Miscellaneous Shoulder Pathology

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Fundamentals of Musculoskeletal Ultrasound are copyrighted by Elsevier Inc.

Miscellaneous Pathology:
- Acromioclavicular joint
- Labrum
- Pectoralis major
- Bone
- Lipoma

Acromioclavicular Joint:
- Osteoarthrosis: common by age 40
  - Thick capsule > 2 mm
  - Narrow, irregular, osteophytes
- Trauma:
  - Wide, possible subluxation
  - Thick capsule >2 mm
- Cyst versus geyser sign
  - Geyser: joint fluid tracking through ACJ via full-thickness rotator cuff tear

AC joint: subluxation

Osteoarthrosis
Prior Trauma
Post-traumatic Osteolysis of the Clavicle

Large Full-thickness Tear: geyser sign

Long Axis Coronal T1w

Metastasis: clavicle

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Glenoid Labrum:
- Hyperechoic
- Some areas difficult to visualize
- Hypoechoic cleft: tear
- Diffuse hypoechoic: degeneration
- Consider MRI to confirm

Labrum: normal

Axial
Suprascapular Notch and Superior Labrum

Coronal Plane

Posterior Labral Tear

Axial

Axial T1w post-gado

Posterior Labral Tear and Cyst

Axial

Axial T1w post-gado

Pitfall: suprascapular vein dilation

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Pectoralis Major
- Clavicular head:
  - Forms anterior layer
- Sternal head:
  - Forms posterior layer and inferior aspect of anterior layer
- Each layer: 2 mm thick
- "U" shaped
- Fuses 11 mm proximal to insertion
**Pectoralis Major**

- S = sternal head; C = clavicular head; D = deltoid; B = bicep brachii
- From: Chiavaras et al. Skeletal Radiol 2015; 44:157

**Pectoralis Major: ultrasound**

- Begin short axis over bicipital groove
- Identify bicep brachii long head
- Scan inferior to identify pectoralis major tendon superficial to biceps tendon
  - Curved arrow = anterior layer
  - Straight arrow = posterior layer
  - S = sternal head
  - C = clavicular head
  - B = biceps brachii long head
  - H = humerus
  - (Right side of image = lateral)

**Pectoralis Major: short axis (sagittal plane)**

- S = sternal and C = clavicular heads; Arrowheads: sternal head tendons
  - Curved arrow = anterior layer; Straight arrow = posterior layer

**Pectoralis Major: ultrasound**

- Distal tendon: short axis (sagittal)
- Fused anterior and posterior layers
- Identified over biceps brachii tendon
  - Arrowheads: fused anterior and posterior layers
  - B = biceps brachii long head
  - H = humerus
  - (Right side of image = inferior)

**Case 3: partial-thickness, full-width sternal head tear (surgically created)**

- Curved arrow = torn sternal head (S); Arrow = posterior layer
  - * = short head biceps brachii + coracobrachialis
  - M = pectoralis minor; D = deltoid

**Case 3: partial-thickness, full-width sternal head tear (surgically created)**

- Curved arrow = torn sternal head (S); Arrow = posterior layer
  - * = short head biceps brachii + coracobrachialis
  - M = pectoralis minor; D = deltoid; H = humerus
Case 5: partial-thickness, full-width sternal head tear (arrow)

Note: intact fused anterior and posterior layers (open arrows)

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Greater Tuberosity Fracture:
- Cortical step-off
- Point tenderness
- Differentiate from osteophyte
- Correlate with radiographs

Fracture: greater tuberosity

Long Axis

Short Axis

Metastasis: humerus

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Patten et al. Radiology 1992; 182:201
Lipoma: subcutaneous
- Oval or oblong
- Homogeneous
- Isoechoic to adjacent fat
- Hyperechoic:
  - With increased fibrous tissue components
- No internal vascularity
- Compressible
Inampudi et al. Radiology 2004; 233:763

Lipoma: deep
- Variable echogenicity
- Often ill-defined
- Often difficult to assess
- Cannot reliably differentiate from low-grade liposarcoma!
- Need MRI
Paunipager et al. Insights Imaging 2010; 1:149

Liposarcoma: well-differentiated
- Hypoechoic
- Looks like a lipoma
- Need MRI with any suspected deep lipoma!

Take Home Points
- AC joint: cyst versus geyser
- Labrum: limited, posterior paralabral cyst
- Greater tuberosity: plate-like step off
- Pectoralis: sagittal imaging
- Lipoma: only if superficial
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