

AMSER Case of the Month

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42-year-old female with palpable masses on left arm

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Patient Presentation

- HPI- 42 year old female presented with a one month history of painless lumps to the left elbow and associated paresthesia of the left 4th and 5th digit.
- No fever or history of trauma
- No significant past medical or surgical history
- PE- There are two distinct roughly 1 cm soft tissue masses at the medial aspect of the left elbow.

What Imaging Should We Order?

Select the applicable ACR Appropriateness Criteria

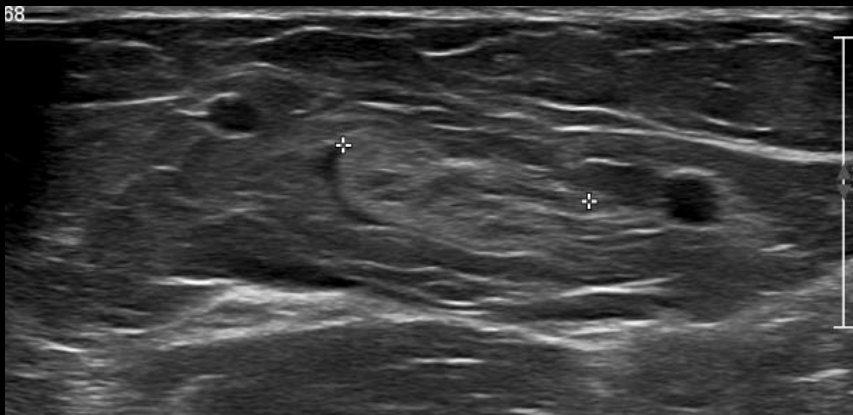
Variant 1: **Soft-tissue mass. Superficial or palpable. Initial imaging study.**

Procedure	Appropriateness Category	Relative Radiation Level
X-ray area of interest	Usually Appropriate	Varies
US area of interest	Usually Appropriate	0
MRI area of interest without IV contrast	May Be Appropriate (Disagreement)	0
CT area of interest with IV contrast	Usually Not Appropriate	Varies
CT area of interest without and with IV contrast	Usually Not Appropriate	Varies
CT area of interest without IV contrast	Usually Not Appropriate	Varies
FDG-PET/CT area of interest	Usually Not Appropriate	⊕⊕⊕⊕
MRI area of interest without and with IV contrast	Usually Not Appropriate	0

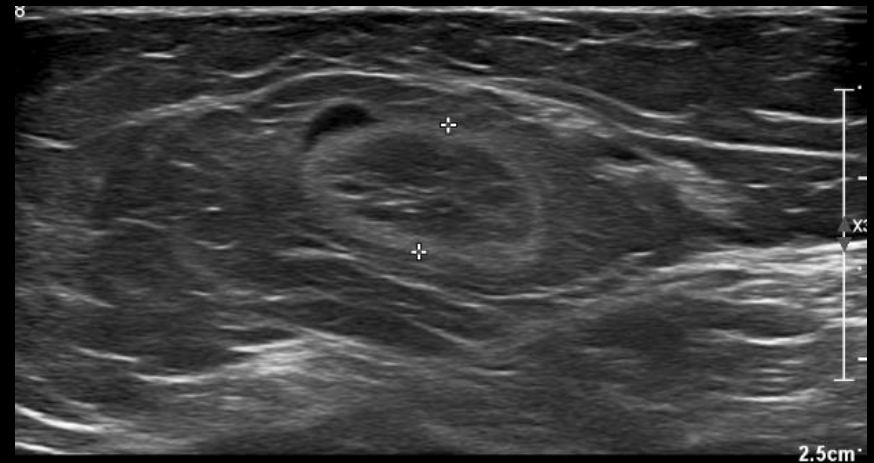
This imaging modality was ordered first



Ultrasound

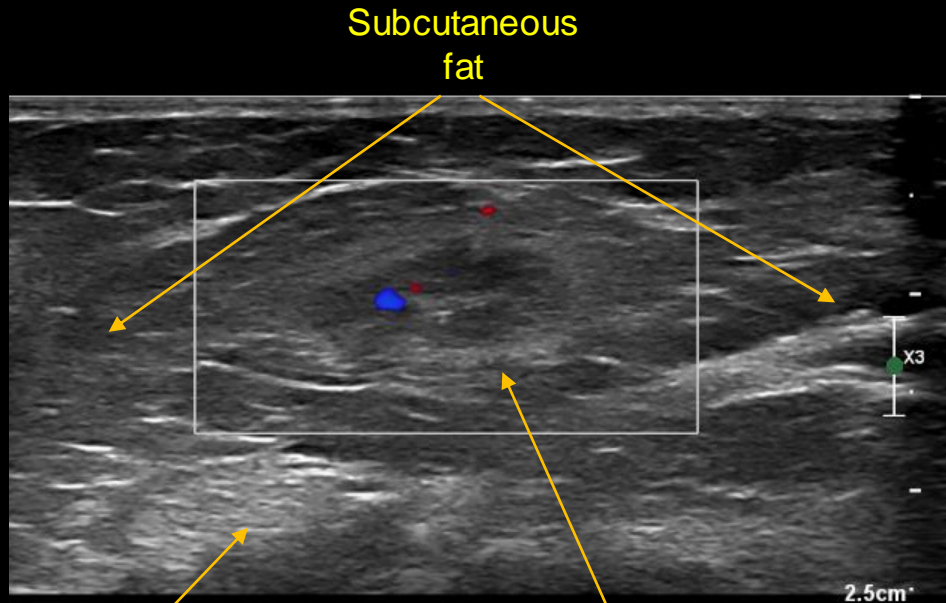


US superior mass left medial elbow



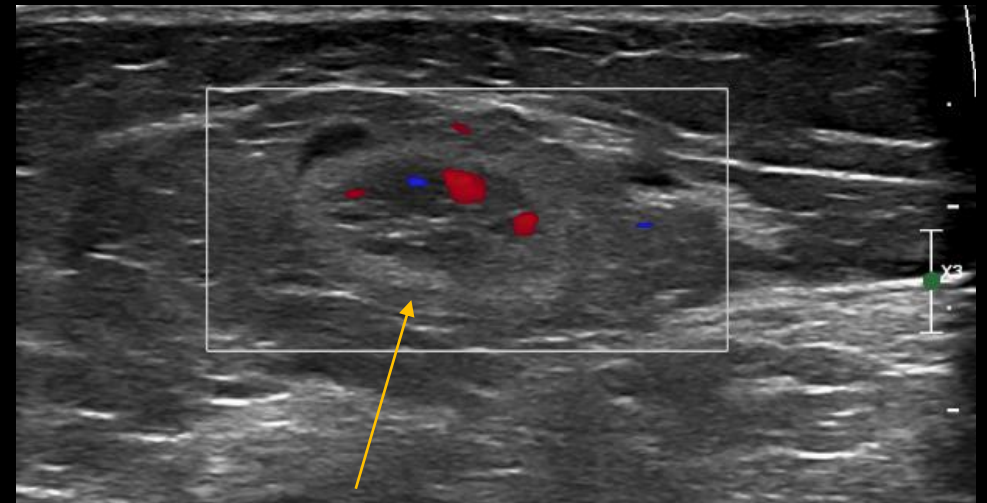
US inferior mass left medial elbow

Ultrasound (labeled)



Muscle

Superior echogenic focus at the medial aspect of the left elbow measuring 1.4 x 0.6 x 1.4 cm. That is homogeneously hyperechoic but does have some internal areas of decreased echogenicity.



Inferior echogenic focus at the medial aspect of the elbow measuring 1.7 x 0.7 x 1.4 cm with central hypoechogenicity with internal color Doppler flow.

Ultrasound findings are inconclusive and
atypical for lipoma

What Imaging Should We Order Next?

Select the applicable ACR Appropriateness Criteria

Variant 3:

Soft-tissue mass. Nondiagnostic initial evaluation (ultrasound and/or radiograph). Next imaging study.

Procedure	Appropriateness Category	Relative Radiation Level
MRI area of interest without and with IV contrast	Usually Appropriate	0
MRI area of interest without IV contrast	Usually Appropriate	0
CT area of interest with IV contrast	May Be Appropriate (Disagreement)	Varies
CT area of interest without IV contrast	May Be Appropriate	Varies
CT area of interest without and with IV contrast	Usually Not Appropriate	Varies
FDG-PET/CT area of interest	Usually Not Appropriate	⊗⊗⊗⊗

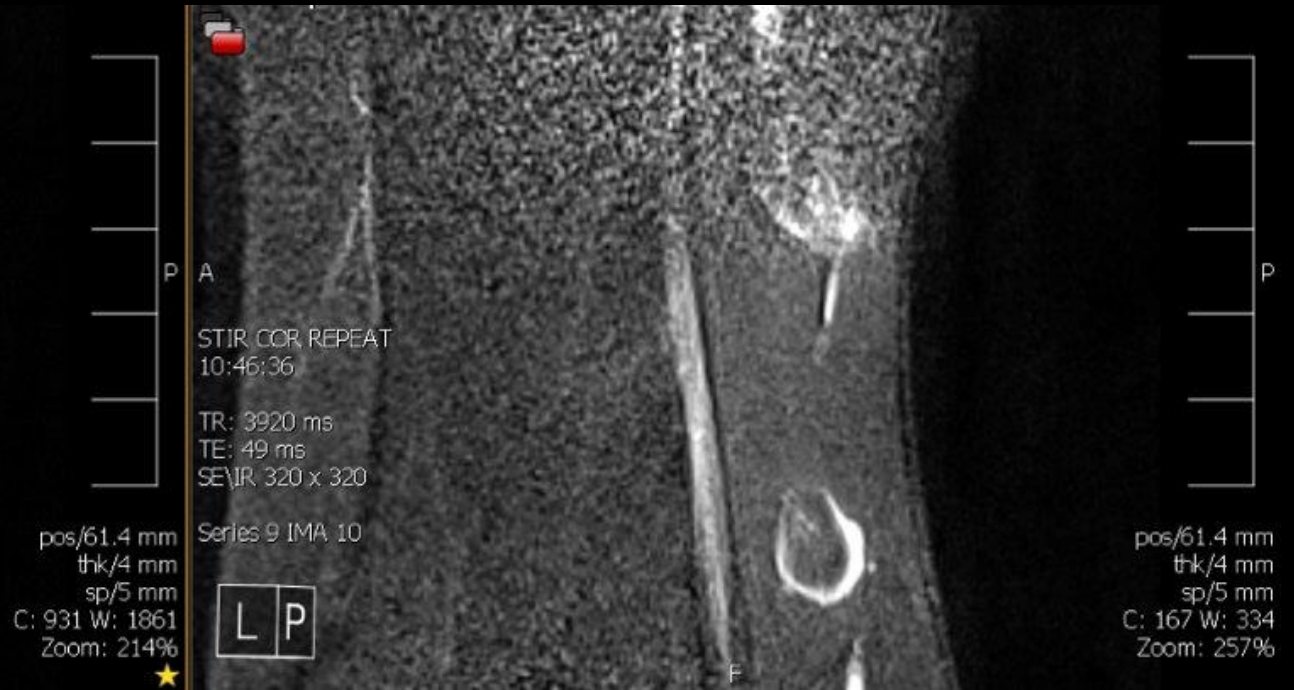
This imaging modality was ordered next



MRI Humerus



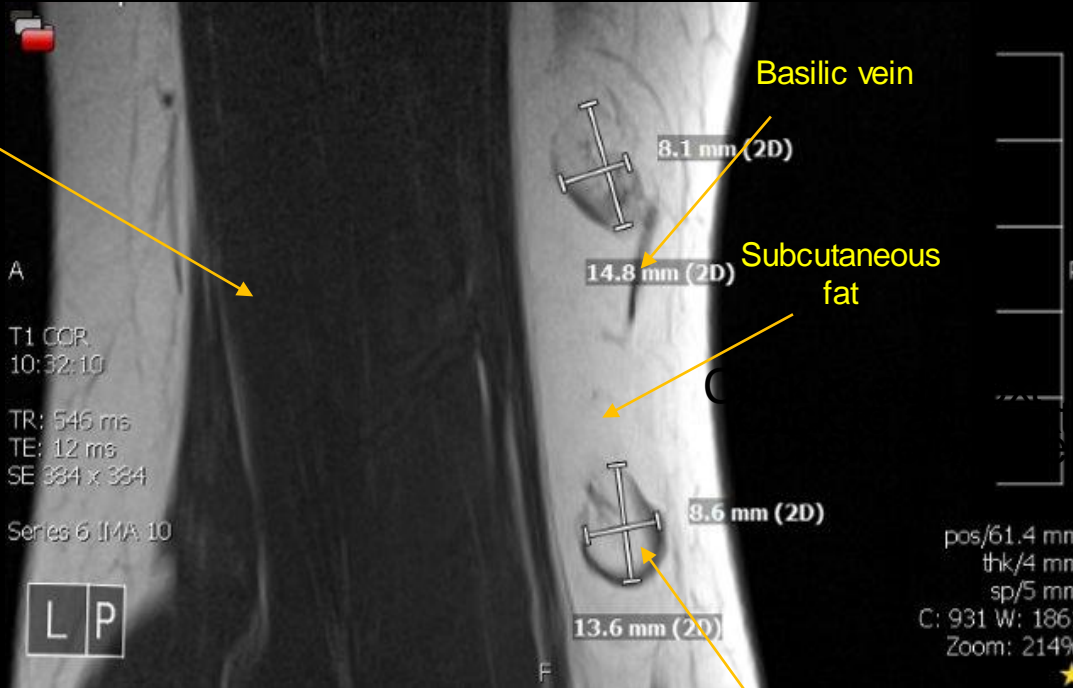
T1 Coronal



STIR Coronal

MRI Humerus (labeled)

Biceps brachii



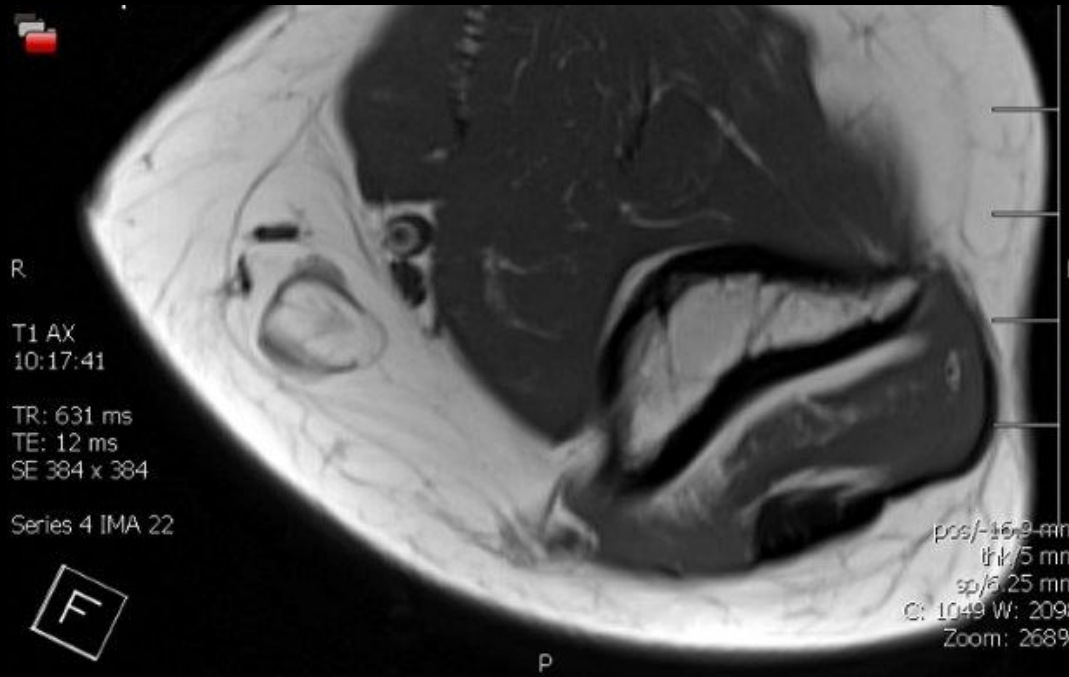
T1 Coronal



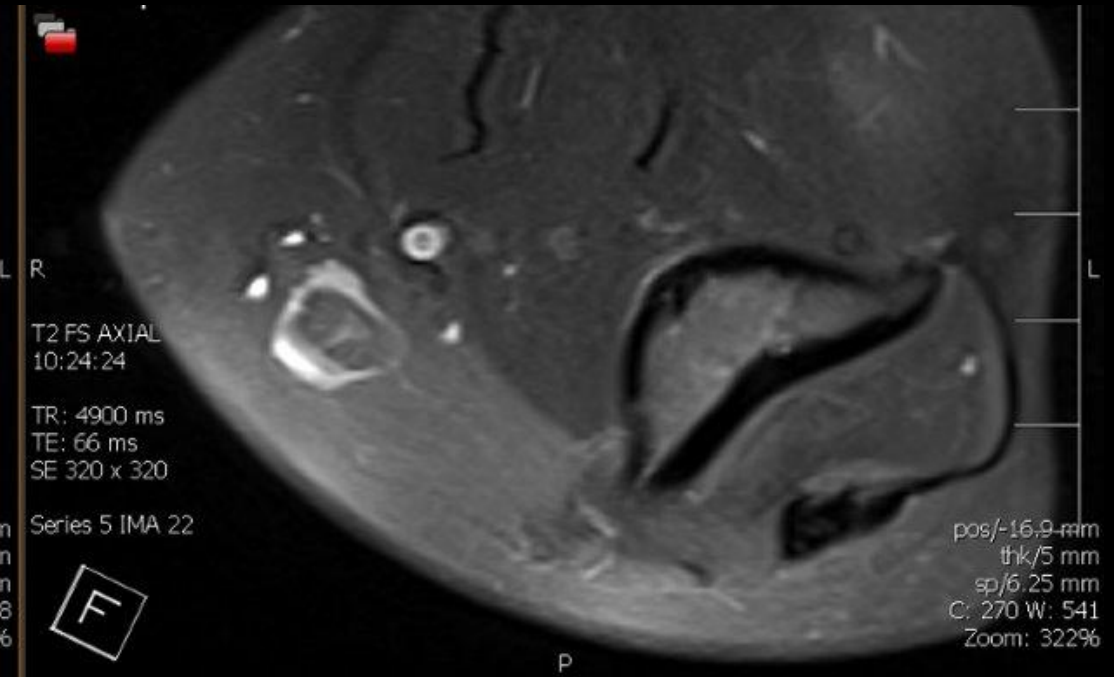
STIR Coronal

Epitrochlear lymph nodes normal in appearance with thin cortex, reniform morphology and preserved fatty hila

MRI



T1 Axial



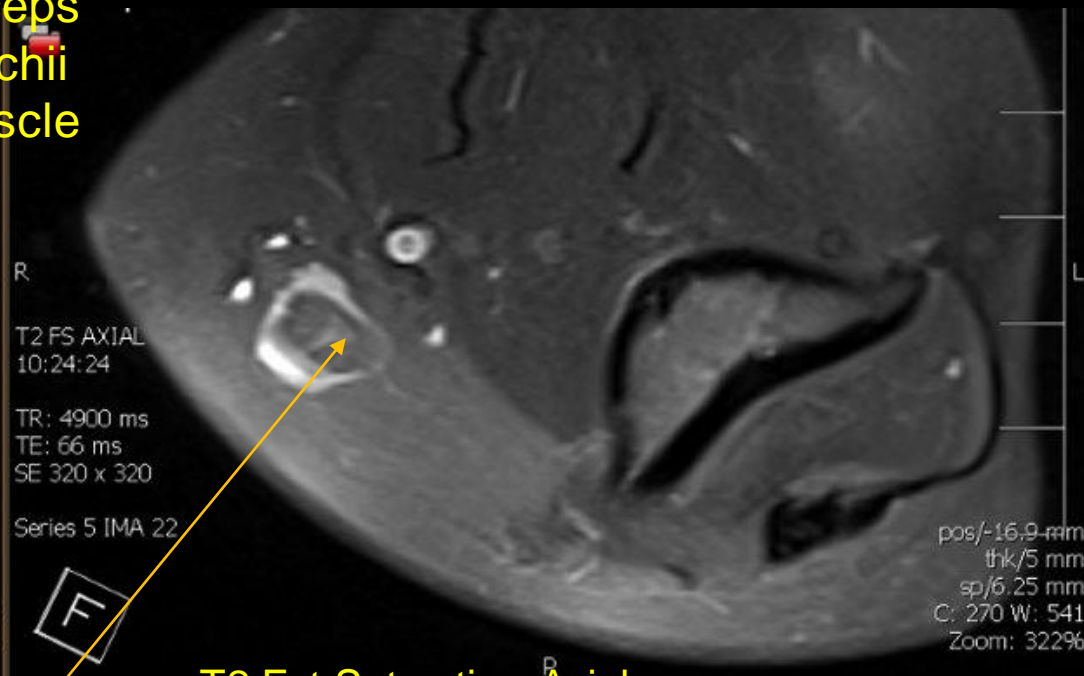
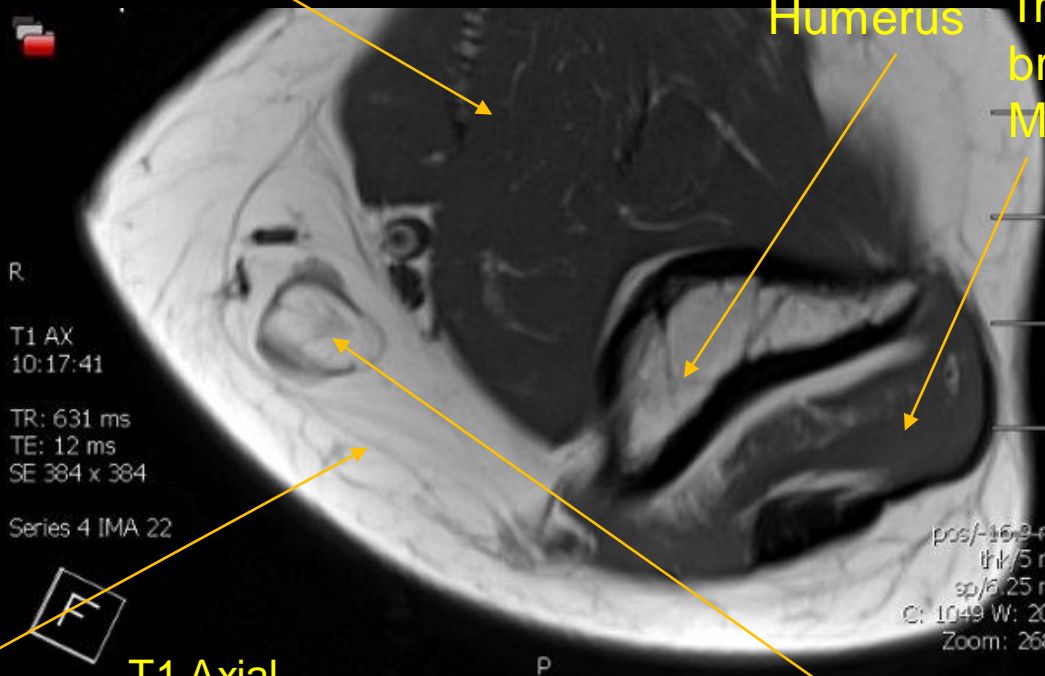
T2 Fat Saturation Axial

MRI

Biceps
brachii
Muscle

Humerus

Triceps
brachii
Muscle



Subcutaneous
fat

T1 Axial

T2 Fat Saturation Axial

Epitrochlear lymph
node

Final Dx:

Epitrochlear lymph nodes of normal morphology

Epitrochlear lymph node

- This case illustrates how normal anatomy can sometimes raise suspicion for pathology.
- Clinicians are occasionally unfamiliar with the distribution of epitrochlear lymph nodes.
- Normal epitrochlear lymph nodes
 - Typically located in the subcutaneous tissue on medial elbow a few cm above the humeral epitrochlea (medial epicondyle).
 - There are most commonly 2 epitrochlear nodes but anywhere from 1-4 may be present
 - Typically drain lymph from 4th and 5th digits and medial aspect of hand

DDx palpable mass medial elbow

- Consider nodal and extranodal causes
- Nodal causes
 - Lymphadenitis (skin infection, tuberculous, sarcoid)
 - Lymphoma
 - Metastatic lymphadenopathy (melanoma most common)
- Extranodal causes
 - Tumors (median nerve tumors, fibromas, hemangiomas, lipomas)
 - Sebaceous cyst
 - Abscess

Lymph node imaging characteristics

- Important distinguishing features:
 - Size (longitudinal and transverse diameters)
 - Shape
 - Borders (Sharp or ill defined)
 - Appearance of hilum
 - Thickness and structure of cortex)
- On US lymph nodes have large central hyperechogenicity and a thin hypoechoic cortex with hilar type vascularization
- MRI can provide additional information on node morphology, intensity changes, and contrast enhancement.

References:

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- Torabi M., Aquino SL., Harisinghani, MG. Current Concepts in Lymph Node Imaging . *J Nucl Med*. 2004; 45:1509–1518