Zebras in the Shoulder

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Pathology
• Bursa
• Trauma
• Abscess
• Tumors

Shoulder Joint Recesses
• Long head biceps tendon sheath
• Posterior recess:
  – Image with shoulder in external rotation
• Axillary recess
• Subscapularis recess

Subacromial-subdeltoid bursa (SASD) vs. subscapularis recess (SSR) vs. subcoracoid bursa (SCB)

Subscapularis Recess

*Note redistribution of joint fluid with internal and external shoulder rotation
Subcoracoid Bursa:

- Located anterior to subscapularis under coracoid
- Unlike subscapularis recess
  - Does not communicate with joint
  - Does not change with internal-external rotation
  - Does not have an inverted "U-shape" over subscapularis

*Invest Radiol 1985;20:311

Subacromial-subdeltoid Bursa:

- Normal:
  - Thin hypoechoic layer: fluid, synovium
  - Hyperechoic: bursal walls and peribursal fat
- Abnormal: >1 mm thick*
  - Fluid: anechoic
  - Synovial tissue: hypoechoic to hyperechoic

*Invest Radiol 1985;20:311
Calcific Bursitis

Calcific Bursitis: impingement

Pathology
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Calcific Bursitis: treatment

Fracture: humeral diaphysis

Sternoclavicular Joint: dislocation

Contralateral Side
Pathology
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Soft Tissue Abscess
- Anechoic or hypoechoic
- Less likely isoechoic or hyperechoic
- Posterior acoustic enhancement
- Swirling of contents with transducer pressure
- Hyperemia

AJR 1996; 166:149

Abscess: shoulder
- Transverse
- Longitudinal

Abscess: deltoid muscle

Abscess: isoechoic

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**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

**Lipomas**

**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!

**Lymph Node: normal**
- Oval or round
- Echogenic hilum:
  - Due to reflective interfaces, sinuses
  - Not from fat
  - May be absent in normal nodes

Radiology 1992; 183:215
**Axillary Lymph Node: abnormal**

- Enlarged: > 10 mm
- <10 mm + asymmetric cortical thickening
- With breast cancer:
  - ✓ 10% risk metastatic disease if < 5 mm
  - ✓ 20% if 5 – 20 mm
  - ✓ 40% if > 20 mm

**Lymph Node: benign vs. malignant**

- Malignant:
  - Round (not oval)
  - Cortical thickening
  - Hilar narrowing or absence
  - Non-hilar blood flow (peripheral, mixed)

**Reactive Hyperplasia: axillary**

**B cell Lymphoma: axillary**

**Exostosis: humeral diaphysis**

**Metastasis: acromion**
Metastasis: clavicle

Clavicle

Metastasis: humerus

Take-home Points

- Bursa: consider uncommon etiologies
- Abscess: may be isoechoic
- Trauma: scanning site directed by patient
- Tumors:
  - Lymph node: round, unusual vascularity = malignant
  - Superficial lipoma: superficial, oval, avascular
  - Deep lipoma: get MRI

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