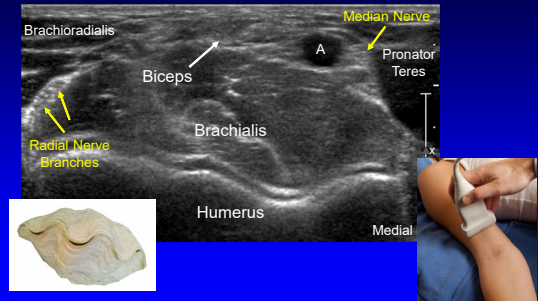


Elbow Ultrasound: Anatomy and Scanning Technique

Jon A. Jacobson, MD
 FACR, FSRU, FAIM, RMSK
 Musculoskeletal Radiologist
 Lenox Hill Radiology, NYC

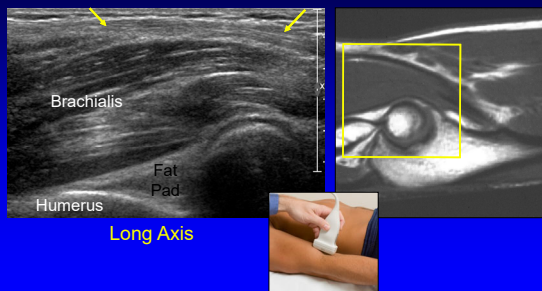
1

Anterior Elbow: transverse



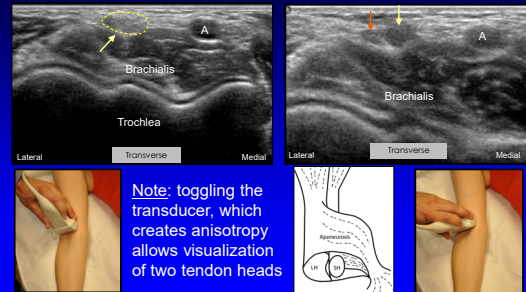
2

Biceps, Brachialis, and Anterior Recess



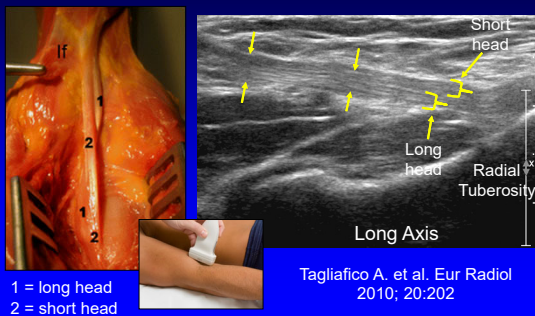
3

Biceps Brachii: terminal bifurcation



4

Biceps Brachii Tendon: distal

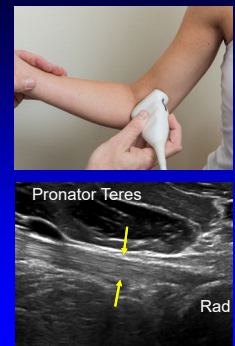


5

Biceps Tendon

- Medial approach
- "Pronator window"
- Transducer:
 - Distal aspect over medial epicondyle
 - Parallel to humerus
 - Slide transducer anterior

Smith J. et al. J Ultrasound Med 2010; 29:861



6

Biceps Brachii Tendon: lateral approach



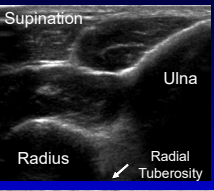
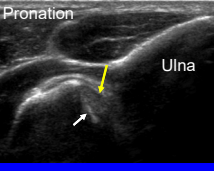



Long Axis: dynamic imaging
Kalume Brigido M. Eur Radiol 2009 ; 19:1817

7

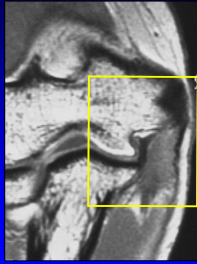
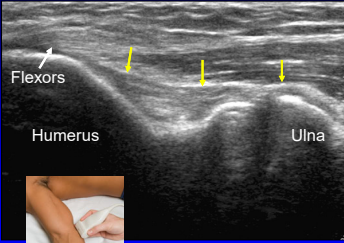

Biceps Tendon

- Flexion, pronation view
- Transverse: between radius and ulna
- Radial tuberosity rotated into view
- Limited diagnostic value
- Ideal biceps tendon injection

8


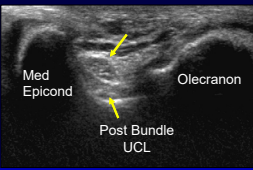
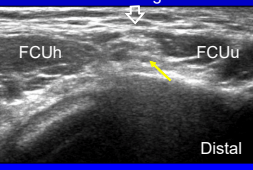
UCL and Common Flexor Tendon

Coronal

9



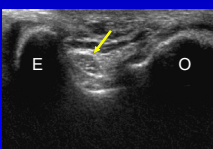
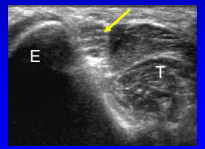
Technique: cubital tunnel

Med Epicond, Olecranon, Post Bundle UCL, Arcuate Ligament, FCUh, FCUu, Distal

10

Technique: ulnar nerve subluxation

Transverse

11

Technique: lateral

elbow partially flexed

- Common extensor tendon
- Radial collateral ligament
- Radial head & annular recess
- Capitellum



12

Lateral Collateral Ligament Complex

- Radial collateral ligament (arrows)
- Common extensor tendon (E)
- Annular ligament (arrowhead)
- Lateral ulnar collateral ligament (curved arrow)

Jacobson J. et al. J Ultrasound Medicine 2013; 33:1041

13

Lateral Collateral Ligament Complex

- Common extensor tendon (curved arrows)
- Radial collateral ligament (arrowheads)
- Annular ligament (a)

Jacobson J. et al. J Ultrasound Medicine 2013; 33:1041

Common Extensor Tendon Removed

14

Lateral Ulnar Collateral Ligament (LUCL)

Radial Head Ulna

Long Axis

*LUCL attaches at crista supinator of ulna

15

Radial Nerve

Trv: humerus

Trv: brachiorad

Trv: bifurcation

Longitudinal

16

Radial Nerve: deep branch

- As it enters into supinator under Arcade of Frohse
- Normally flattens in AP dimension: 50%
- Cross-sectional area does not change

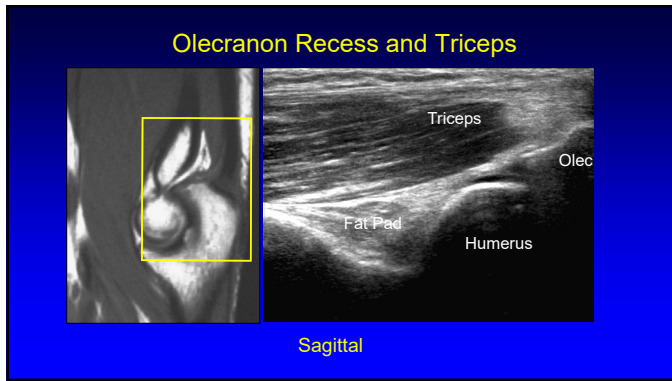
Dong Q. et al. J Ultrasound Med 2010; 29:691

17

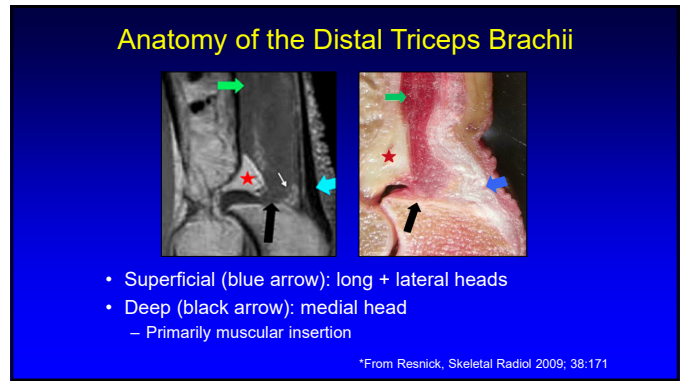
Technique: posterior elbow flexed

- Olecranon recess
- Triceps brachii
- Olecranon bursa

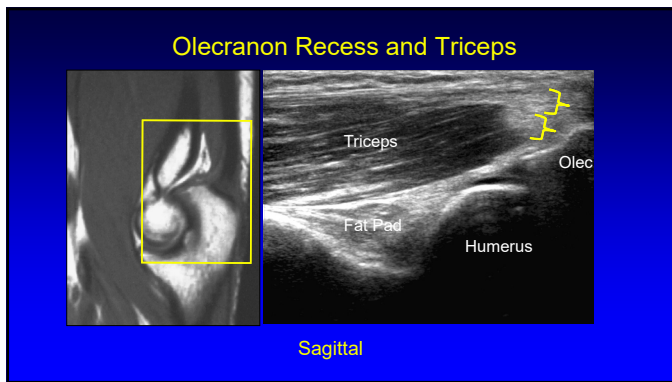
18



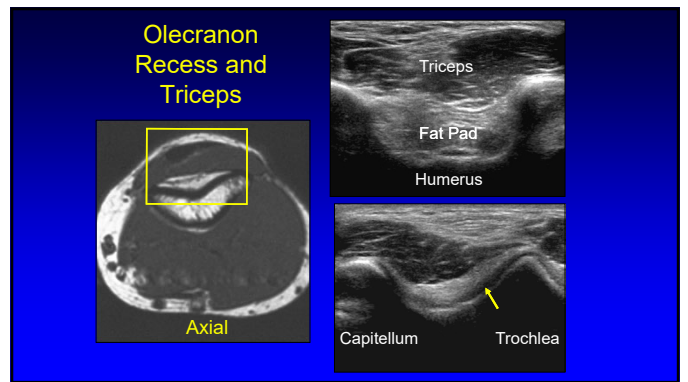
19



20



21



22

- ### Take-home Points:
- Follow a scanning protocol
 - Do not focus exam too much
 - Use bone landmarks:
 - Orientation
 - Where tendon abnormalities occur
 - Biceps scanning technique

23

Thank you!

Syllabus on line and other educational material:
www.jacobsonmskus.com

Twitter handle: @jjacobsn

24