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
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

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness Category</th>
<th>Relative Radiation Level</th>
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</thead>
<tbody>
<tr>
<td>MR arthrography shoulder</td>
<td>Usually Appropriate</td>
<td>O</td>
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<tr>
<td>MRI shoulder without IV contrast</td>
<td>Usually Appropriate</td>
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<tr>
<td>CT arthrography shoulder</td>
<td>May Be Appropriate</td>
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<tr>
<td>CT shoulder without IV contrast</td>
<td>May Be Appropriate</td>
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<tr>
<td>CT shoulder with IV contrast</td>
<td>Usually Not Appropriate</td>
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<td>CT shoulder without and with IV contrast</td>
<td>Usually Not Appropriate</td>
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<tr>
<td>FDG-PET/CT skull base to mid-thigh</td>
<td>Usually Not Appropriate</td>
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<tr>
<td>MRI shoulder without and with IV contrast</td>
<td>Usually Not Appropriate</td>
<td>O</td>
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<tr>
<td>Bone scan shoulder</td>
<td>Usually Not Appropriate</td>
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<tr>
<td>US shoulder</td>
<td>Usually Not Appropriate</td>
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</table>

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
Findings (unlabeled)

Shoulder Arthrography 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)

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

Normal arthrogram

https://radiopaedia.org/cases/shoulder-arthrogram?lang=us
Findings (unlabeled)
Findings: (labeled)

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:


