ELEVATING AND UNITING SPORTS MEDICINE
DUBLIN | 16-18 OCTOBER, 2025

MSK Ultrasound Workshop: Shoulder Girdle

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Timetable

Time	Activity/Content
10:00-10:30	**Introduction to Diagnostic MSK Ultrasound**
10:30-10:45	**Ultrasound of the shoulder girdle:** Long head of biceps tendon, supraspinatus tendon, infraspinatus tendon, subdeltoid/subacromial bursa
10:45-11:45	**Practical hands-on**
11:45-12:00	**Pathology cases**

Clinical Consensus Guidelines for MSKUS

Table 1 Shoulder: Detailed results for evidence levels and final consensus, a comparison between 2012 and 2017

Clinical indication	Evidence level 2012	Final consensus 2012	Evidence level 2017	Final consensus 2017
Tendons and soft tissue				
Bursitis	C	3	Unchanged	Unchanged
Full thickness cuff tear	A	3	Unchanged	Unchanged
Partial thickness cuff tear	A	2	Unchanged	Unchanged
Rotator cuff muscle atrophy	B	1	Unchanged	Unchanged
Postoperative cuff failure	B	2	Unchanged	Unchanged
Calcific tendonitis	B	3	Unchanged	Unchanged
Long head biceps tendon: rupture	B	3	Unchanged	Unchanged
Long head biceps tendon: dislocation	B	3	Unchanged	Unchanged
Long head biceps tendon: tendinopathy	B	2	Unchanged	Unchanged
Adhesive capsulitis	B	0	Unchanged	1
Pectoralis/deltoid tears	C	2	Unchanged	Unchanged
Septic arthritis	C	3	Unchanged	Unchanged

Sconfienza LM et al. European Radiology (2018) - ESSR

Hip region, bones, and intra-articular structures => average grade 0-1

Types of ultrasound systems

Types of ultrasound probes

Use of high frequency sound waves (2-24 MHz) to image soft tissues and bony structures in the body for the purposes of diagnosing pathology or guiding interventional procedures.

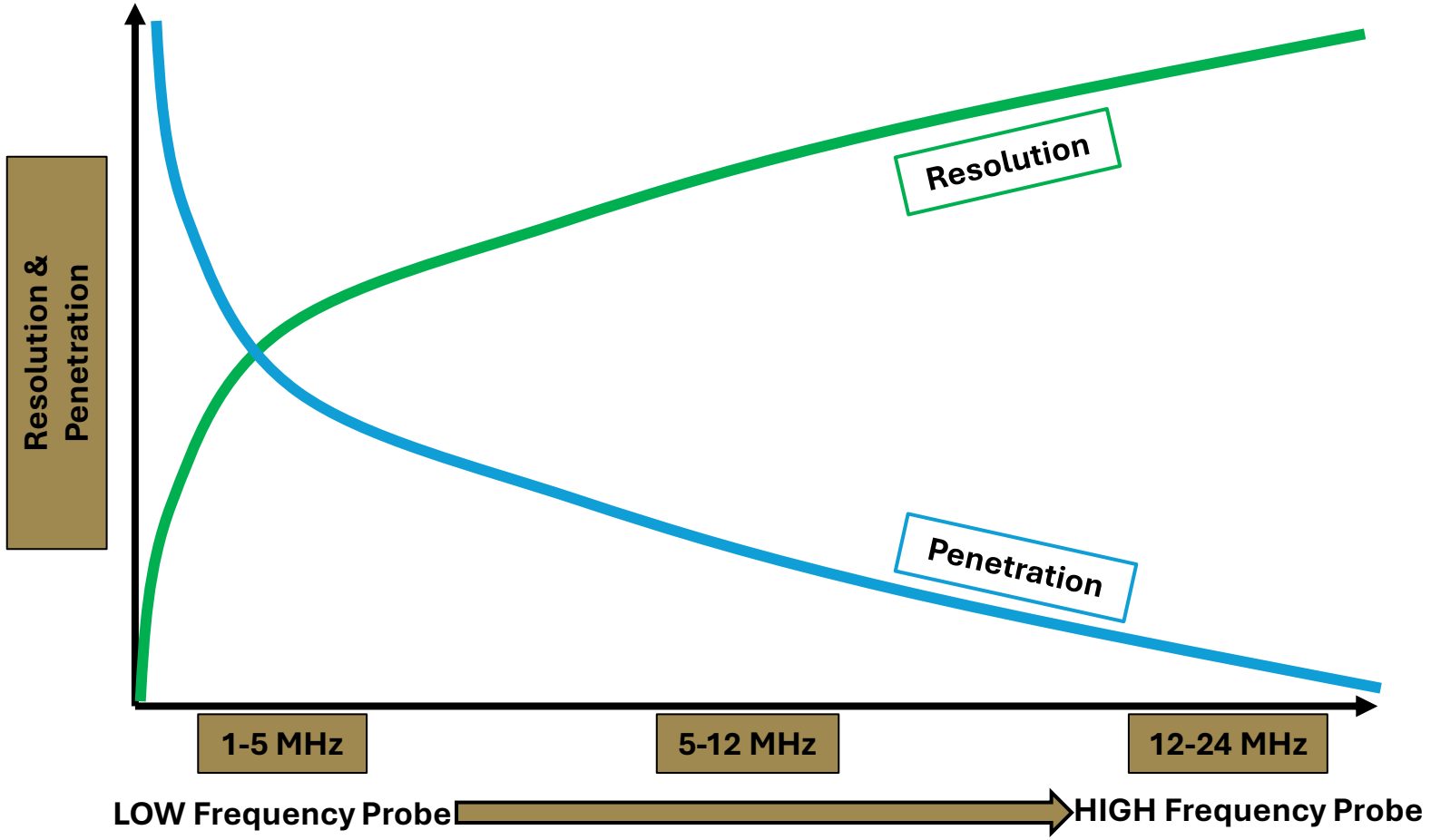
Types of MSK ultrasound probes

Linear probe
Frequency range: 5-24 MHz

Curvilinear probe
Frequency range: 2-8 MHz

Hockey-stick probe
Frequency range: 6-24 MHz

Frequency: Resolution & Penetration



Advantages and Limitations on MSKUS

ADVANTAGES

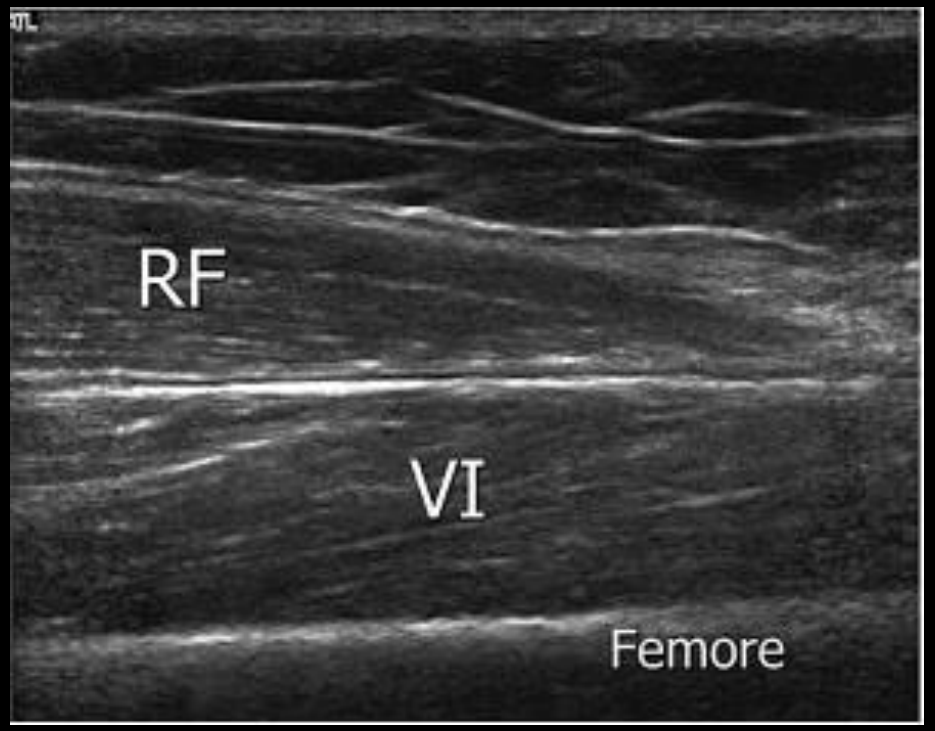
- First choice imaging modality for superficial structures
- Image in real-time = fast
- No radiation to patient or provider
- Exam of contralateral limb for comparison
- Dynamic assessment
- Relatively inexpensive

LIMITATIONS

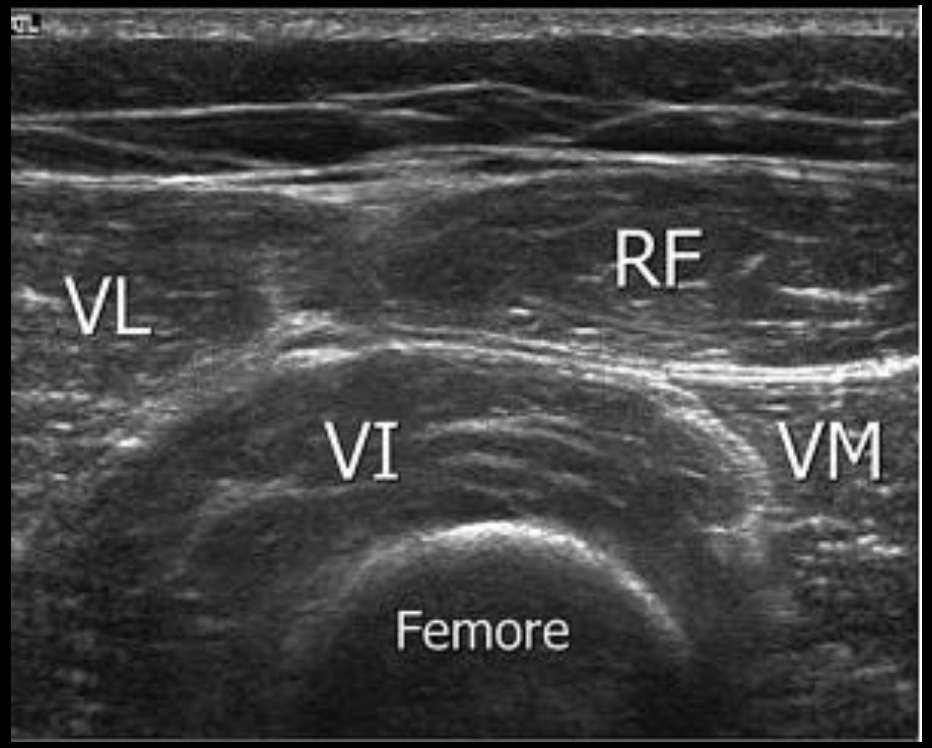
- Limited penetration (Lower resolution at greater depths)
- Unable to penetrate bone
- Operator dependent

Baloch N et al. Int J Surgery (2018)

US Imaging Interpretation – Echogenicity & Planes

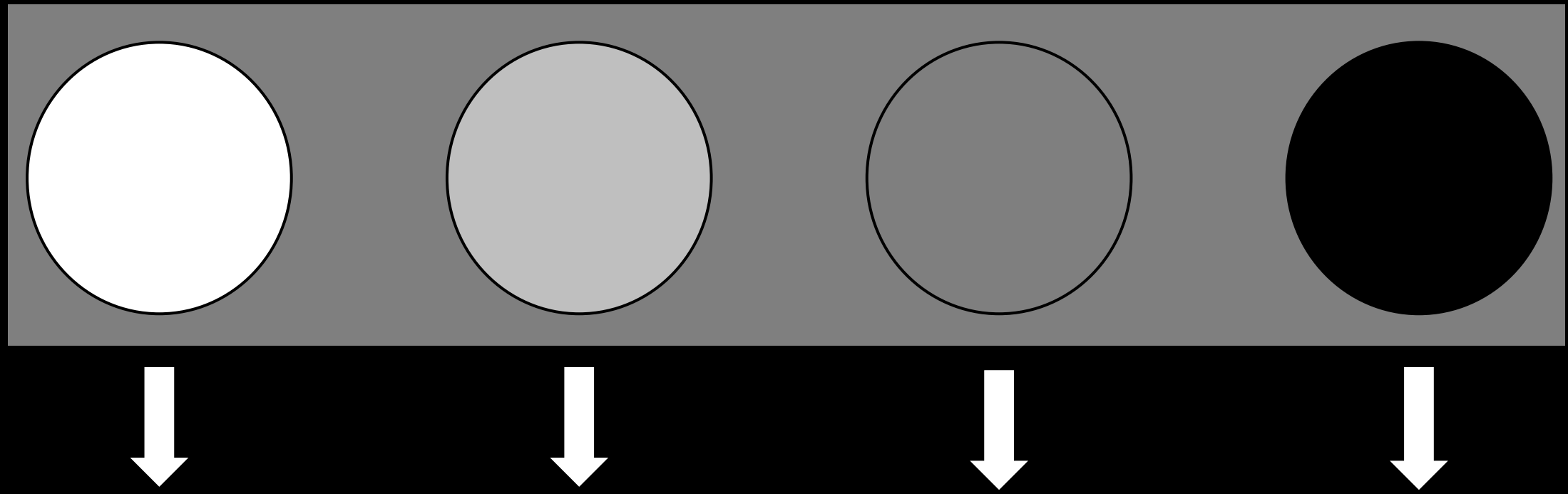


Longitudinal (long axis)



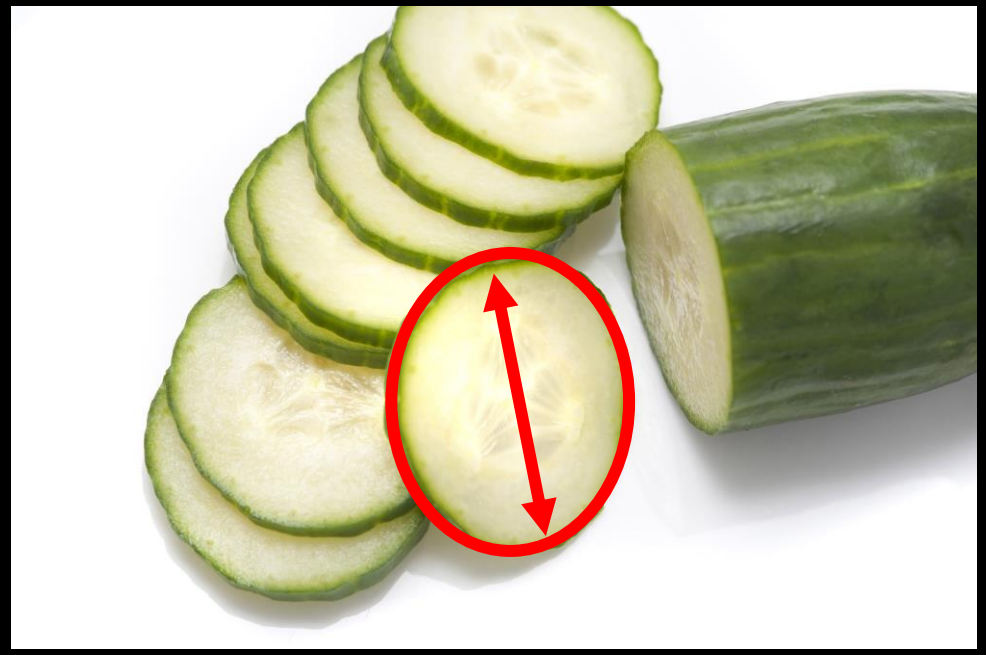
Transverse (short axis)

US Imaging Interpretation – Echogenicity



US Imaging Interpretation – Planes

Longitudinal (long axis)

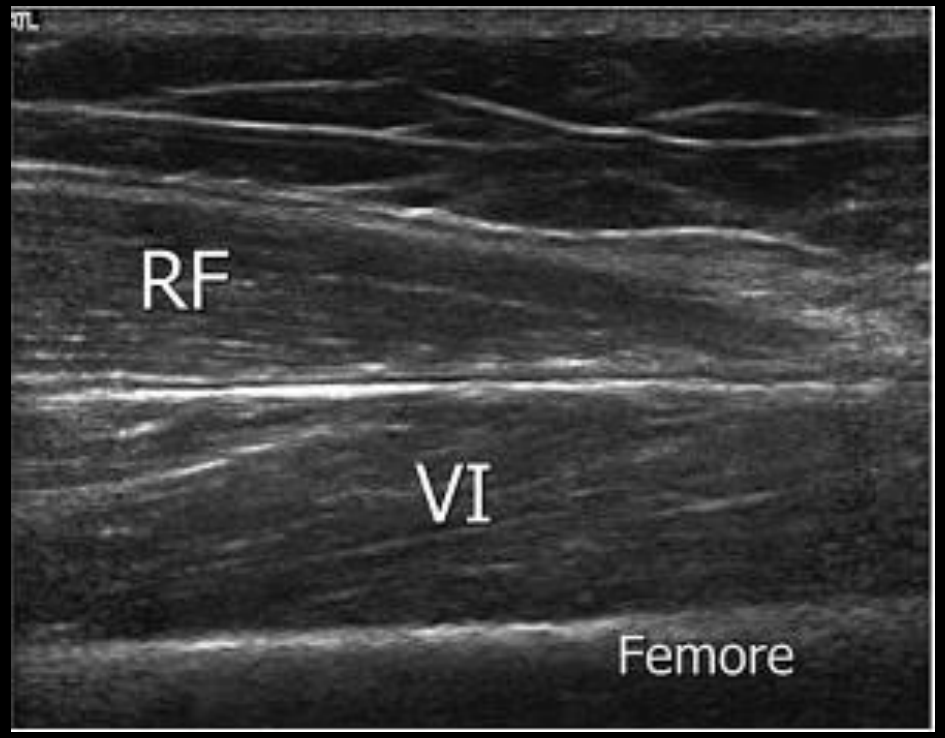


Transverse (short axis)

US Imaging Interpretation – Planes

S

P



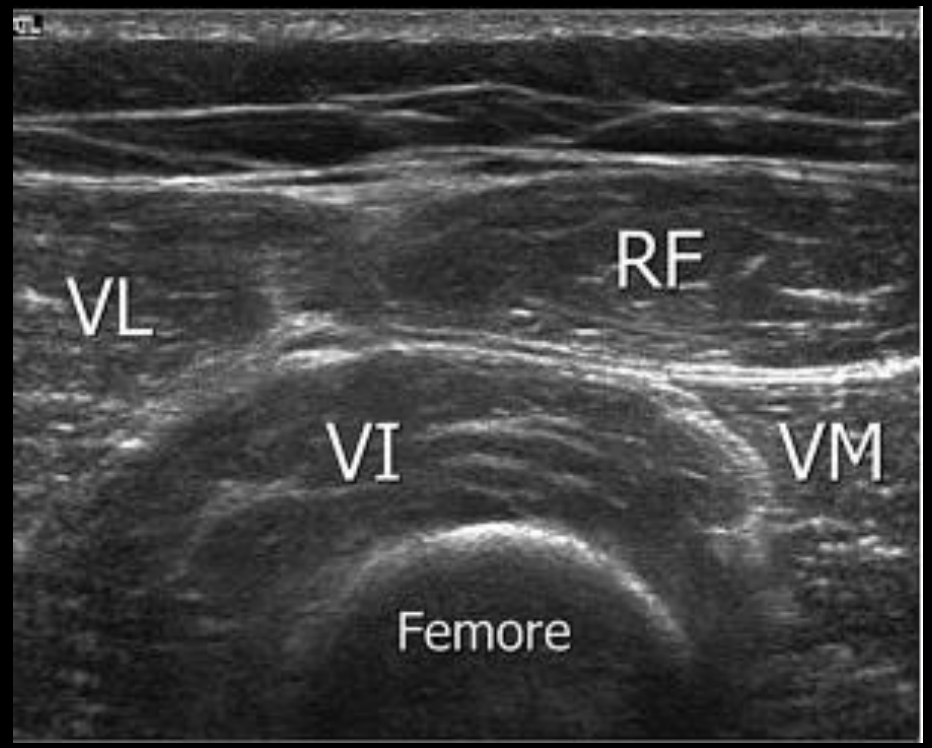
D

D

Longitudinal (long axis)

S

L

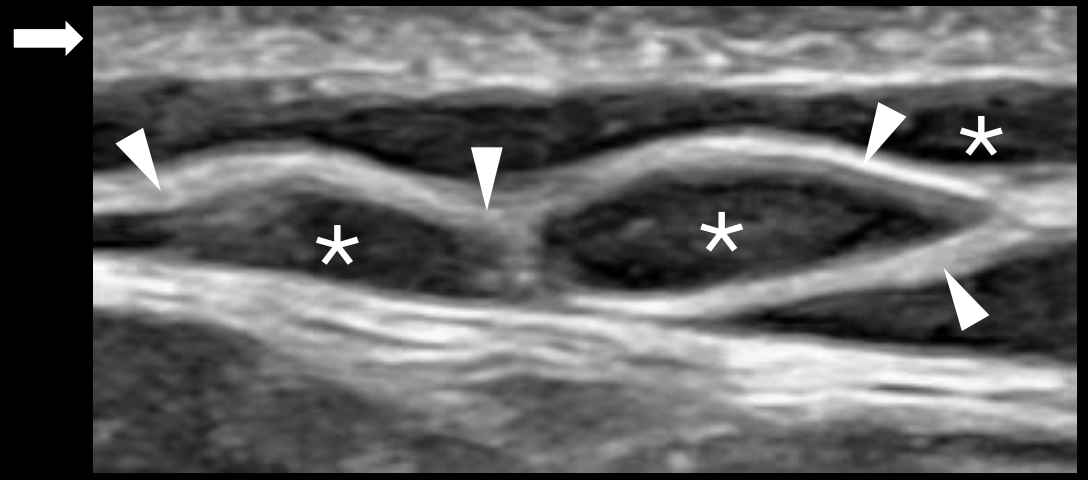


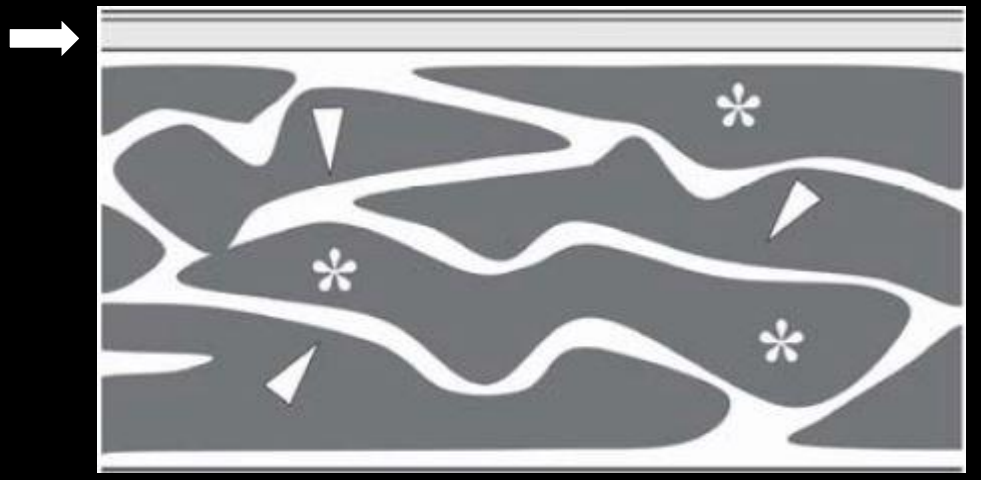
M

D

Transverse (short axis)

US Imaging Interpretation – Skin/Subcutaneous tissue Sonoanatomy

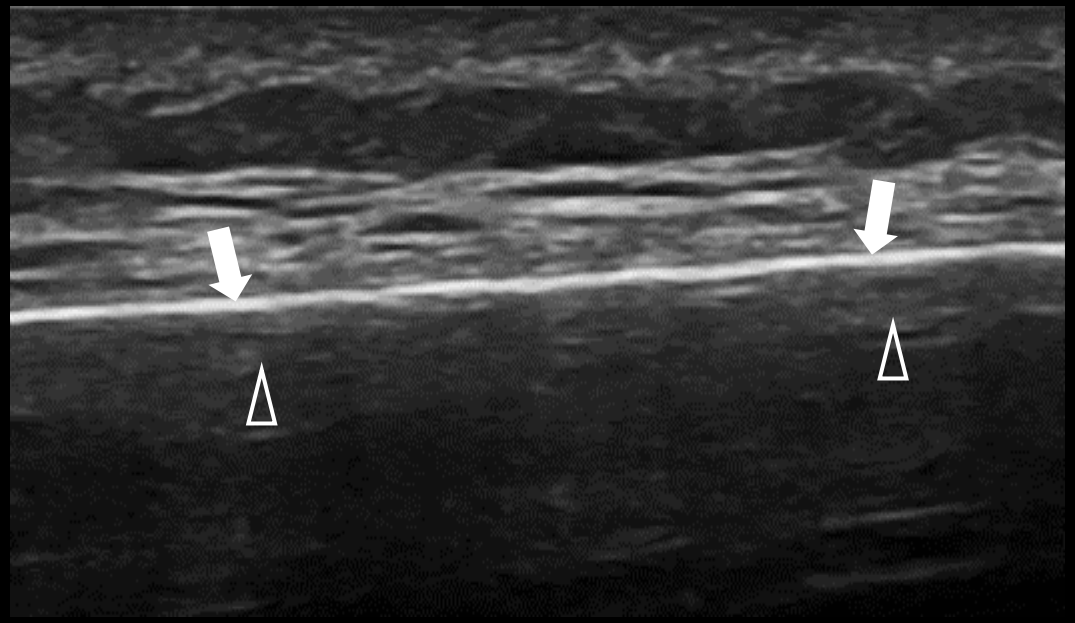




- Epidermis and dermis: homogeneously hyperechoic
- Subcutaneous tissue: hyperechoic strands due to connective septa and hypoechoic fat lobules

US Imaging Interpretation – Bone Sonoanatomy

Longitudinal (long axis)

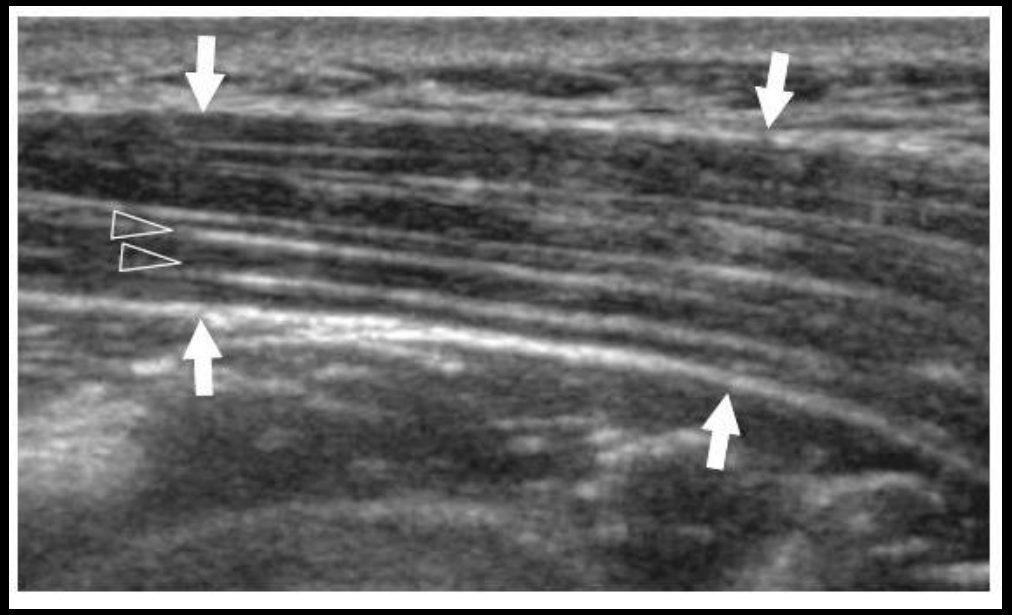


Transverse (short axis)

- Bone cortex: continuous hyperechoic line
- Internal cortical architecture/endosteum/trabecular bone: Inaccessible

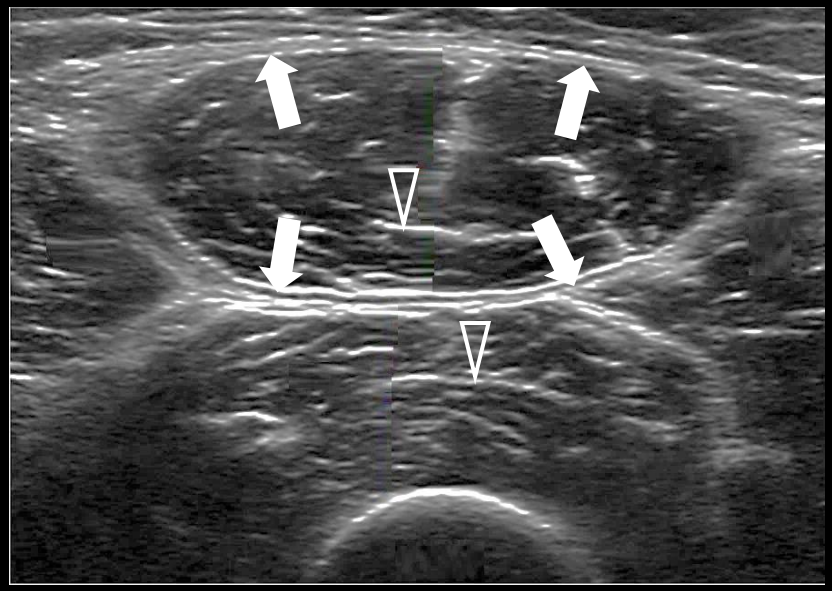
US Imaging Interpretation – Muscle Sonoanatomy

Longitudinal (long axis)



- Epimysium: hyperechoic
- Perimysium: hyperechoic lines
- Muscle fibres: hypoechoic

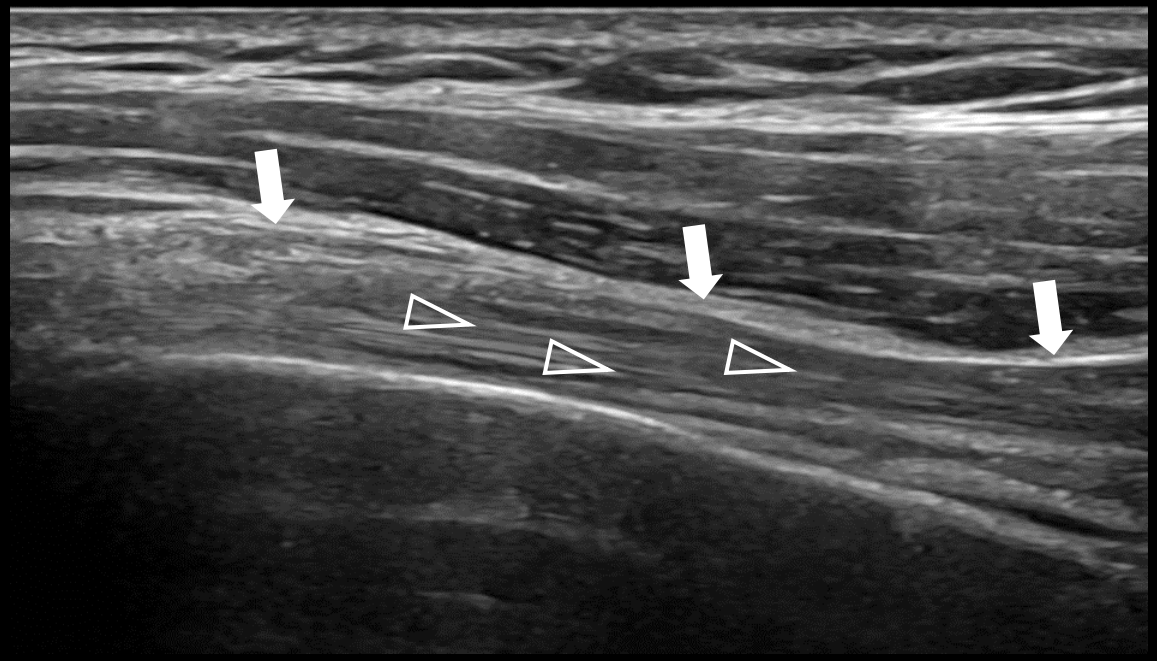
Transverse (short axis)



- Epimysium: hyperechoic
- Perimysium: hyperechoic dots/striations
- Muscle fibres: hypoechoic

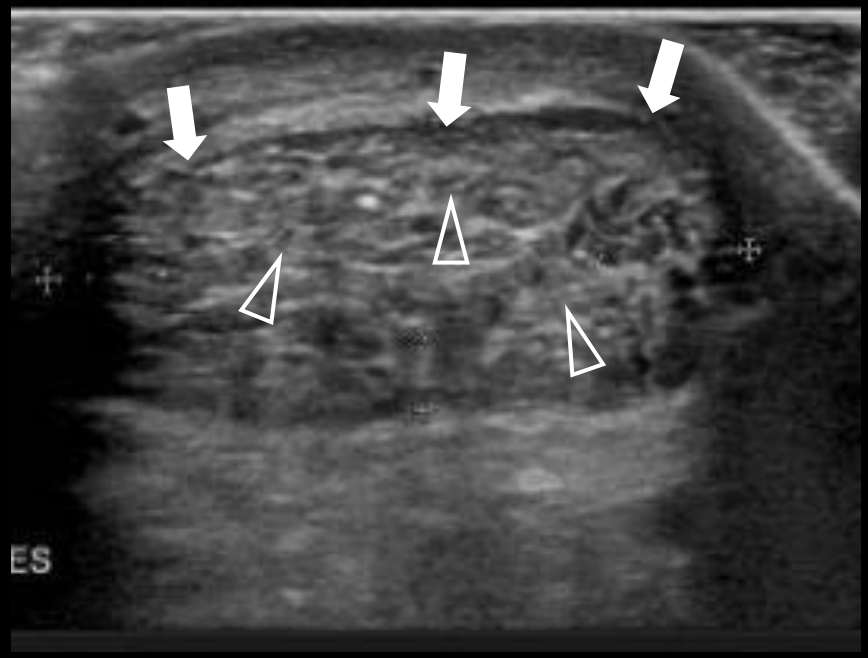
US Imaging Interpretation – Tendon Sonoanatomy

Longitudinal (long axis)



- Epitendineum: hyperechoic
- Tendon fibres: hyperechoic striated lines

Transverse (short axis)



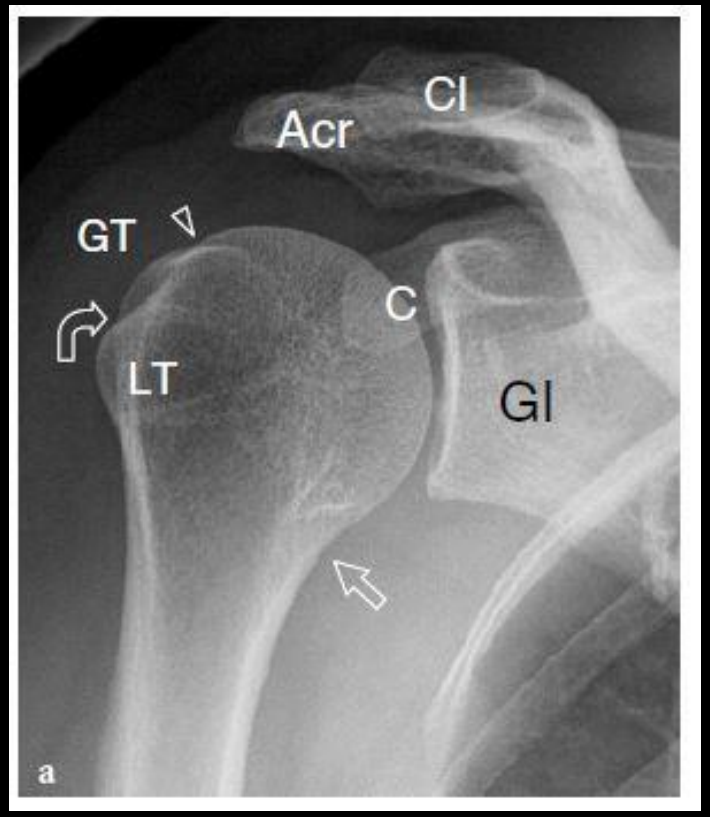
- Epitendineum: hyperechoic
- Tendon fibres: hyperechoic clustered dots

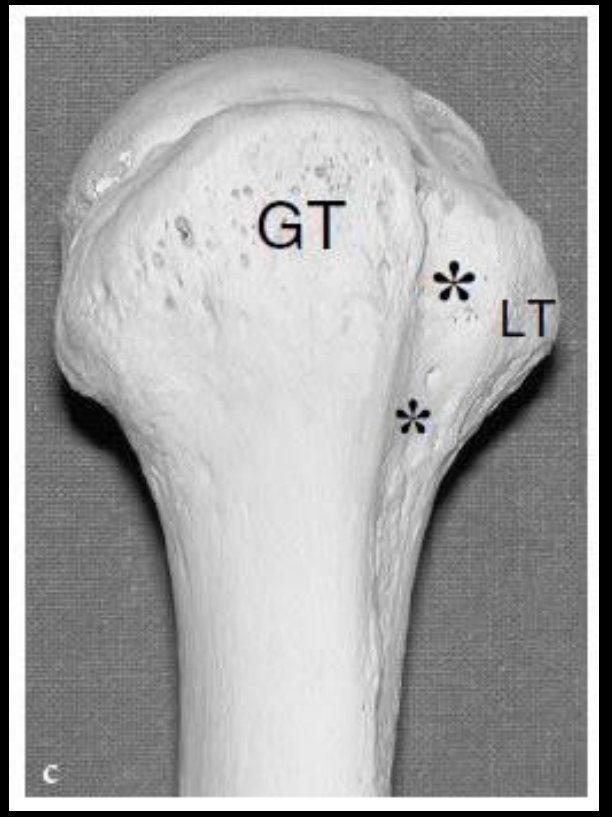
US Imaging Interpretation – Ligament Sonoanatomy

Longitudinal (long axis)

- Ligament fibres: hyperechoic striated lines

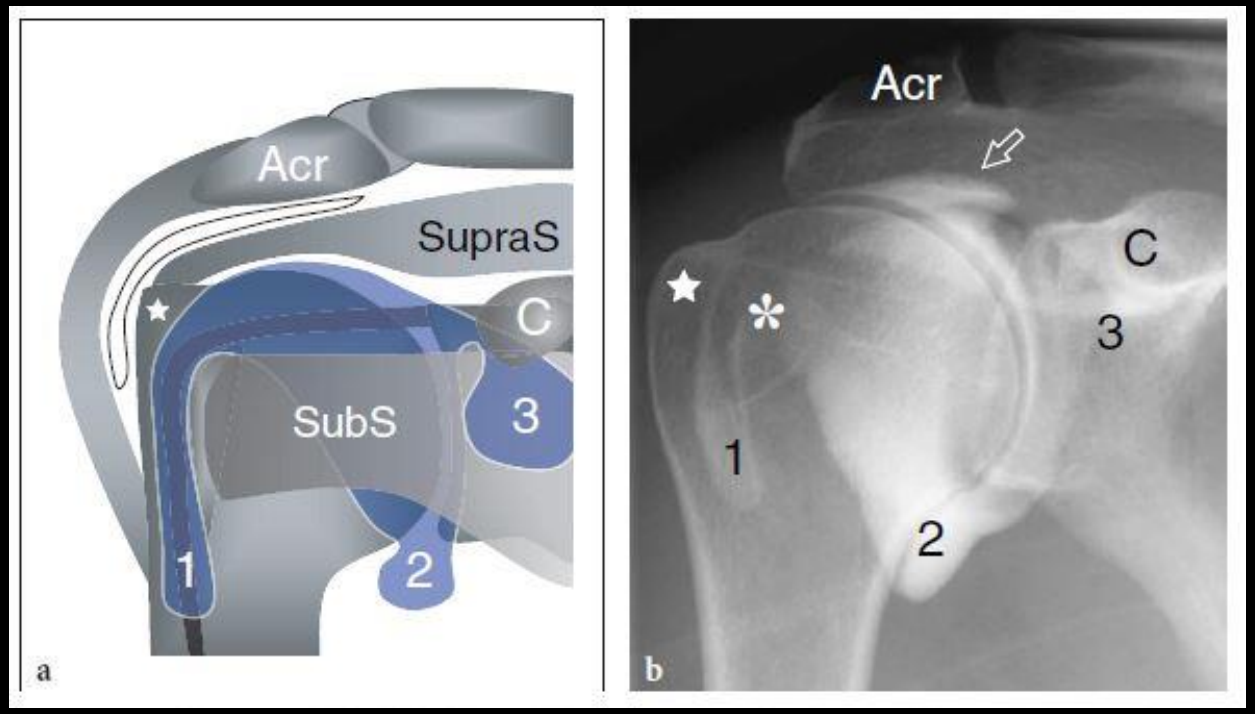
Anatomy of the shoulder – Bony landmarks

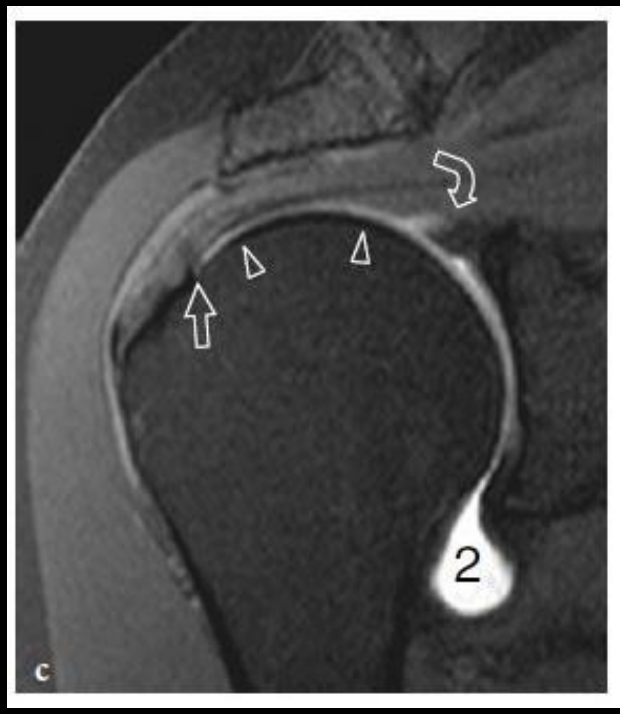




Bianchi S., et al. 2007

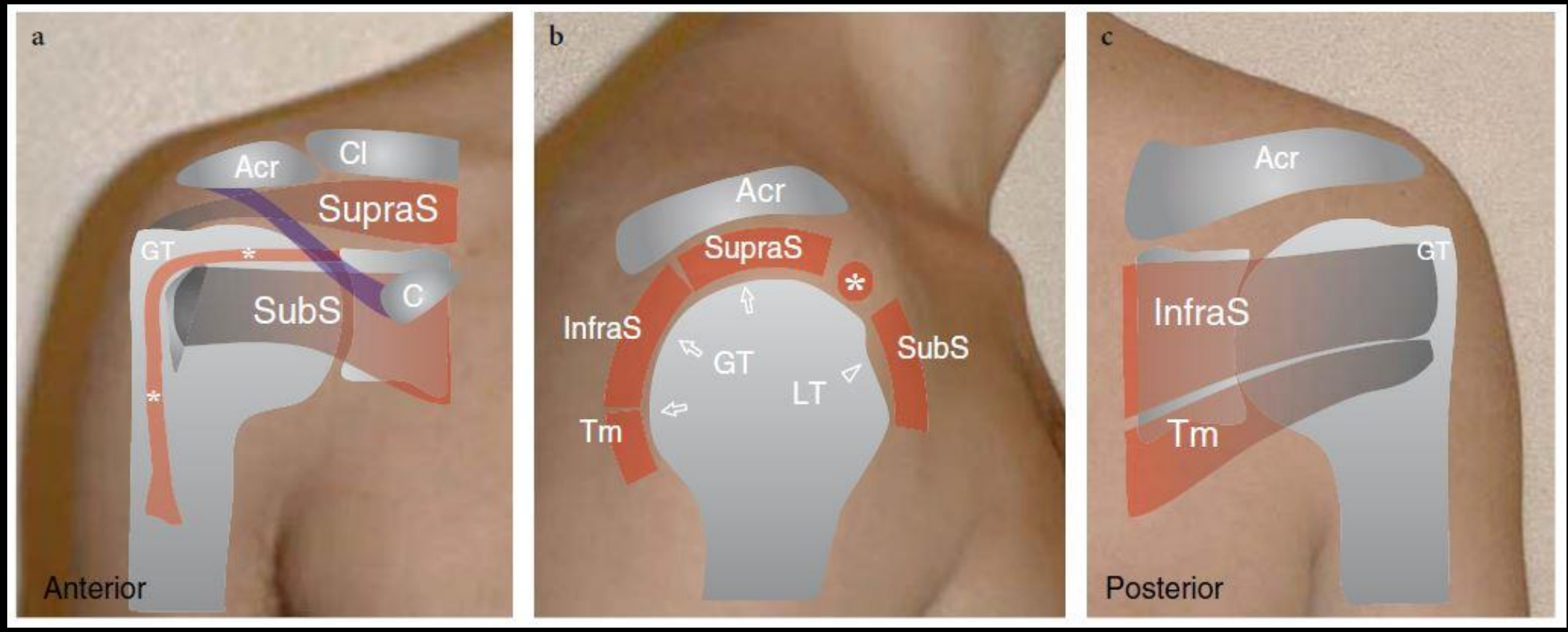
Anatomy of the shoulder – Joint recesses





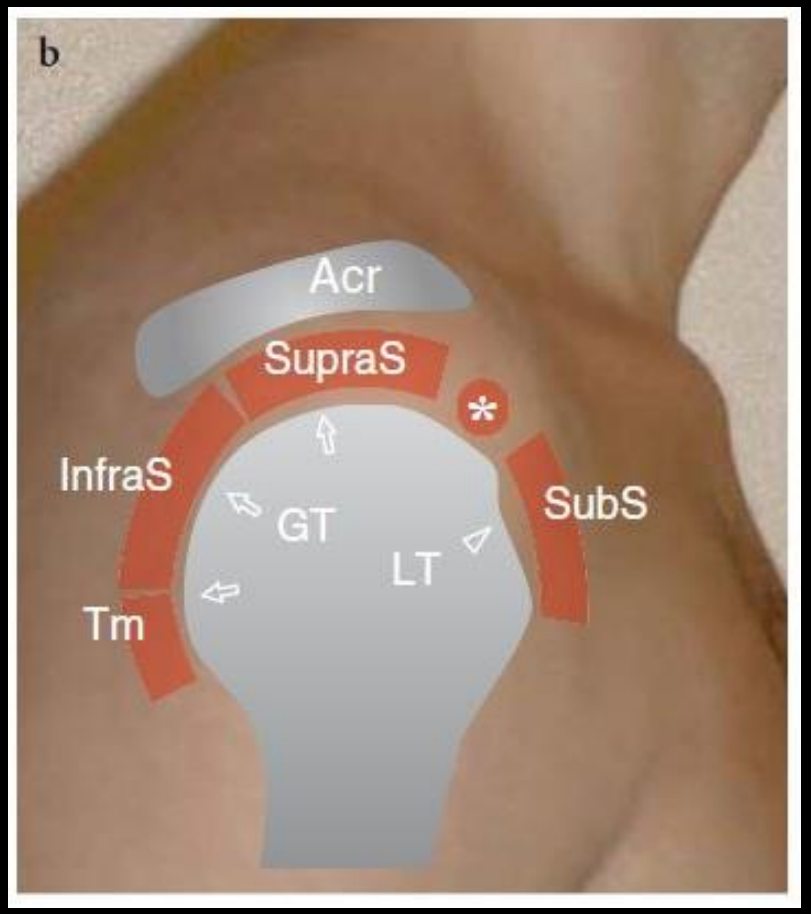
Bianchi S., et al. 2007

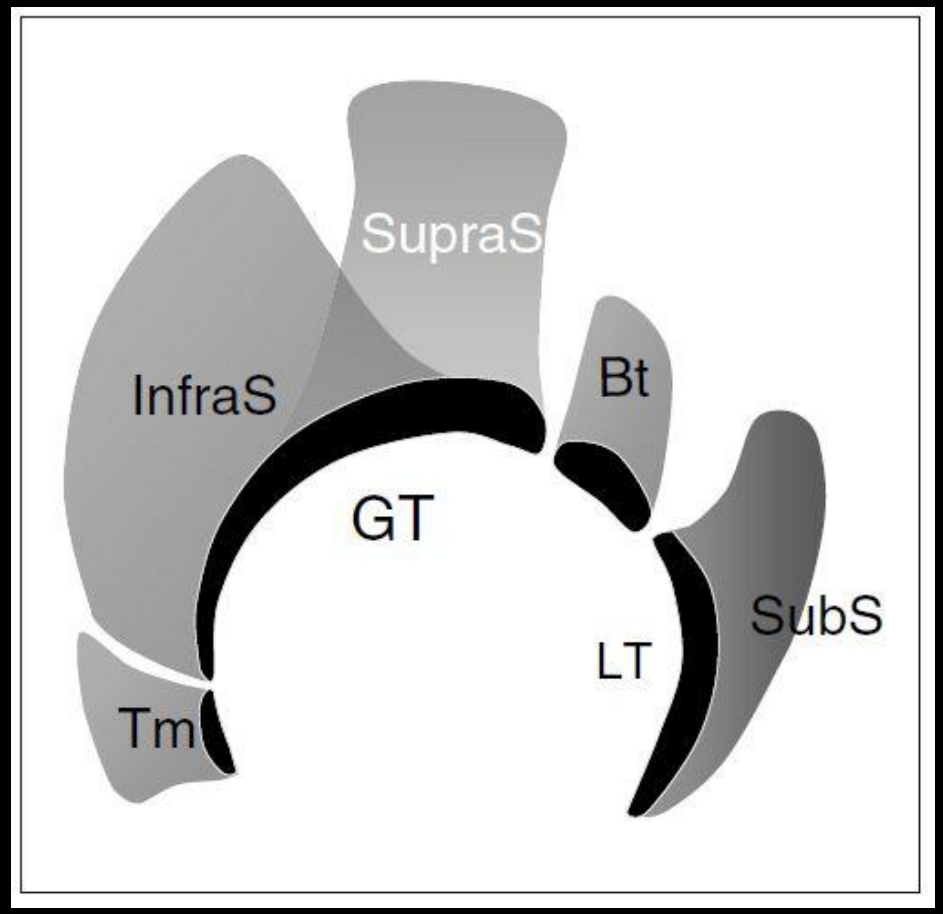
Anatomy of the shoulder – Rotator cuff and LHBT



Bianchi S., et al. 2007

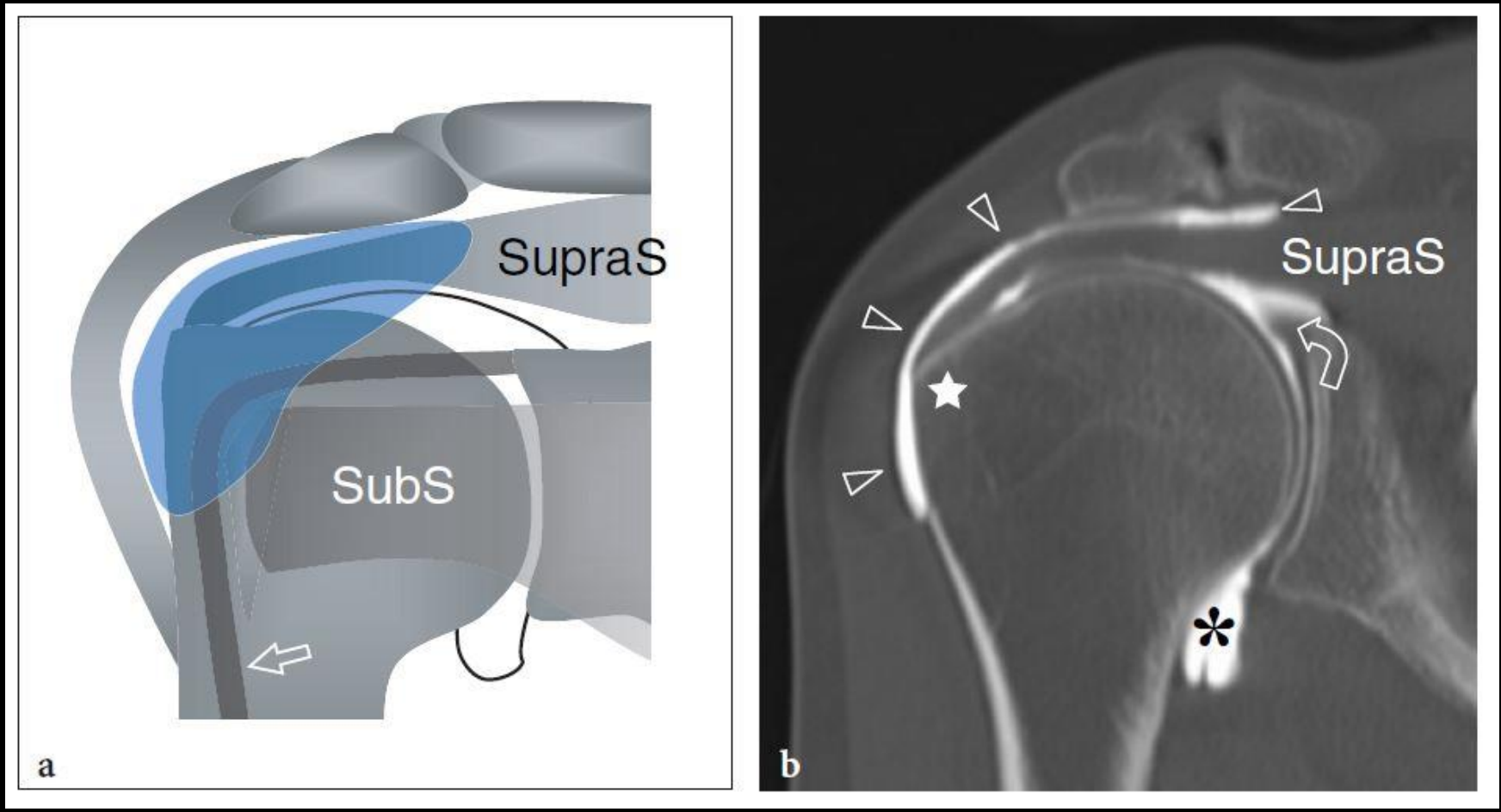
Anatomy of the shoulder – Supraspinatus/infraspinatus complex





Bianchi S., et al. 2007

Anatomy of the shoulder – Subacromial/subdeltoid bursa



Bianchi S., et al. 2007

Demonstration – Shoulder Girdle

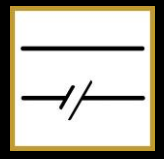
1. Long head of biceps tendon and anterior joint recess
2. Supraspinatus tendon
3. Infraspinatus tendon
4. Subacromial/subdeltoid bursa

Pathology checklist

1. Shape/Morphology
Has the morphology changed?

2. Echogenicity
Has the echogenicity changed?

3. Tissue pattern
Has the pattern of the fibres/tissue changed?



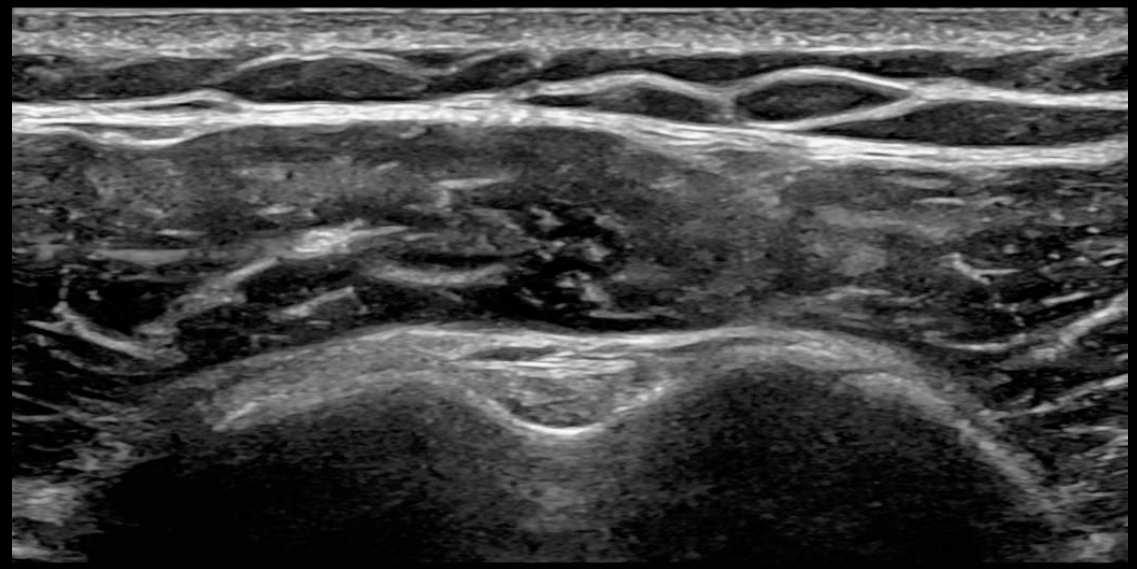
4. Continuity
Is there any cortical/fibre/soft tissue discontinuity?

5. Colour/Power Doppler
Are there any signs of hyperaemia?

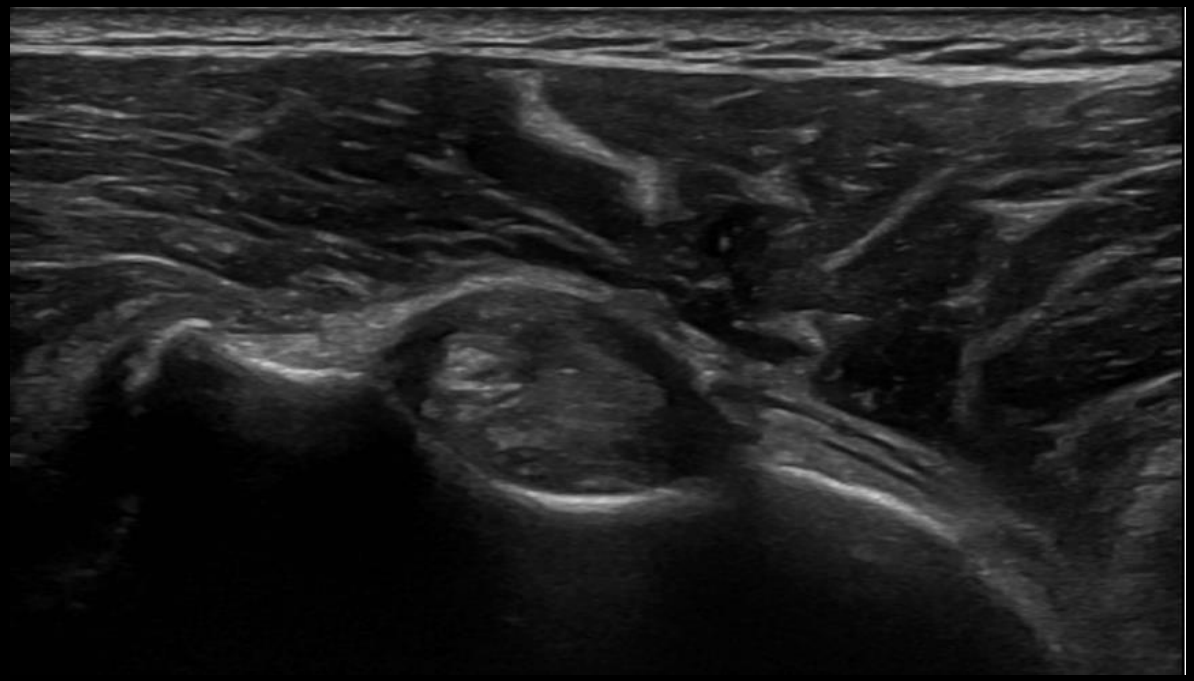
6. Other entities
Are there any cystic lesions/foreign bodies/deposits?

7. Dynamic forces
How does the structure react dynamically?

LHBT – proximal tendinopathy

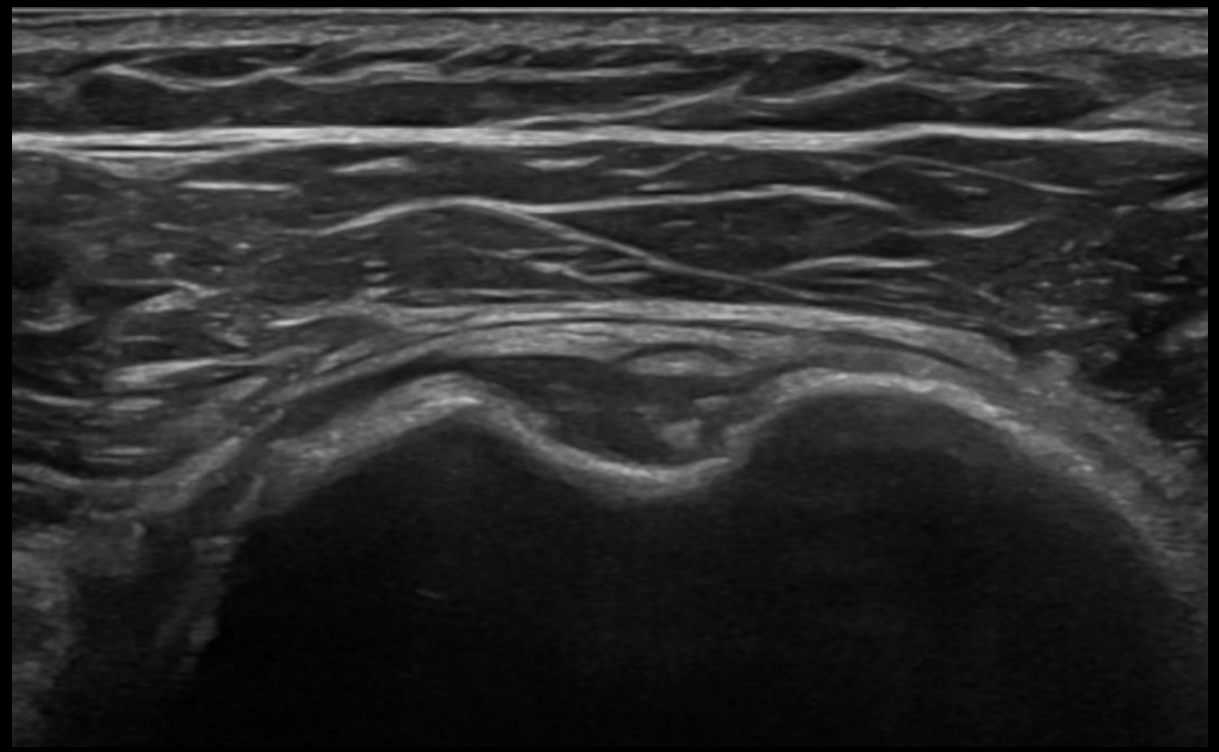


Normal appearance

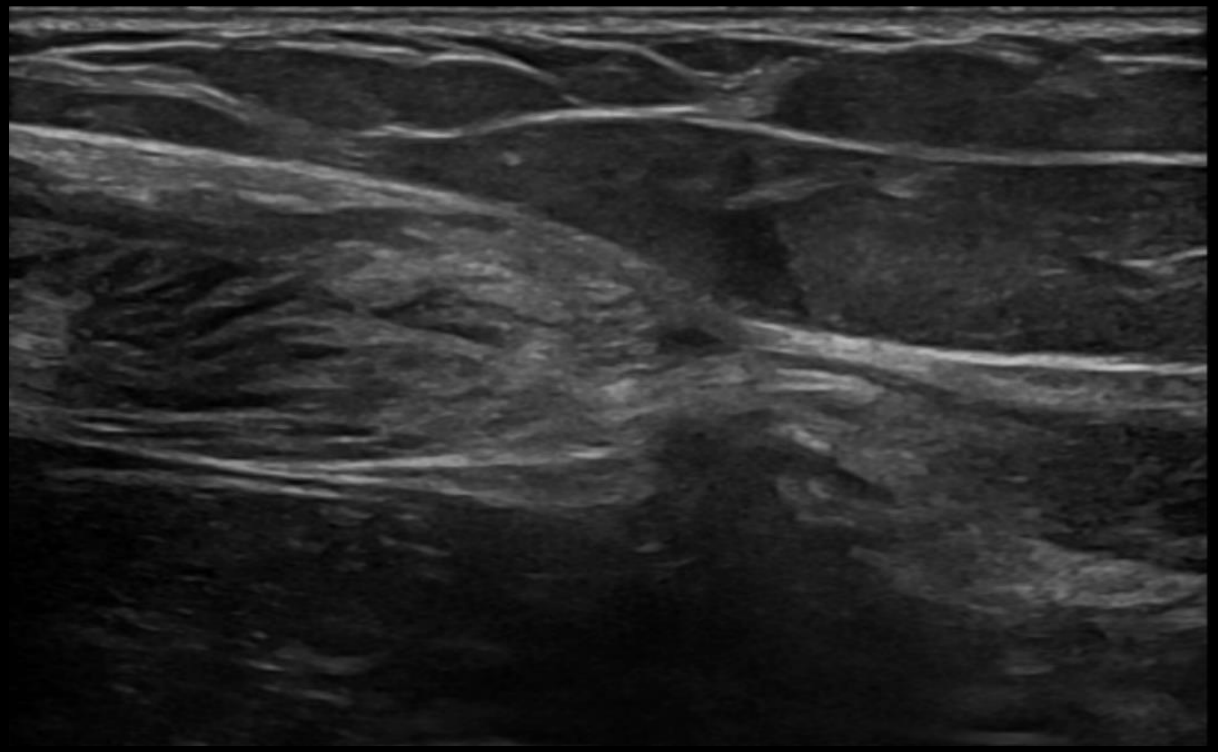


Pathologic finding

LHBT – complete rupture

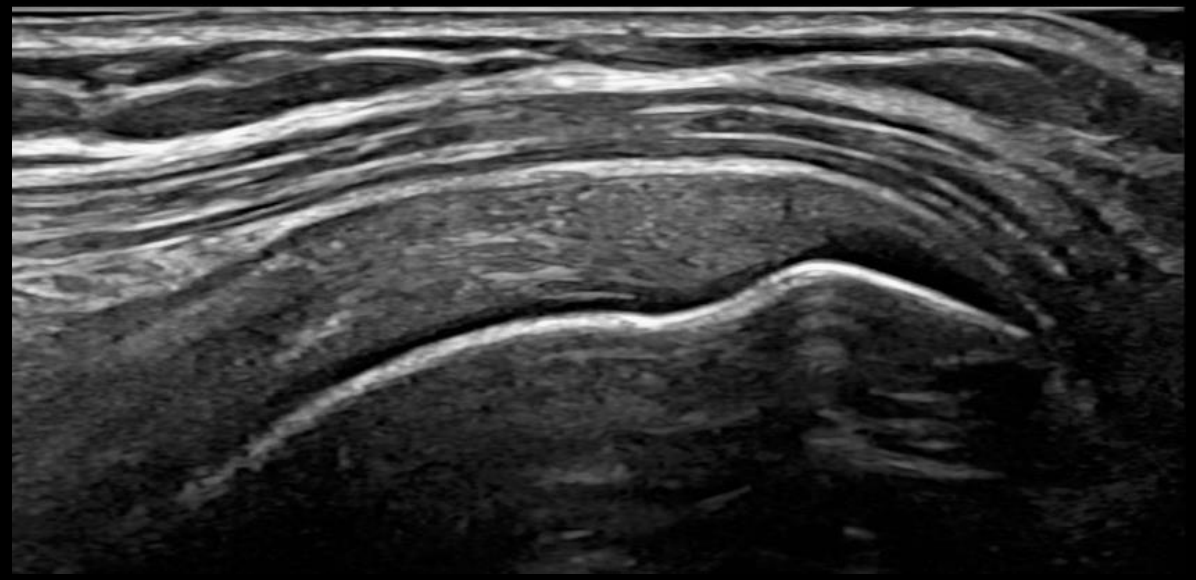


Short axis

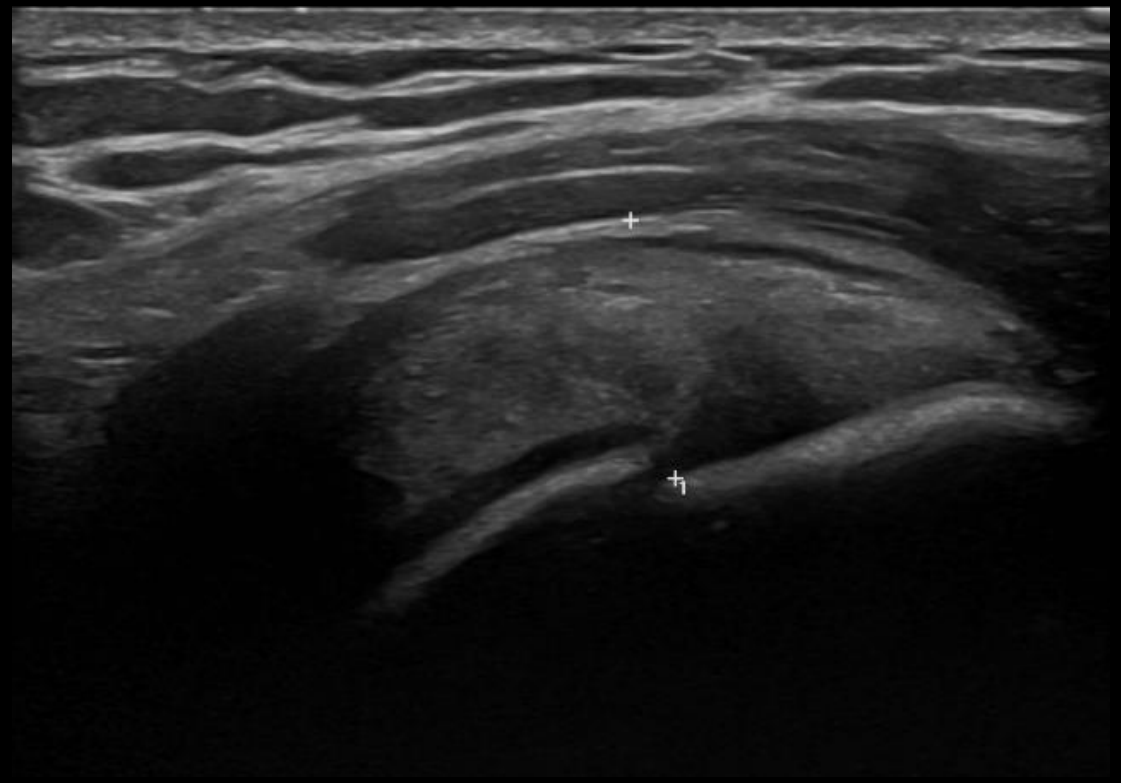


Long axis

Supraspinatus – tendinopathy

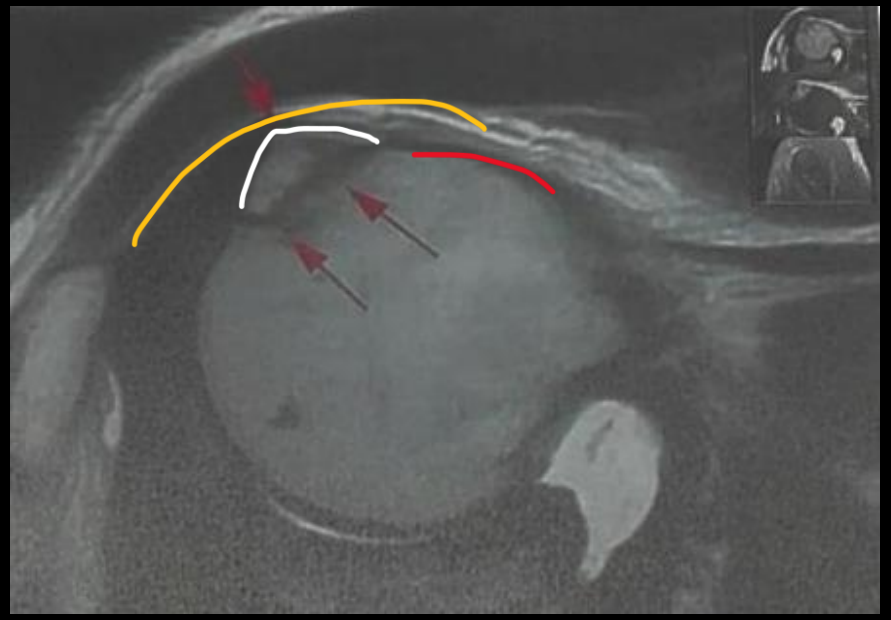


Normal appearance

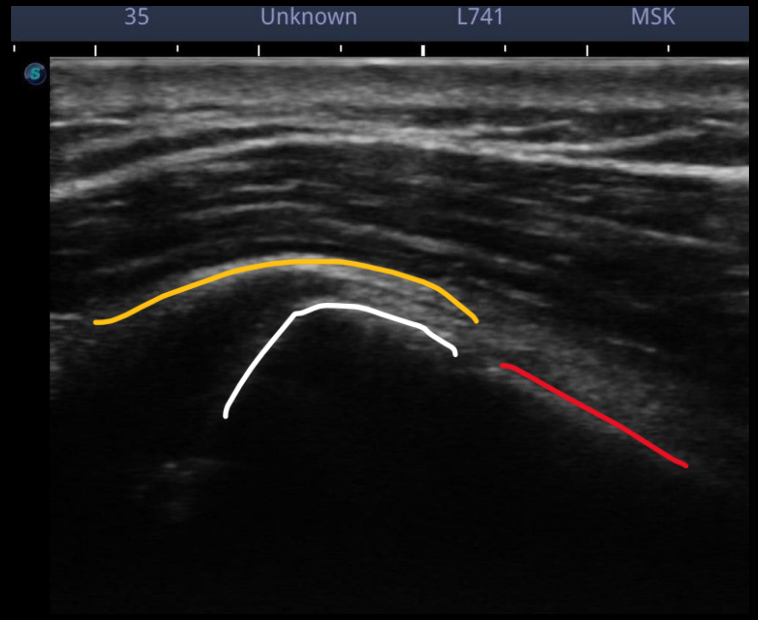


Pathologic finding

Greater tubercle – avulsion fracture



MRI



Ultrasound

X-ray

Thank you

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