

AMSER Case of the Month

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53-year-old male with left shoulder pain

Jada Hislop

Emory University

Aine Marie Kelly, MD



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Patient Presentation

- HPI: 53 year old male presents to clinic with 1 week history of left shoulder pain following an injury sustained after falling off a motorcycle and dislocating his shoulder. He went to the ER where his shoulder was reduced and placed in a sling. He's had 2 prior dislocation to same shoulder.
- Patient has had continued pain with ROM and cannot lift his arm over head. Reports no numbness, tingling, fevers, or swelling.
- PMHx: HTN, GERD
- No Labs

Patient Presentation

- Physical Exam:
 - Vitals: WNL
 - General appearance: well appearing. No acute distress
 - Left upper extremity:
 - Active ROM
 - Forward elevation: 90° (180 ° considered normal)
 - Abduction: 90
 - External rotation, internal rotation, adduction: limited due to pain
 - Right upper extremity:
 - Normal

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

Variant 6:

Traumatic shoulder pain. Radiographs normal. Physical examination and history consistent with dislocation event or instability. Next imaging study.

| Procedure | Appropriateness Category | Relative Radiation Level |
|---|--------------------------|--------------------------|
| MR arthrography shoulder | Usually Appropriate | 0 |
| MRI shoulder without IV contrast | Usually Appropriate | 0 |
| CT arthrography shoulder | May Be Appropriate | ⊕⊕⊕⊕ |
| CT shoulder without IV contrast | May Be Appropriate | ⊕⊕⊕ |
| CT shoulder with IV contrast | Usually Not Appropriate | ⊕⊕⊕ |
| CT shoulder without and with IV contrast | Usually Not Appropriate | ⊕⊕⊕ |
| FDG-PET/CT skull base to mid-thigh | Usually Not Appropriate | ⊕⊕⊕⊕ |
| MRI shoulder without and with IV contrast | Usually Not Appropriate | 0 |
| Bone scan shoulder | Usually Not Appropriate | ⊕⊕⊕ |
| US shoulder | Usually Not Appropriate | 0 |

This was ordered by physician along with a radiograph of L shoulder

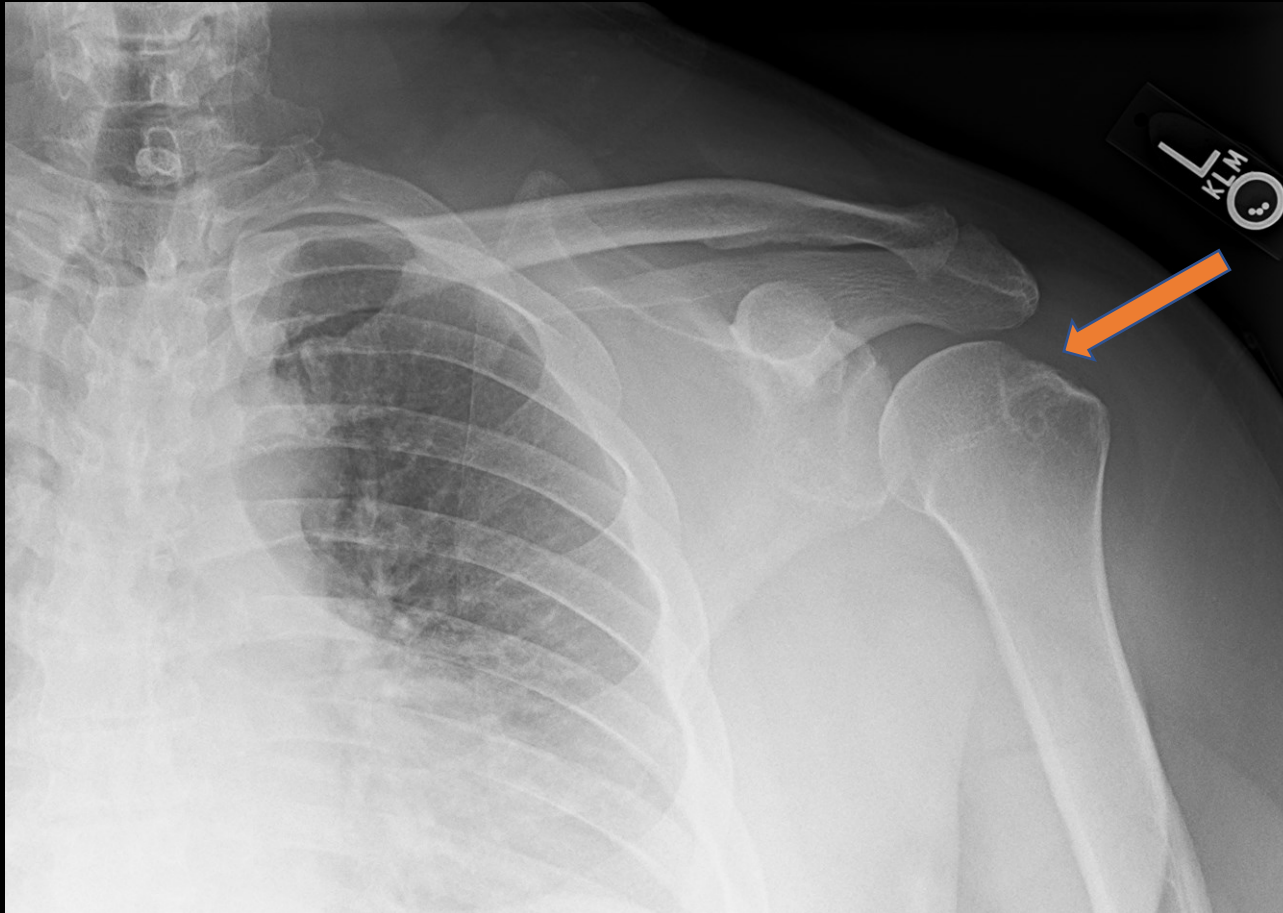


Findings (unlabeled)

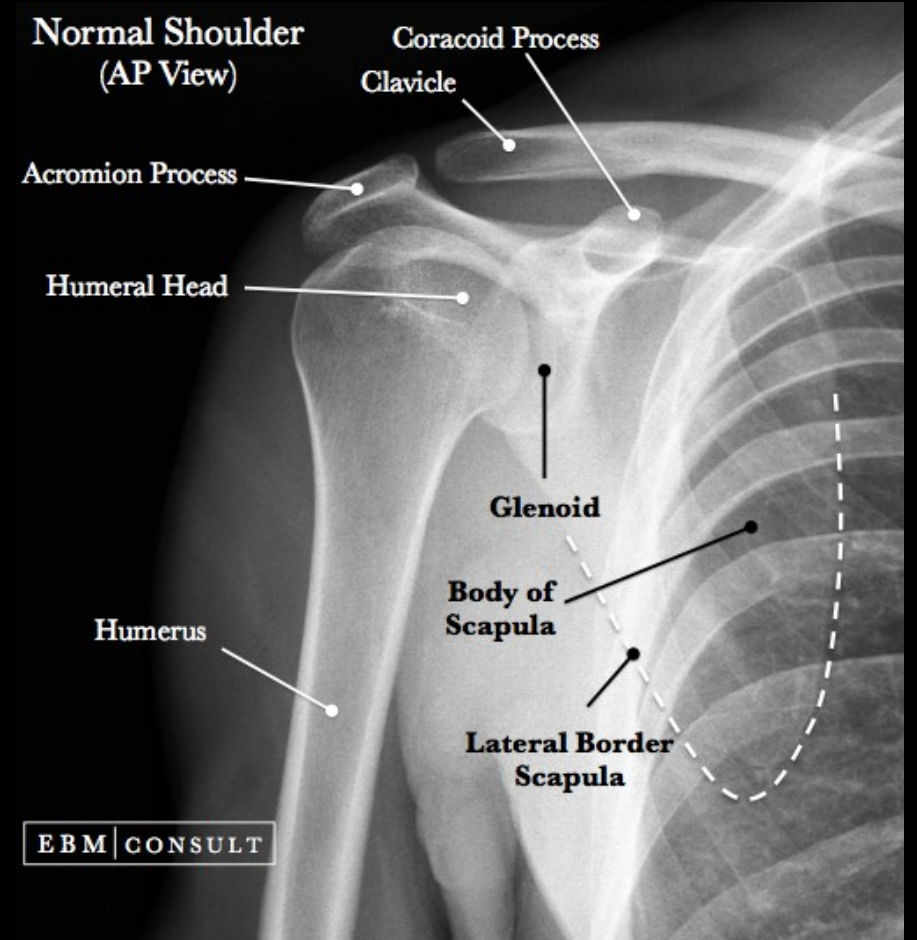


XR L shoulder, AP view

Findings: (labeled)



Flattening of normal round contour of superolateral humeral head



<https://www.ebmconsult.com/articles/anterior-shoulder-dislocation-review>

Findings (unlabeled)



A



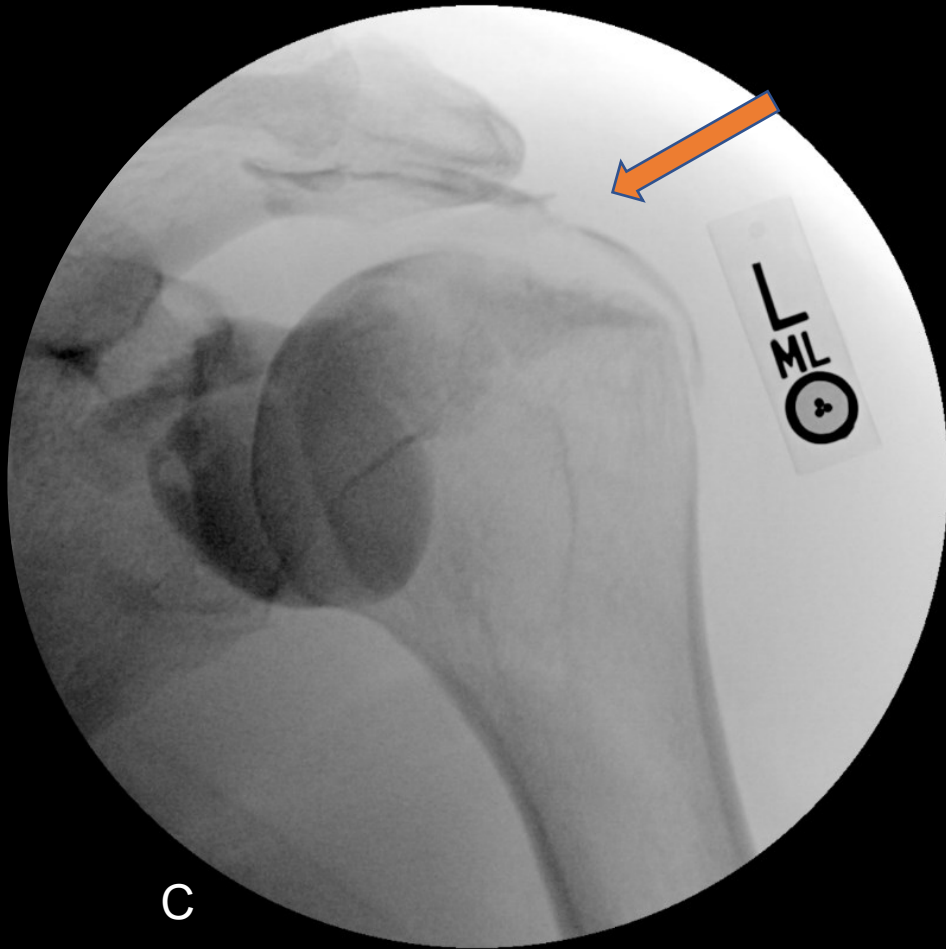
B



C

Shoulder Arthrogram under fluoroscopy: A) needle placement in glenohumeral joint, B) injection of contrast c) 12 cc gadolinium mixture in the joint space after needle was removed

Findings: (labeled)



Normal arthrogram

<https://radiopaedia.org/cases/shoulder-arthrogram?lang=us>



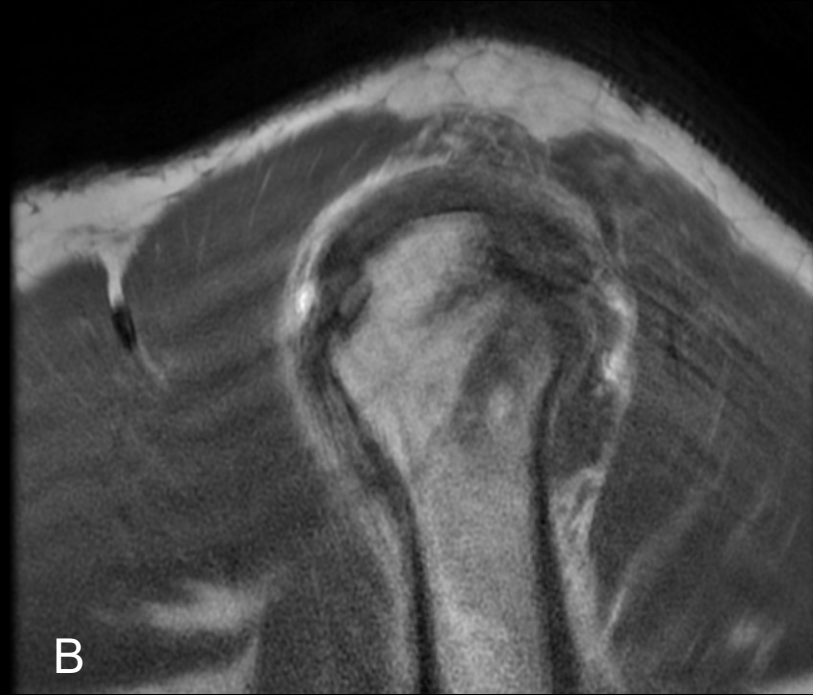
Shoulder Arthrogram under fluoroscopy: c) extension of intra-articular contrast into the subacromial and subdeltoid bursa

Findings (unlabeled)



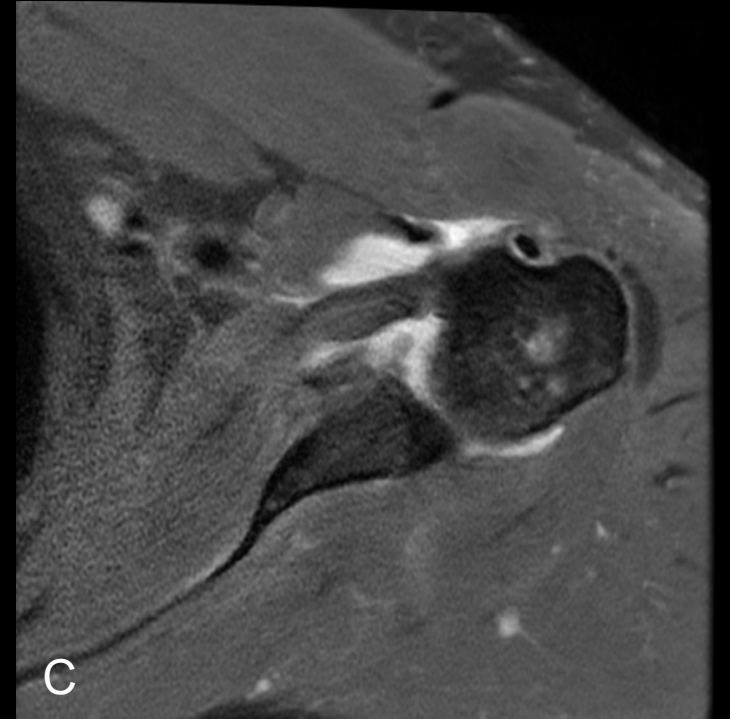
A

MRI Coronal PDFS



B

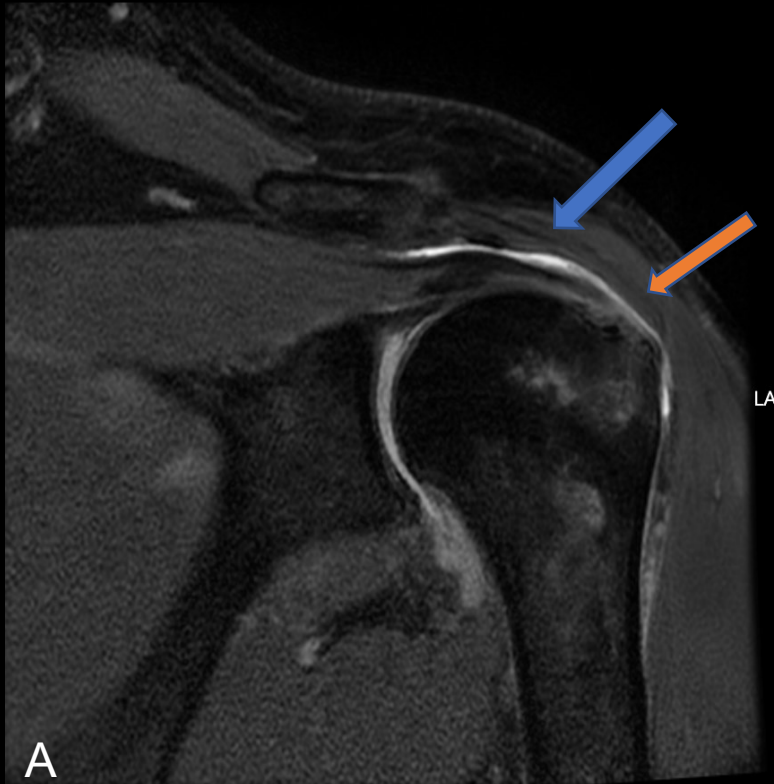
MRI Sagittal T1



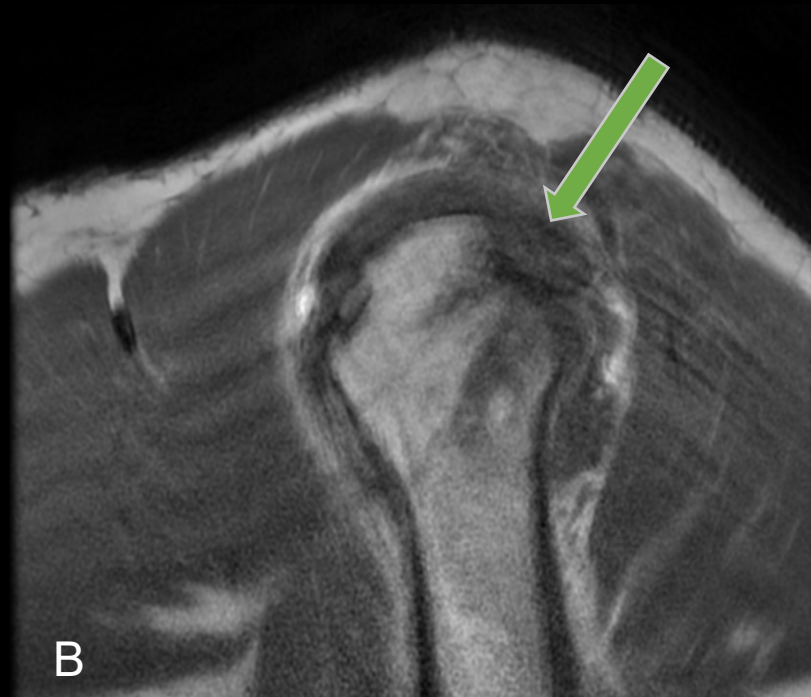
C

MRI Axial PDFS

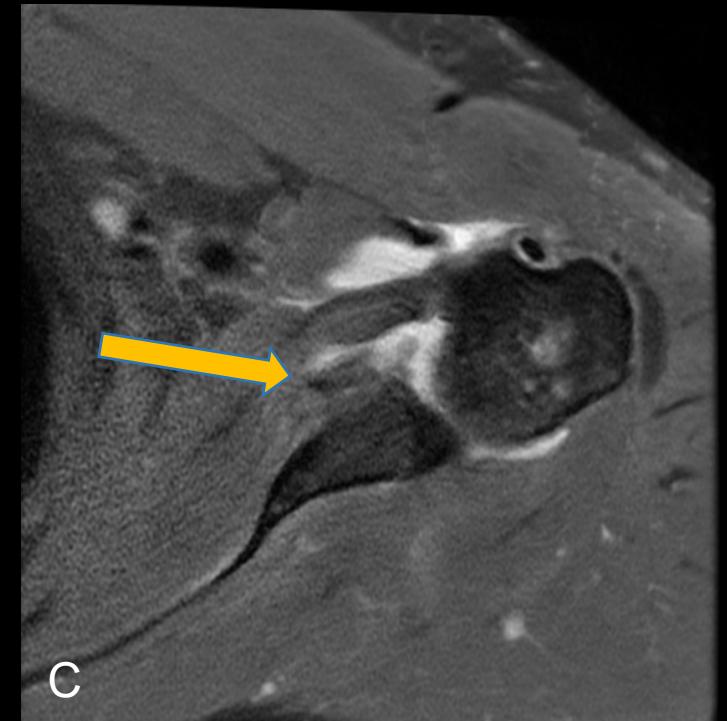
Findings: (labeled)



MRI Coronal PDFS



MRI Sagittal T1



MRI Axial PDFS

A) Partial thickness tear of supraspinatus tendon, extravasation of contrast in subacromial subdeltoid bursa; B) Hill-Sachs deformity C) Bankart fracture

Final Dx:

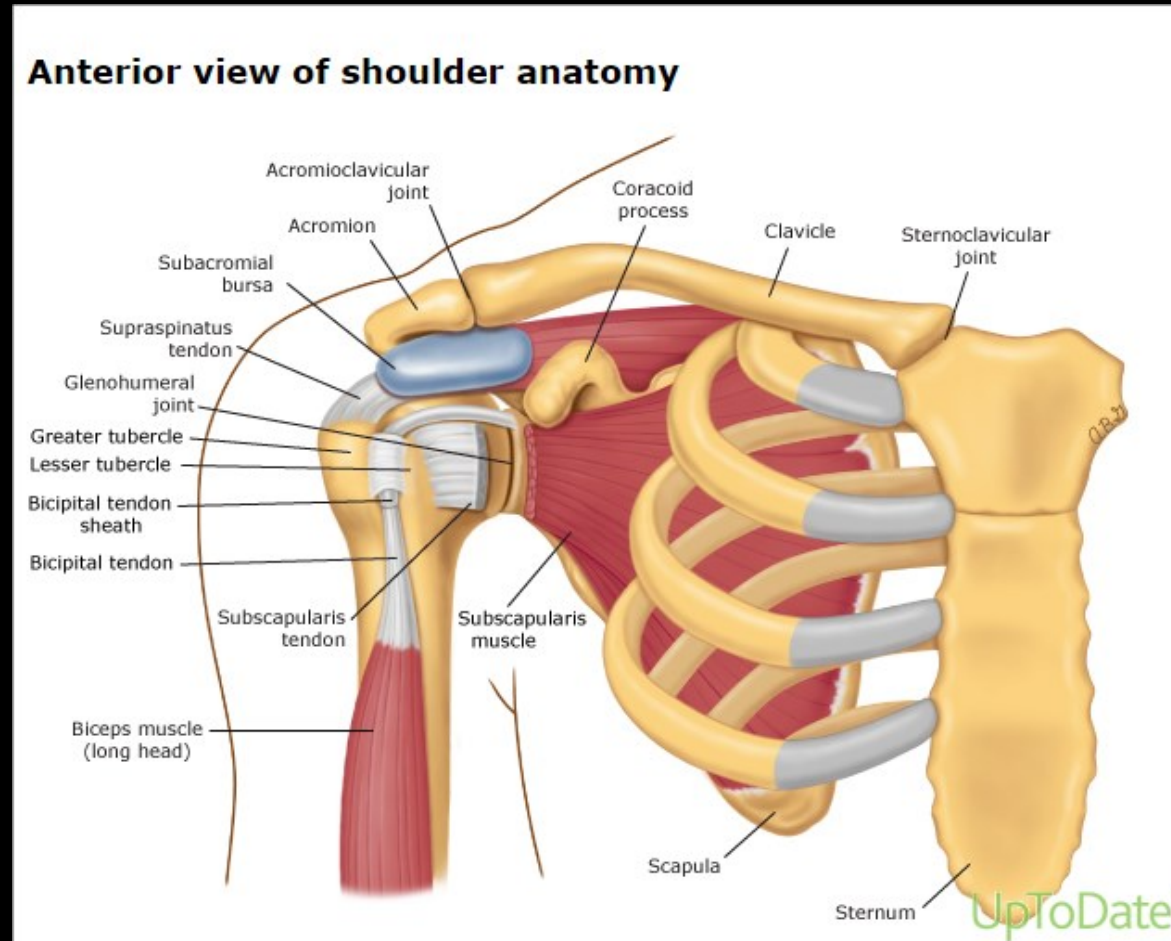
- Secondary to his traumatic anterior shoulder dislocation:
 - Rotator cuff tear
 - Partial-thickness bursal-sided tear of supraspinatus
 - Intra-articular gadolinium contrast extravasation in the subacromial subdeltoid bursa likely indicates a full-thickness perforation
 - Hill-Sachs deformity
 - Bankart fracture

Case Discussion

- **Overview:** Anterior dislocations occur when there is complete anterior displacement of the humeral head out of the glenoid
- **Epidemiology:** Anterior dislocations account for 95% of shoulder dislocations. Most common mechanisms of injury are due to falls and athletic activities
- **Symptoms:** Pain, deformity, immobility, feelings of instability
- **Physical exam:** Arm held in abduction and externally rotated, loss of normal rounded appearance of shoulder

Case Discussion

- Anatomy



Case Discussion

- **Associated injuries:**

- Osseus injuries

- Hill-Sachs impaction fracture: Superolateral humeral head hits the anteroinferior glenoid, causing an impaction fracture of the humeral head
 - Bankart fracture: Anteroinferior glenoid fracture caused by the same mechanism

- Soft Tissue injuries

- Capsulolabral injuries to anteroinferior labrum: “Bankart lesions;” more common in younger patients
 - Rotator cuff tear: More common in older patients. Supraspinatus is most commonly injured, causes difficulty with initial abduction of arm

- Axillary nerve injury: Uncommon, neuropathic pain or reduced sensation over lateral shoulder

Case Discussion

- **Management:**

- Follow up with orthopedic surgery
- Both Bankart fractures and Hill-Sachs lesions are indications for orthopedic referral for possible operative treatment, especially if bony defect is greater than 20%.
- Patients with full-thickness rotator cuff tears greater than 1.5cm, or those with significant retraction will require surgery

References:

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