?

- Patients Files for W/C and gets denied.
  - What Happens Now? Appeal?
  - What is the Time Line?

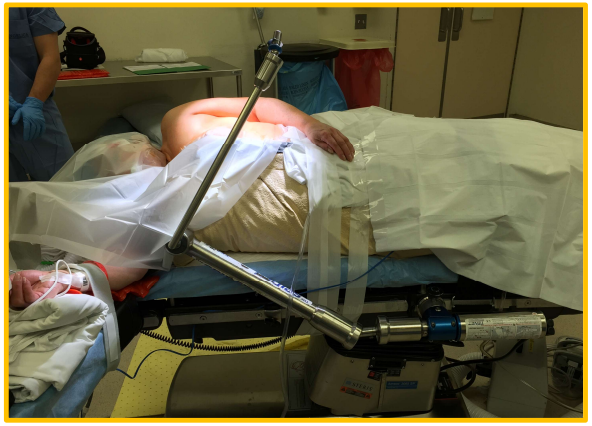
Role of PT Before Surgery?

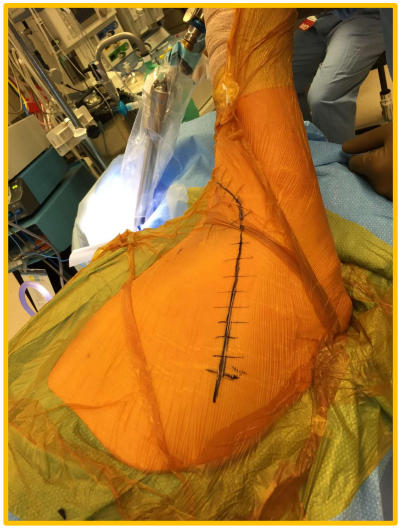
- Who should get PT and who should Not?
- Any other options for her other than surgery?
- Who pays for all of these modalities?

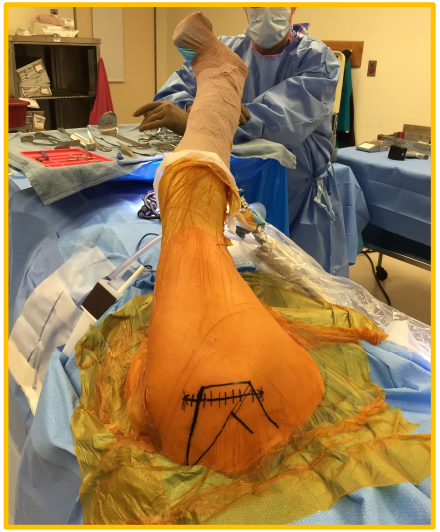
Surgical Options?

A. Diagnostic Arthroscopy, Attempt to Repair, SAD, and Biceps Tenotomy/Tenodesis, Biceps SCR
B. Arthroscopic Superior Capsule Reconstruction (SCR)
C. Open Partial Repair with Graft Jacket/Augmentation
D. Arthroscopic Balloon Insertion
E. Humeral Head Resurfacing with Dermograft
F. Muscle Transfer (Latissimus dorsi vs Lower Trapezius)
G. Reverse Shoulder Arthroplasty
H. Reverse Shoulder Arthroplasty with Muscle Transfer (Modified L'Episcopo)

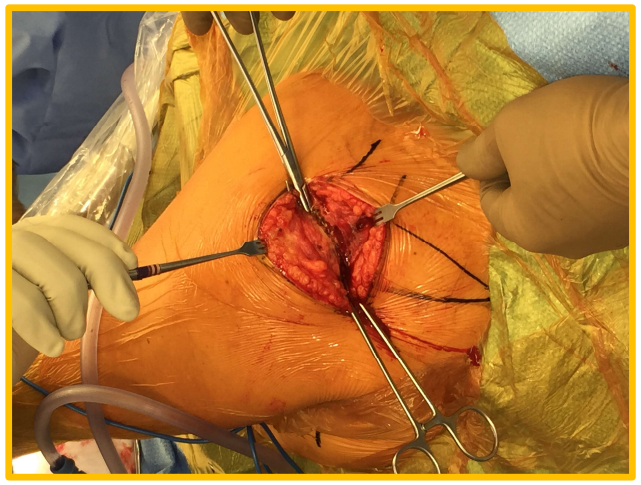
Latissmus Dorsi Transfer

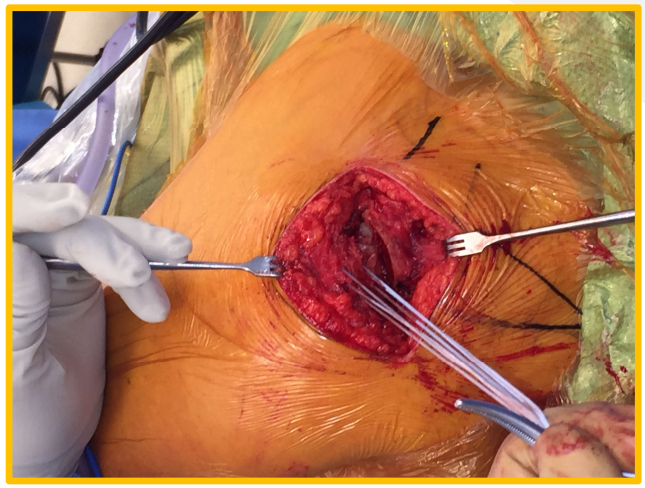


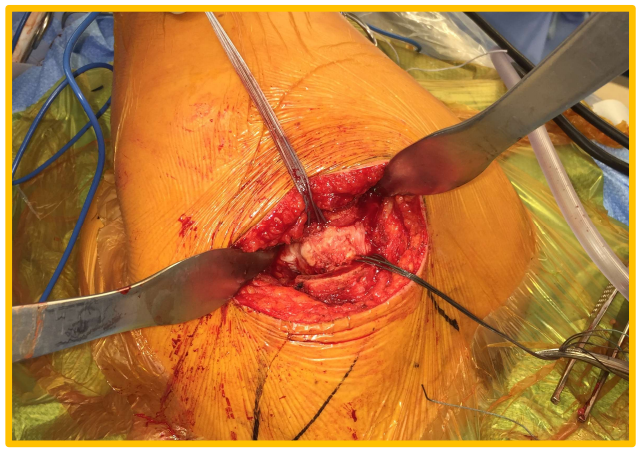


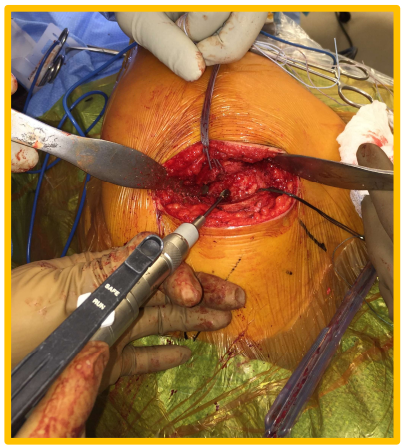


Acromion Osteotomy

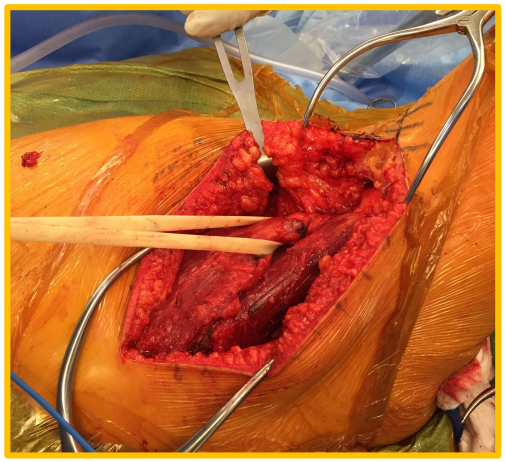


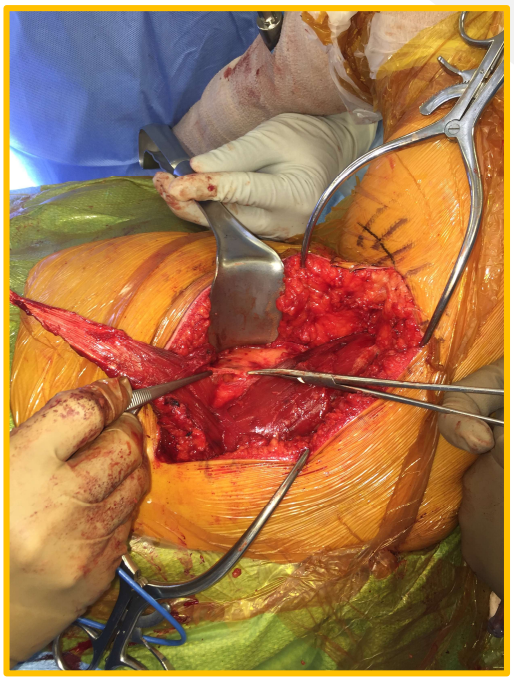




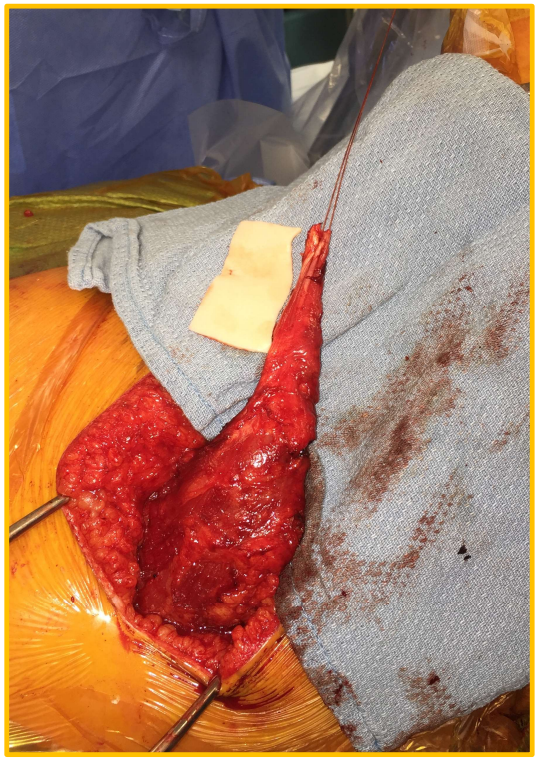


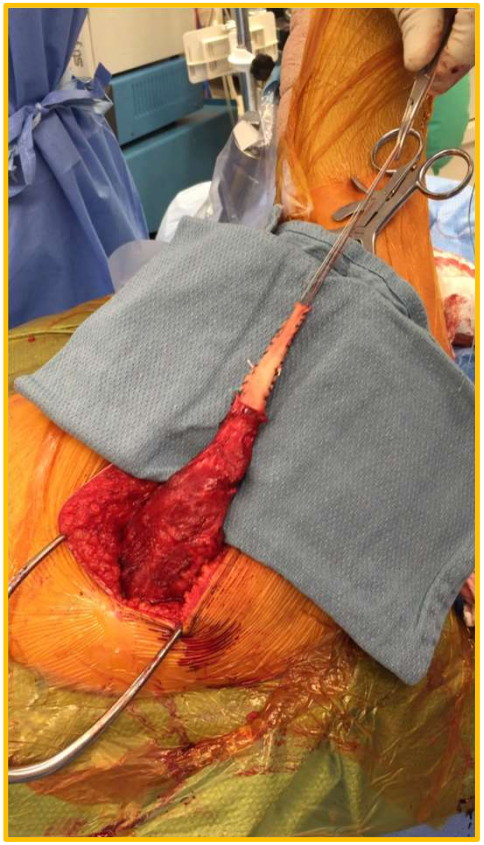
Latissmus Dorsi Harvest



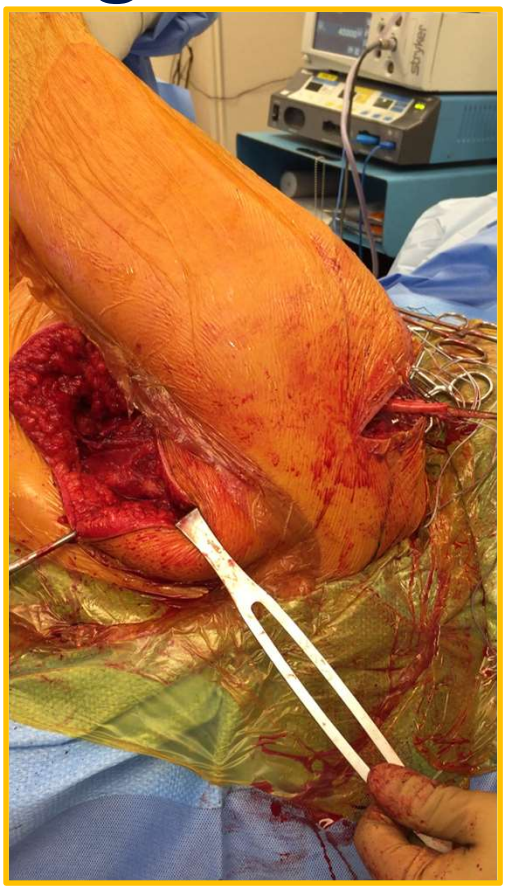


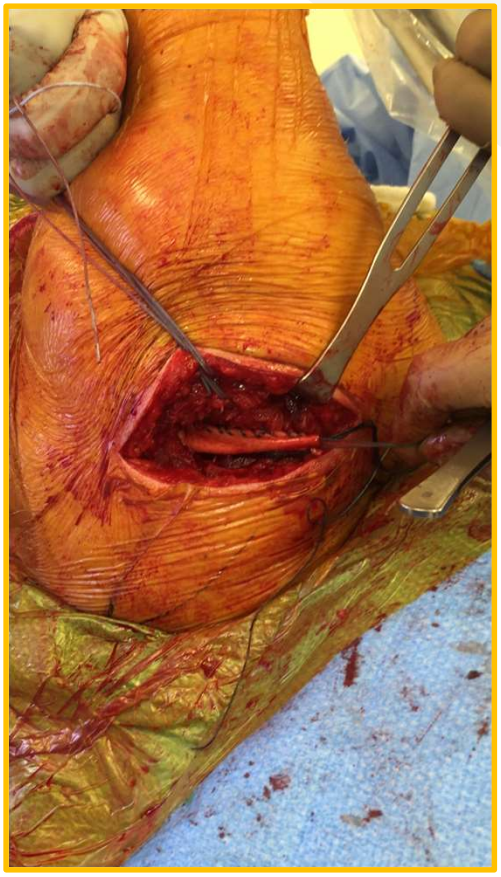
Graft Jacket Augmentation



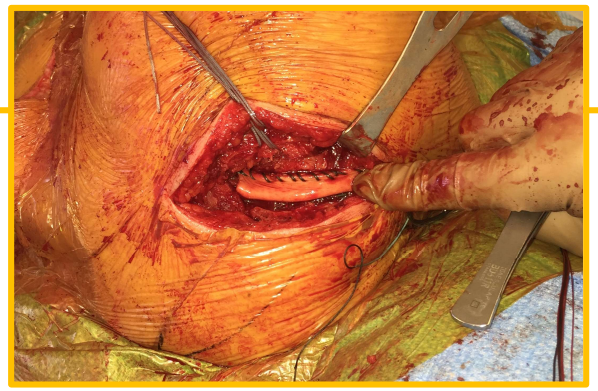


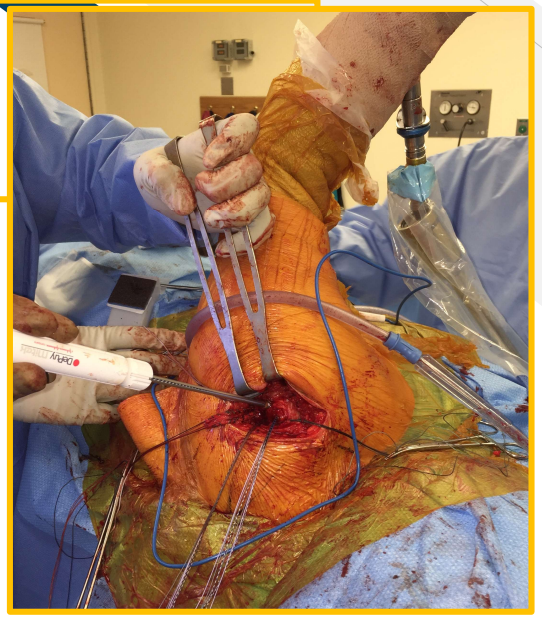
Tunneling

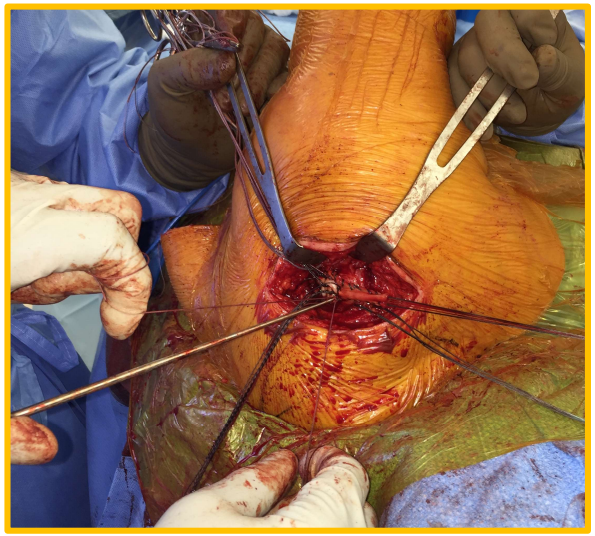


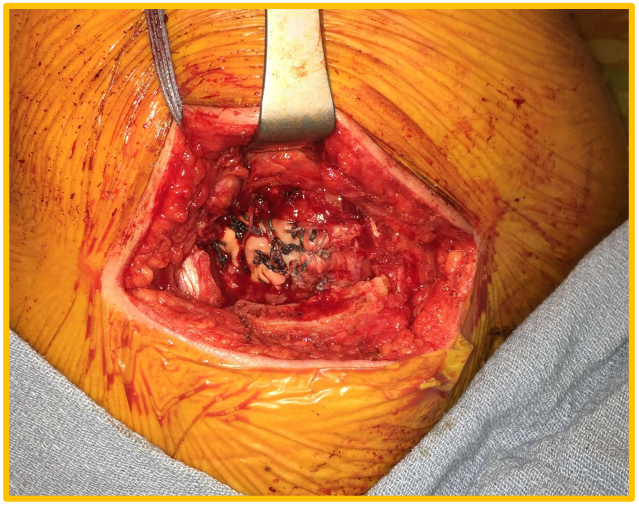


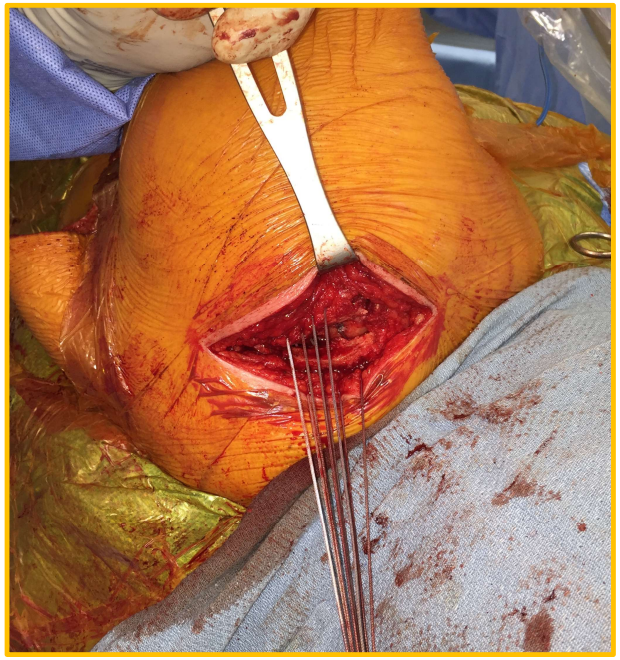
Repair

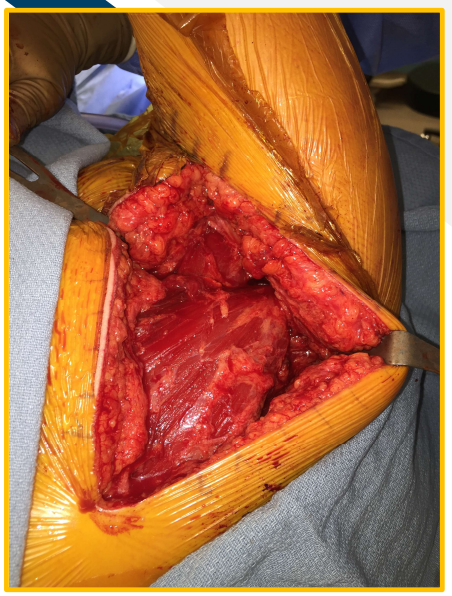


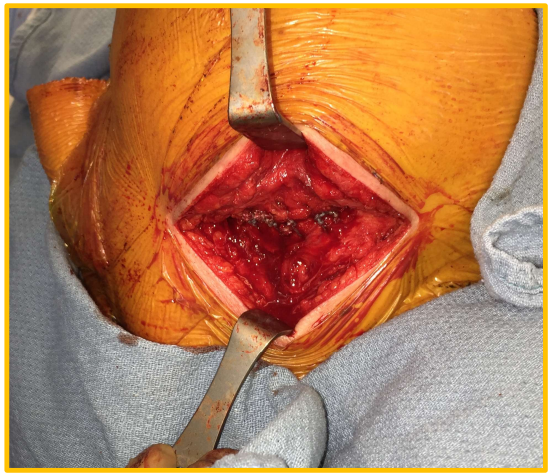






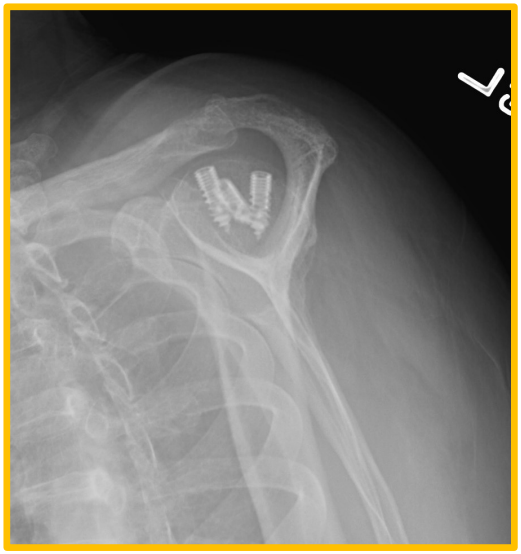






Post Op Rehab

- 6 Weeks of SCOI Brace
- Routine RTC Protocol



3 Months Post Op

6 Months Post Op

2024

Work Related Injuries Workshop

2024
Work Related Injuries Workshop

Why Does Work Comp Deny or Limit PT after Surgery???

- Role of Work Conditioning and FCE in Work comp patients after surgery?

- MMI and When to Settle the Case?

2024
Work Related Injuries
Workshop

THANKS