Lump and Bumps Ultrasound Evaluation

Lorelei Waring

Why US?

- Excellent first test for accessible lesions
- Good access, short waits
- Dynamic assessment with patient present- allows history to be taken- imperative.

Why scan?

3 categories-useful triage:

- benign lesion- no further action required.
- equivocal lesion-further referral/further imaging necessary
- suspicious lesion- urgent referral/further imaging necessary

US Characterisation

- Skin
- Subcutaneous Fat
- Neurovascular structures
- Muscle
- Tendon
- Bone
- Lymph nodes

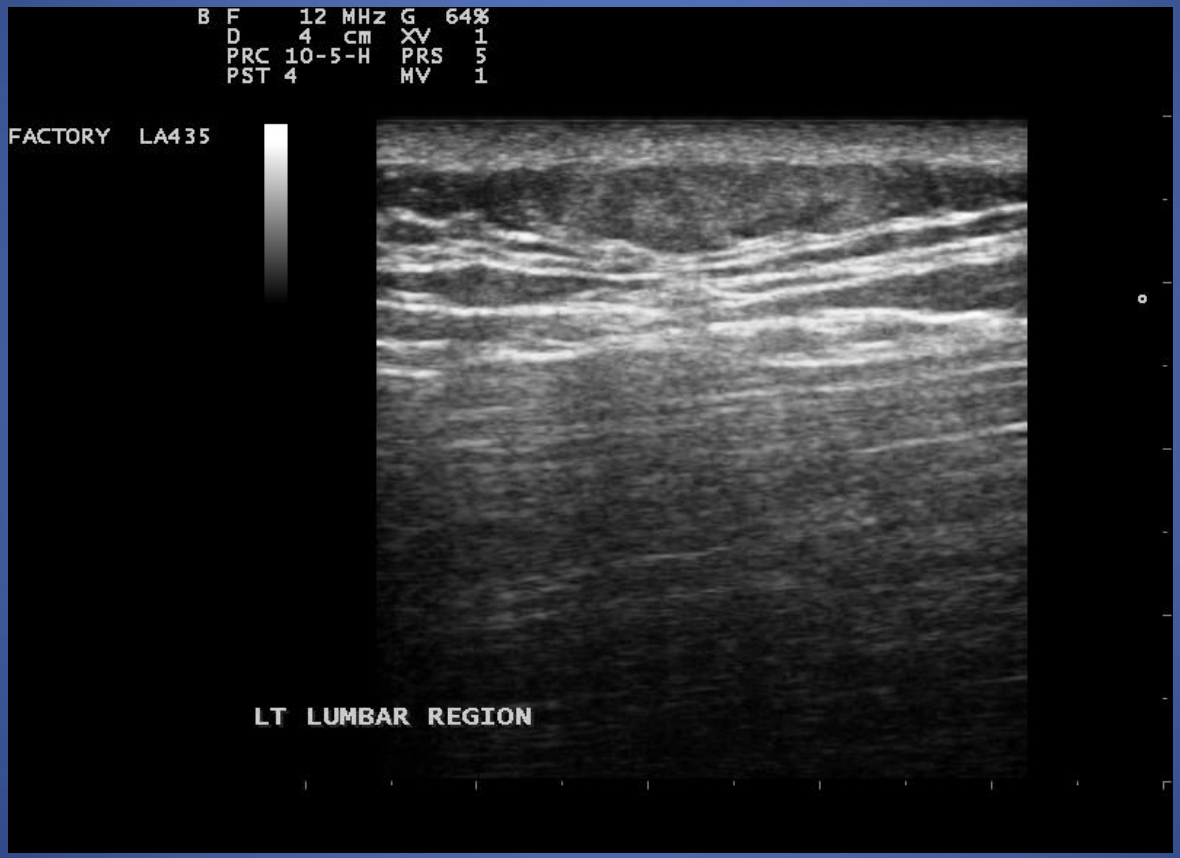
US Characterisation

- Location - e.g ganglia, plantar fibromatosis, muscle hernia.
- Size
- Margins
- Invasion
- Echopattern
- Vascularity
- Mobility
- Calcification
- Compressibility
- *History*

Benign lesion - no further action

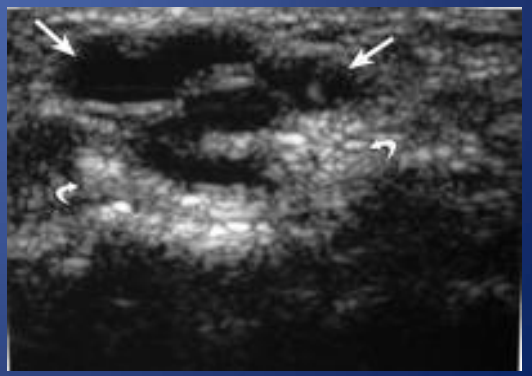
- Normal anatomy- lipomatosis-contralateral side
- Lipoma
- Ganglion-beware synovial sarcoma.
- Sebaceous cyst
- Reducible abdominal wall hernia
- Foreign body
- Haematoma
- Fat necrosis
- Baker's cyst
- Varicoscity
- Muscle hypertrophy-contralateral side

Lipoma


B F 12 MHz G 64%
D 4 cm XV 1
PRC 10-5-H PRS 5
PST 4 MV 1
FACTORY LA435
LT LUMBAR REGION

Ganglion

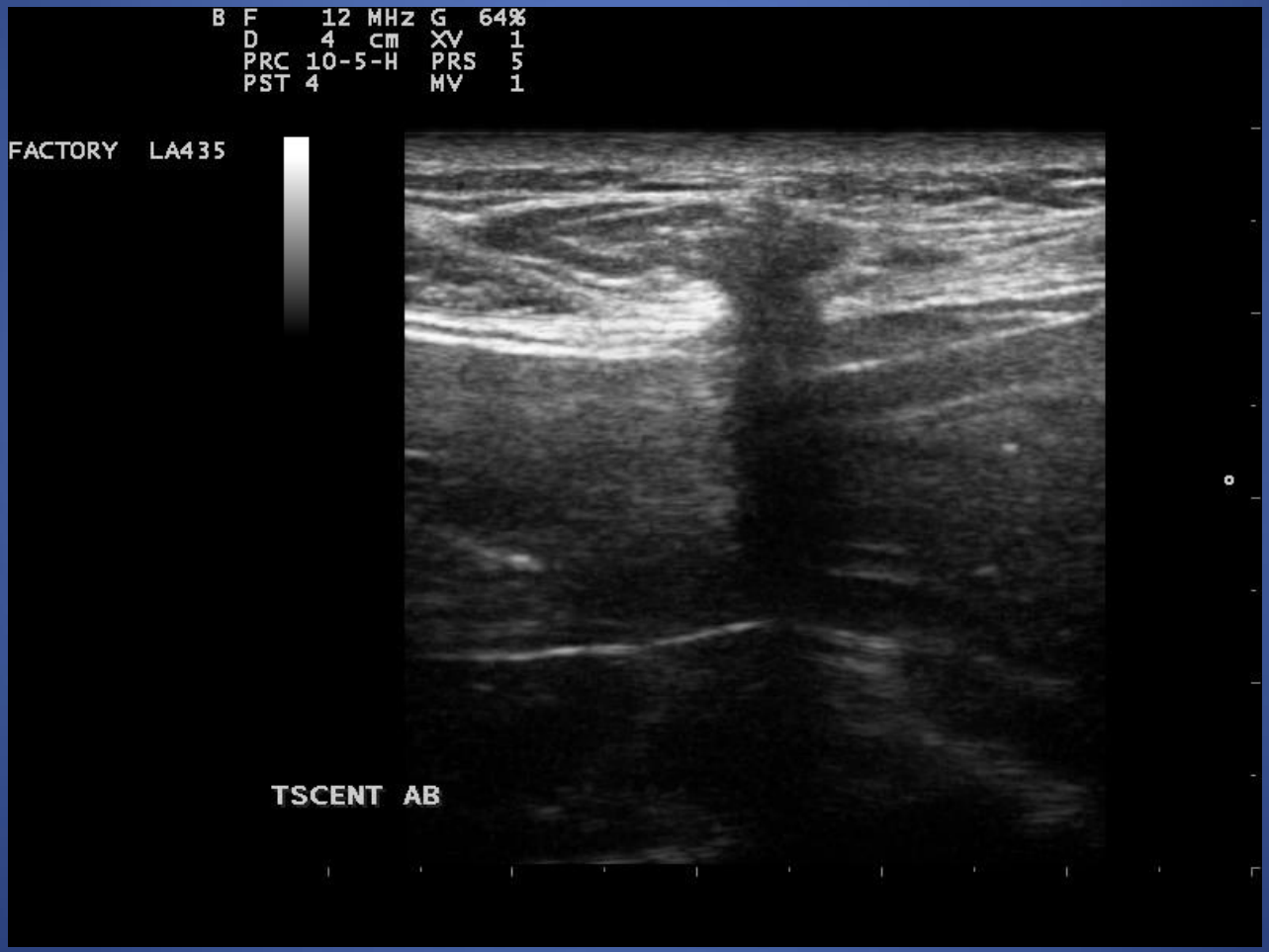
- Cystic, not vascularised, often lobulated, neck to tendon or joint
- Sometimes post traumatic
- Contain jelly like fluid
- Aspirate/surgery
- Beware synovial sarcoma-history



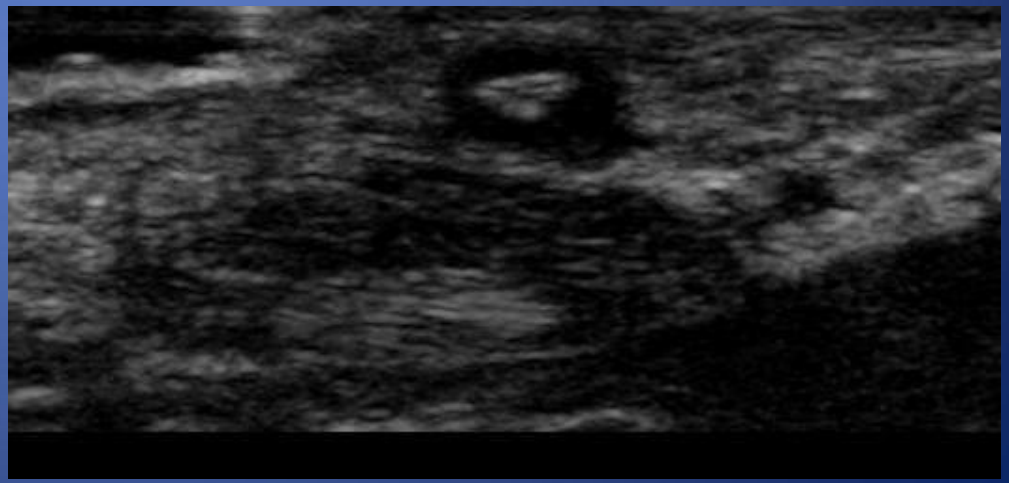
Sebaceous cysts

- Sebaceous cyst misnomer - not of sebaceous origin.
- Epidermoid cyst sac forms from proliferation of epidermal cells within the dermis
- Pilar cyst sac forms from cells from the infundibulum of the hair follicles
- Punctum can tether cyst to overlying epidermis-secures diagnosis.

Reducible abdominal wall hernia

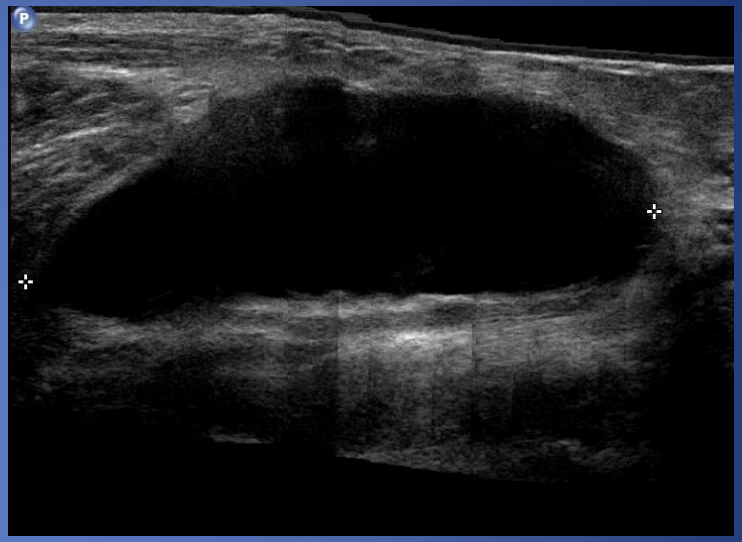


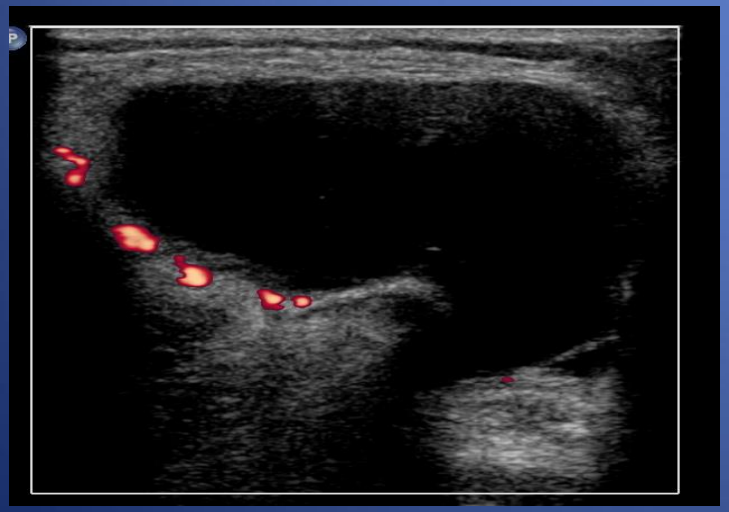
Foreign body

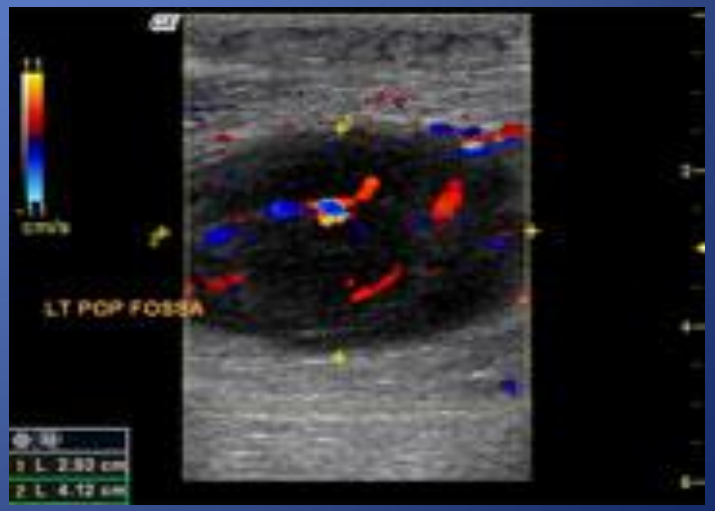


Fat necrosis

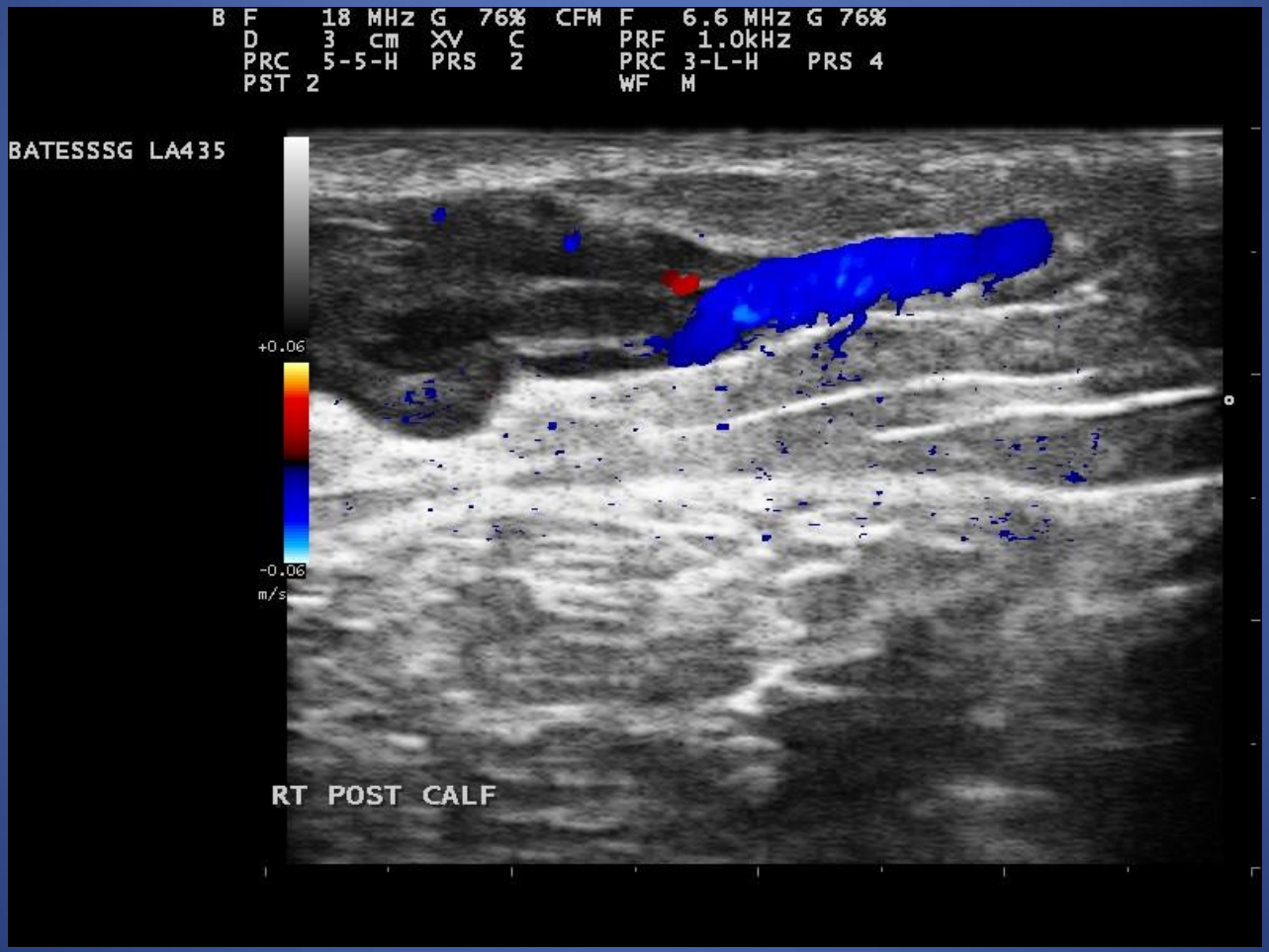
Baker's cyst
Semi-membranosus gastrocnemius bursa







Varicosity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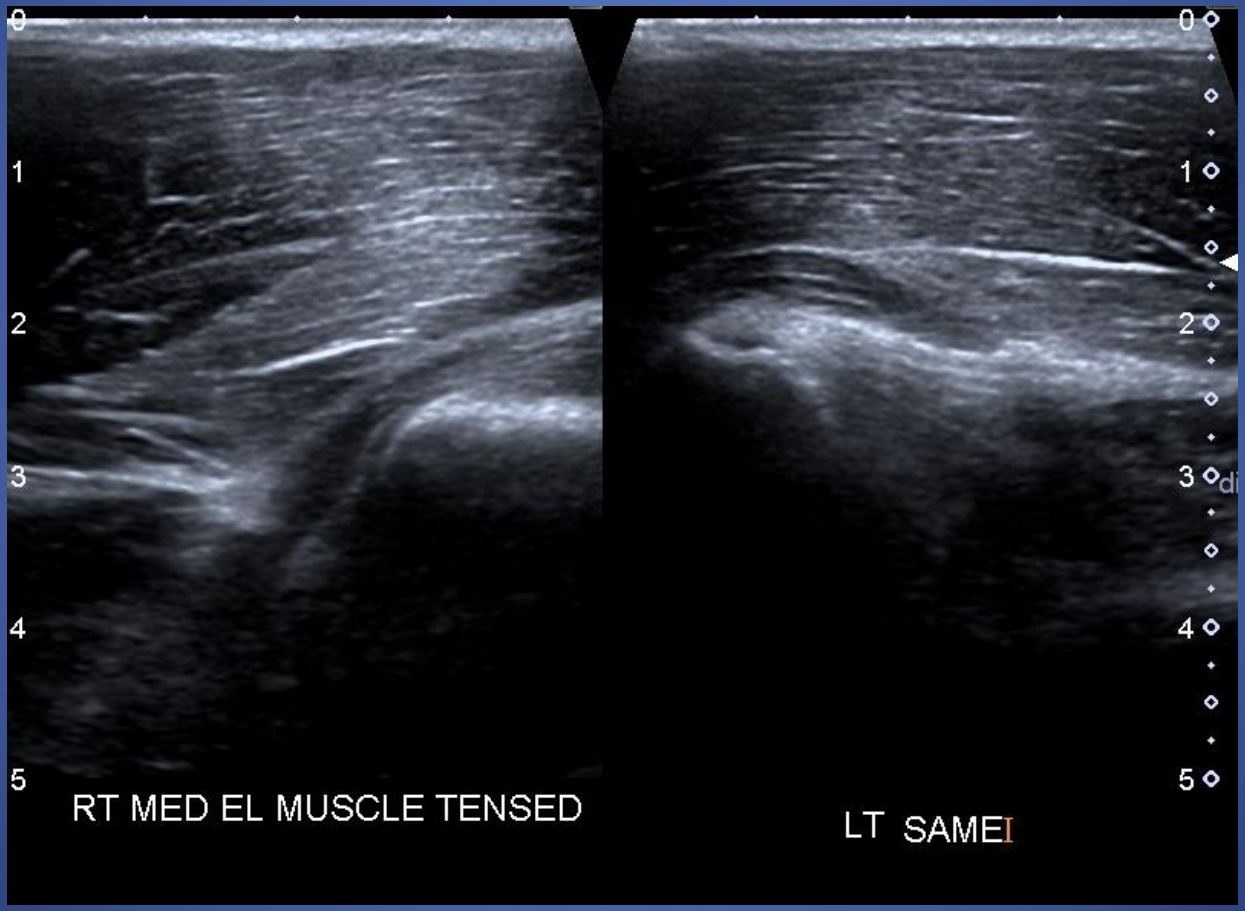
D 3 cm XV C PRF 1.0kHz
PRC 5-5-H PRS 2 PRC 3-L-H PRS 4
PST 2 WF M
BATESSSG LA435
+0.06
-0.06
m/s
RT POST CALF

Muscle Hypertrophy



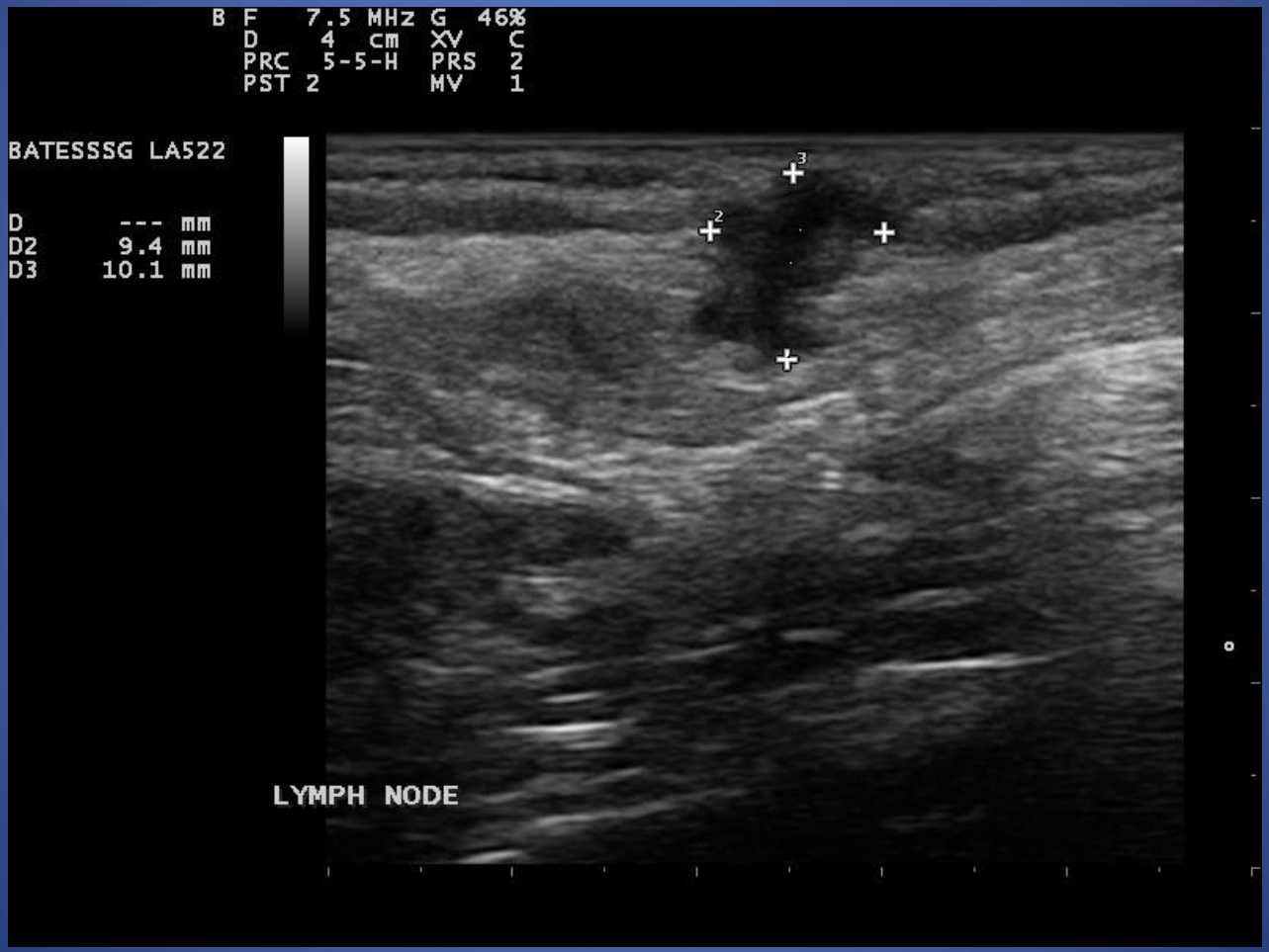
Recalcitrant haematoma

Beware haematoma vs. malignancy

with absence of trauma ‘warning’

Equivocal lesions - further referral/imaging necessary

Small mass - unknown aetiology



Small mass - unknown aetiology

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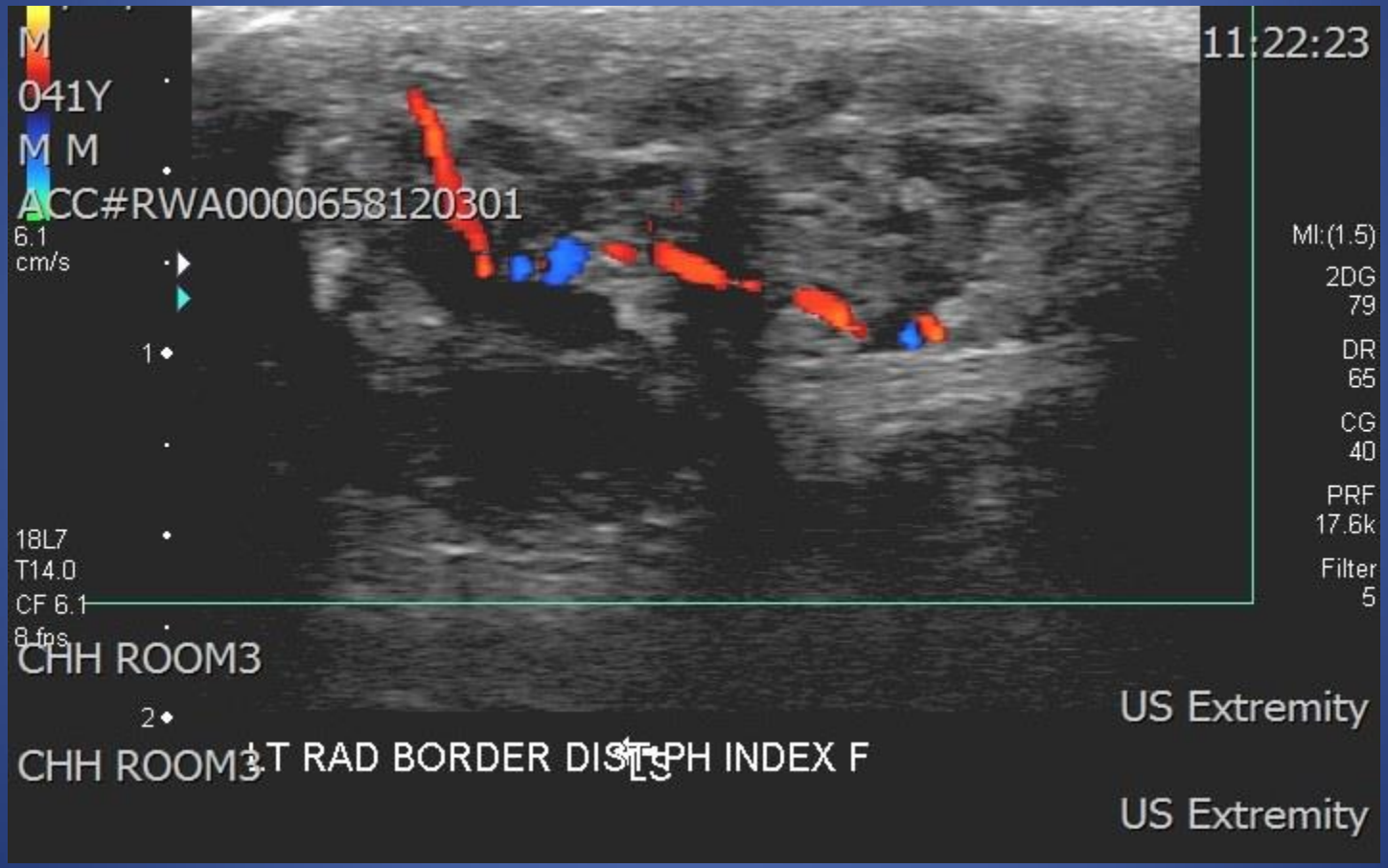
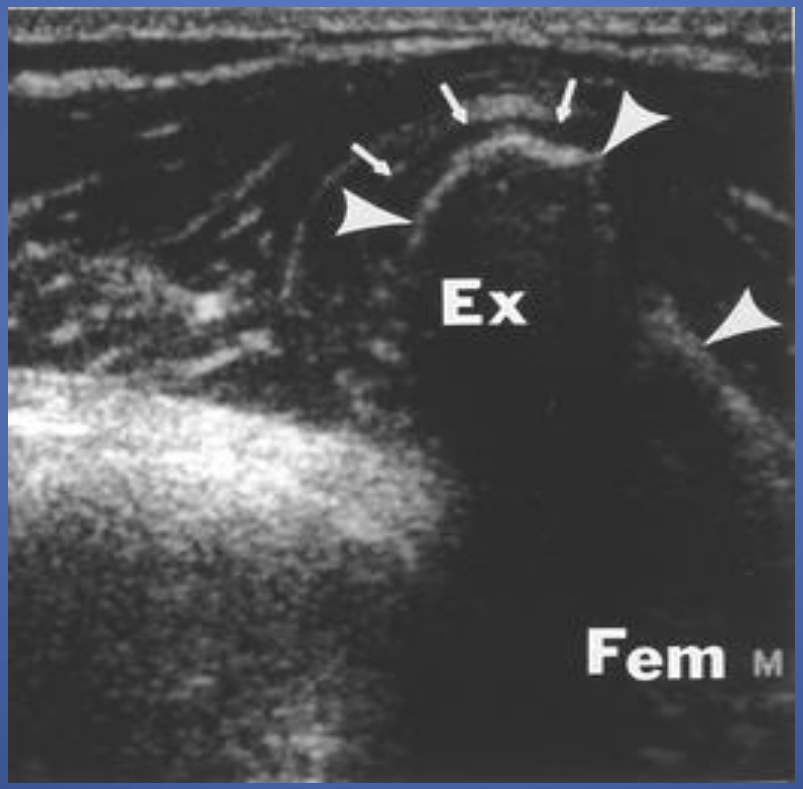


Small mass - unknown aetiology

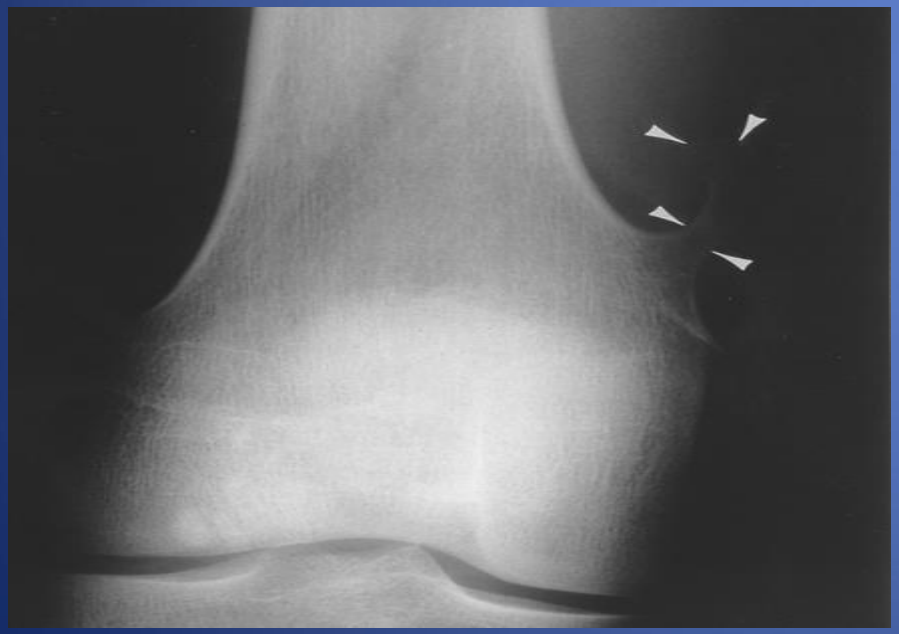
Myositis ossificans

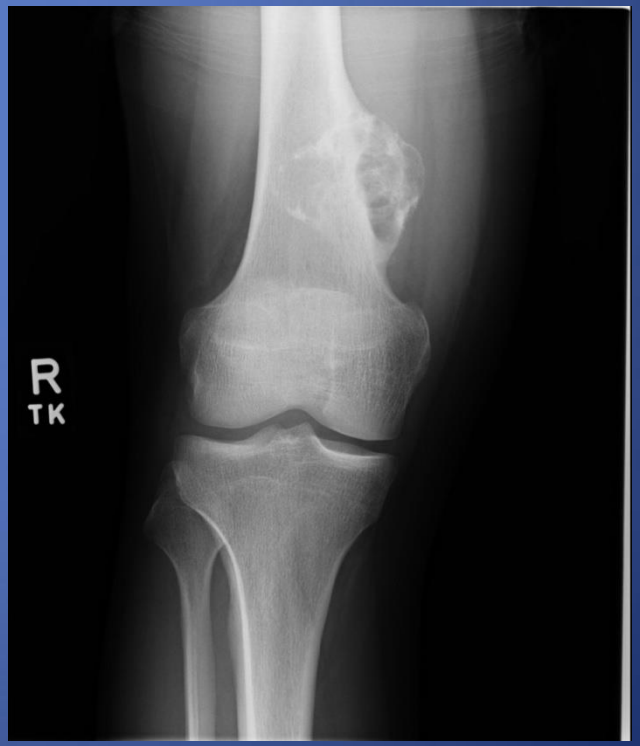
Small mass - unknown aetiology



Calcified

- Exostosis/ osteochondroma or consider chondrosarcoma





Intramuscular lipoma

Benign lesions - MSK origin

Bursitis

- Bursas all over the body, commonly near joints to assist movement of tendons over bone and reduce friction.
- Bursitis can be caused by chronic overuse, trauma, rheumatoid arthritis (congenital bursae synovial lined), gout or infection. Sometimes the cause cannot be determined.
- Mass like -can feel soft or firm

Adventitious Bursitis

- Adventitious bursa- result of excessive friction between soft-tissue and underlying bony protuberances –e.g. submetatarsal
- Frequently subcutaneous

Bursitis-pre patellar

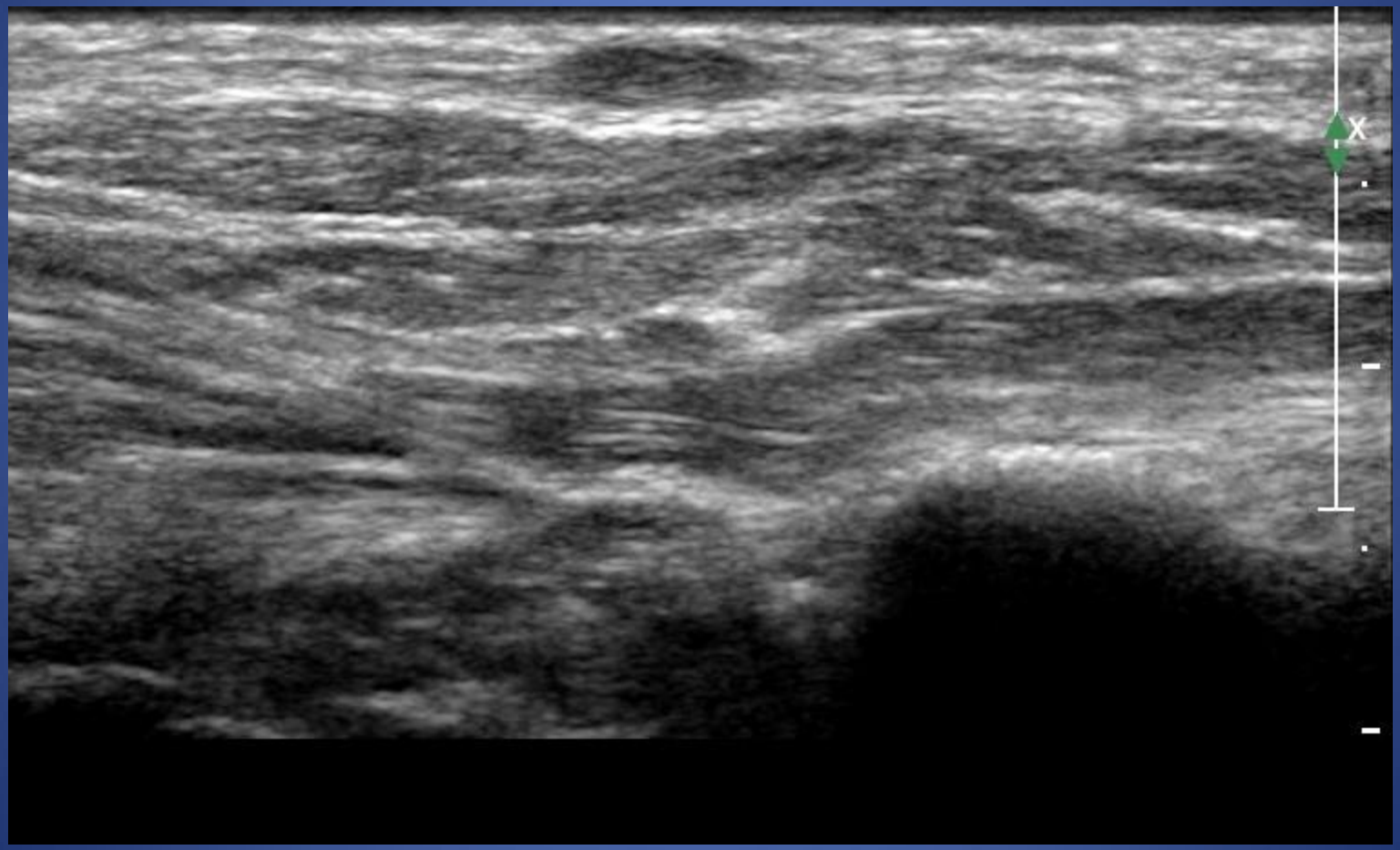
- Similar appearances at olecranon.

Bursitis? Underlying inflammatory arthropathy

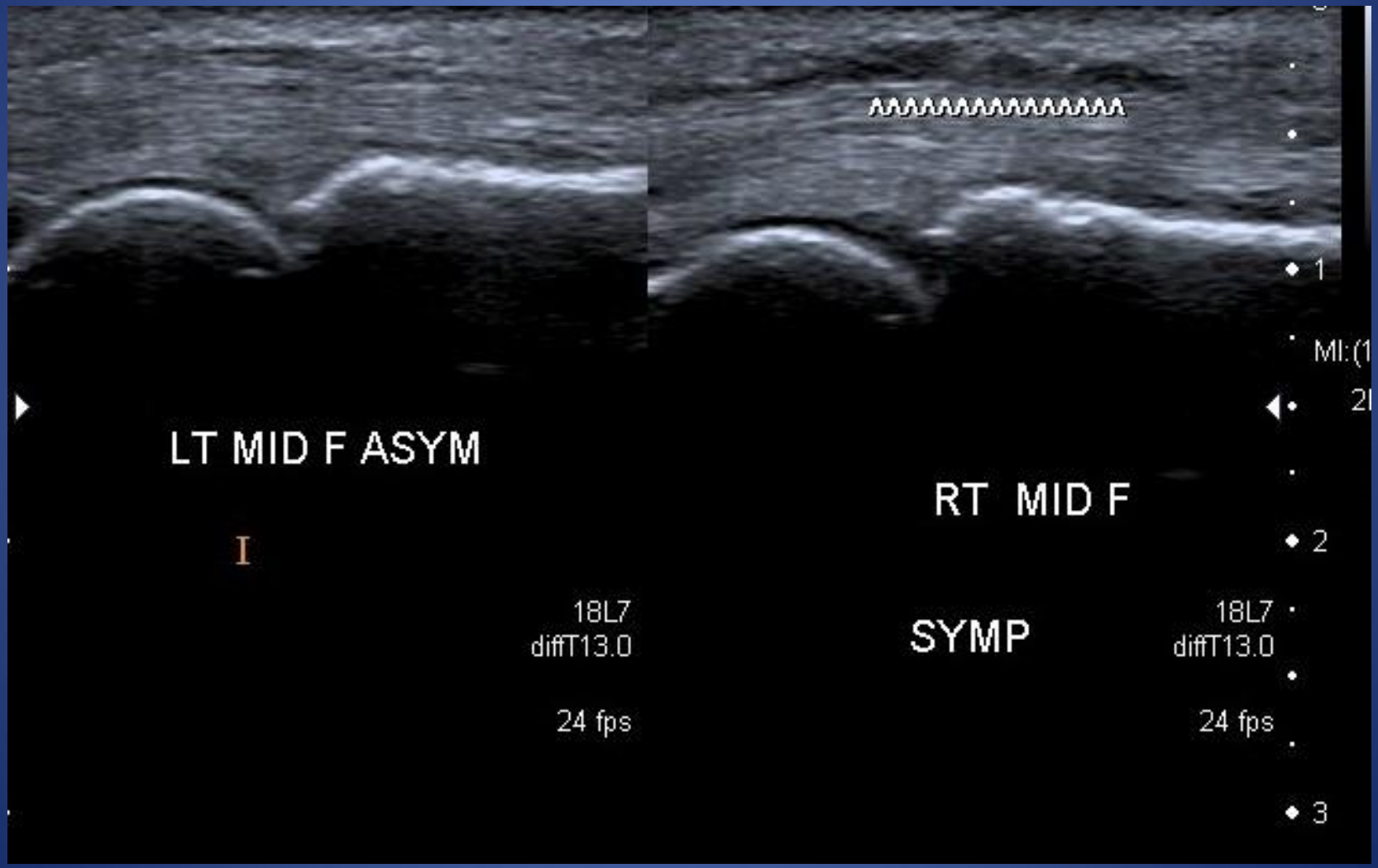
Gout

RA

Plantar fibromatosis



Dupytrens


LT MID F ASYM
18L7
diffT13.0
24 fps
RT MID F
SYMP
18L7
diffT13.0
24 fps
1
2
3

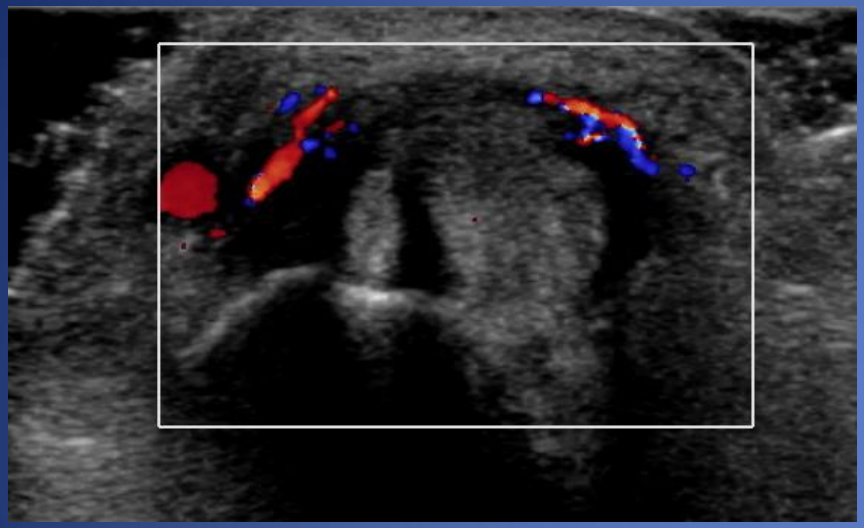
Tenosynovitis

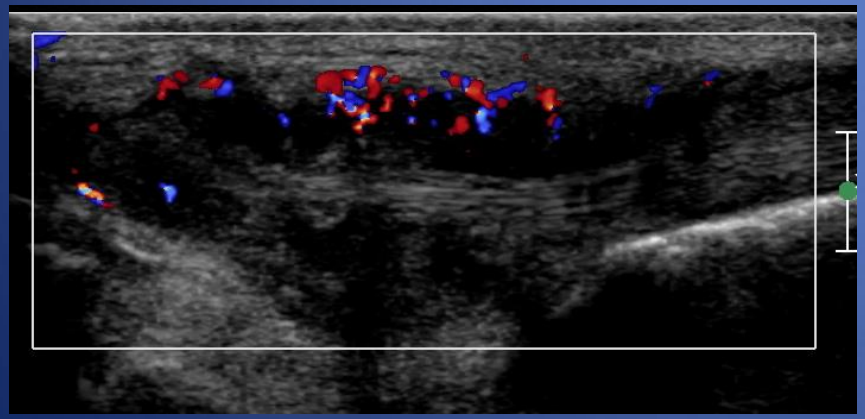
Usual triad of:

- Fluid in tendon sheath,
- Hypoechoic swollen tendon
- Vascularity in tendon substance

- Can produce odd lumps in odd places – ECU- can be early presentation of RA

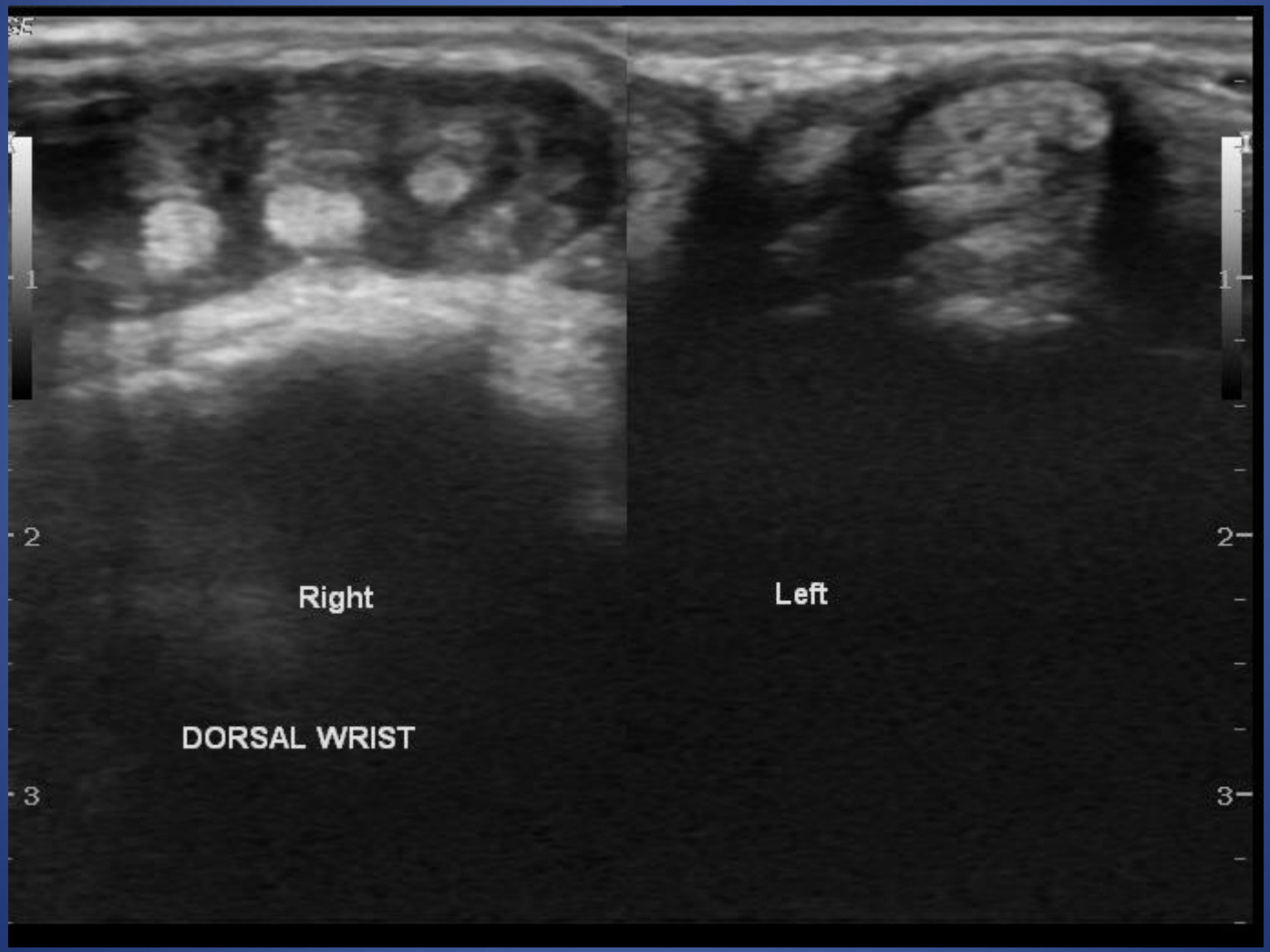
De Quervain's tenosynovitis





- Tendinopathy of the first extensor compartment
- Palpable painful swelling radial side of wrist

Tuberculous Tenosynovitis

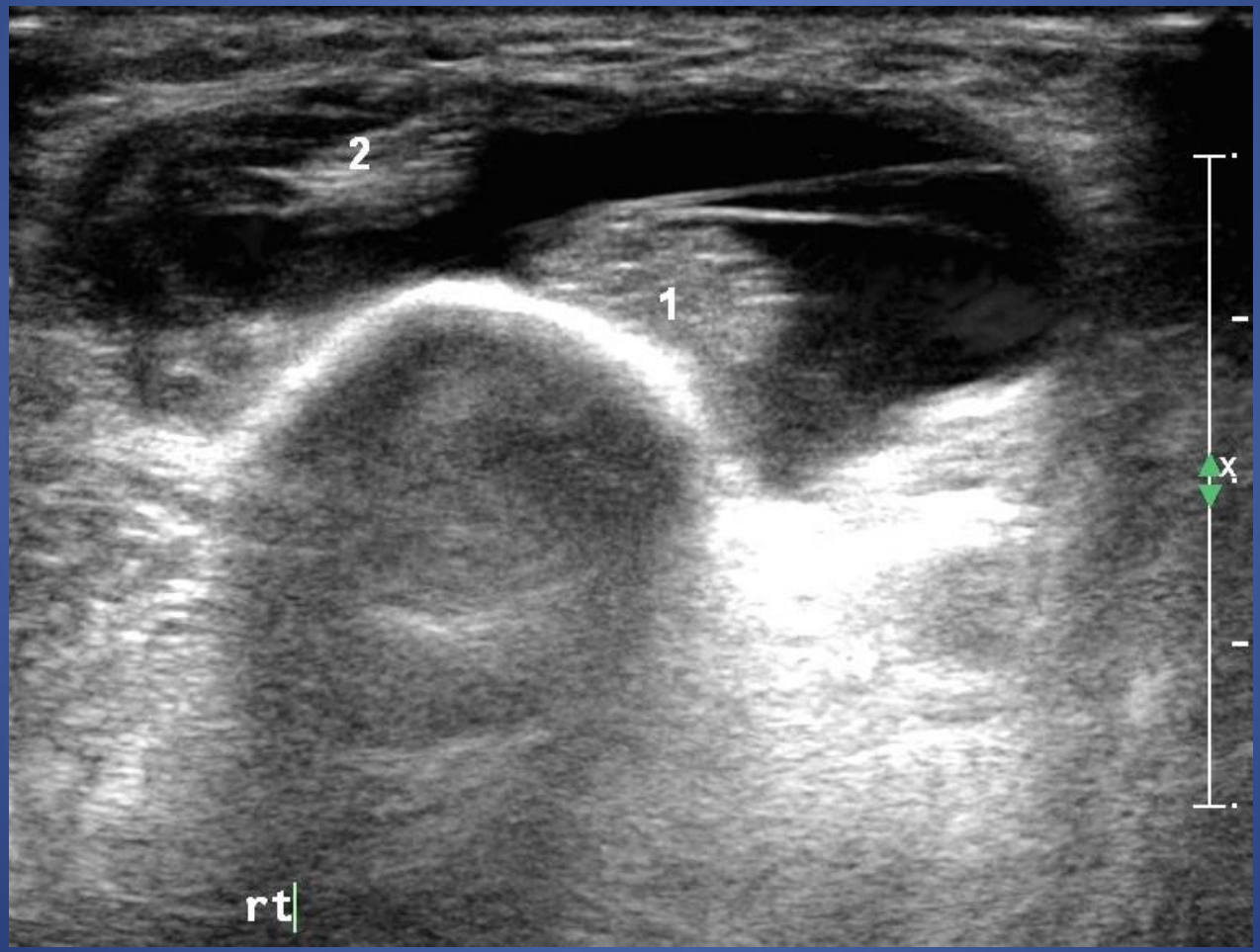


Arthritis - presenting as lump

Midtarsal joint
Navicular/intermediate cuneiform

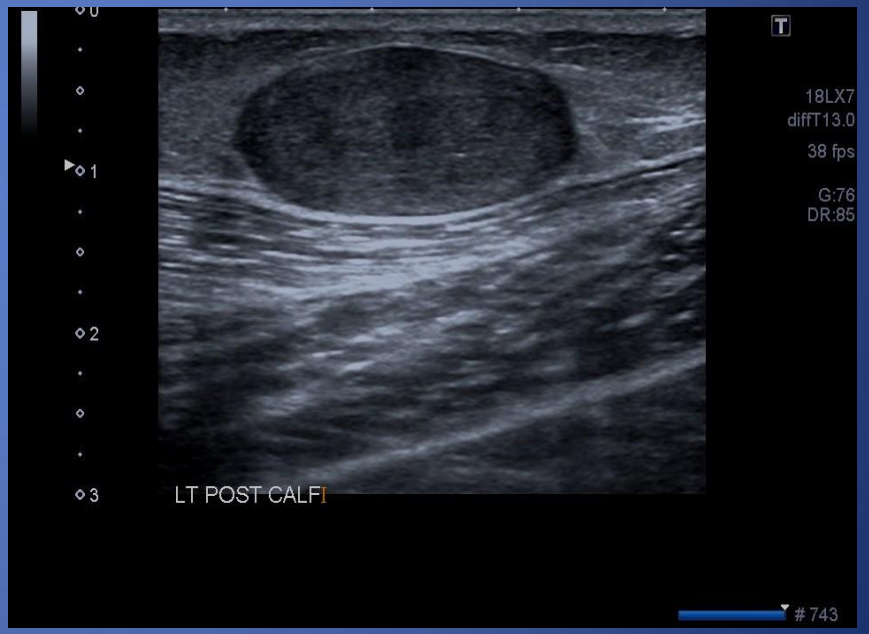
Normal side for comparison

Intersection syndrome

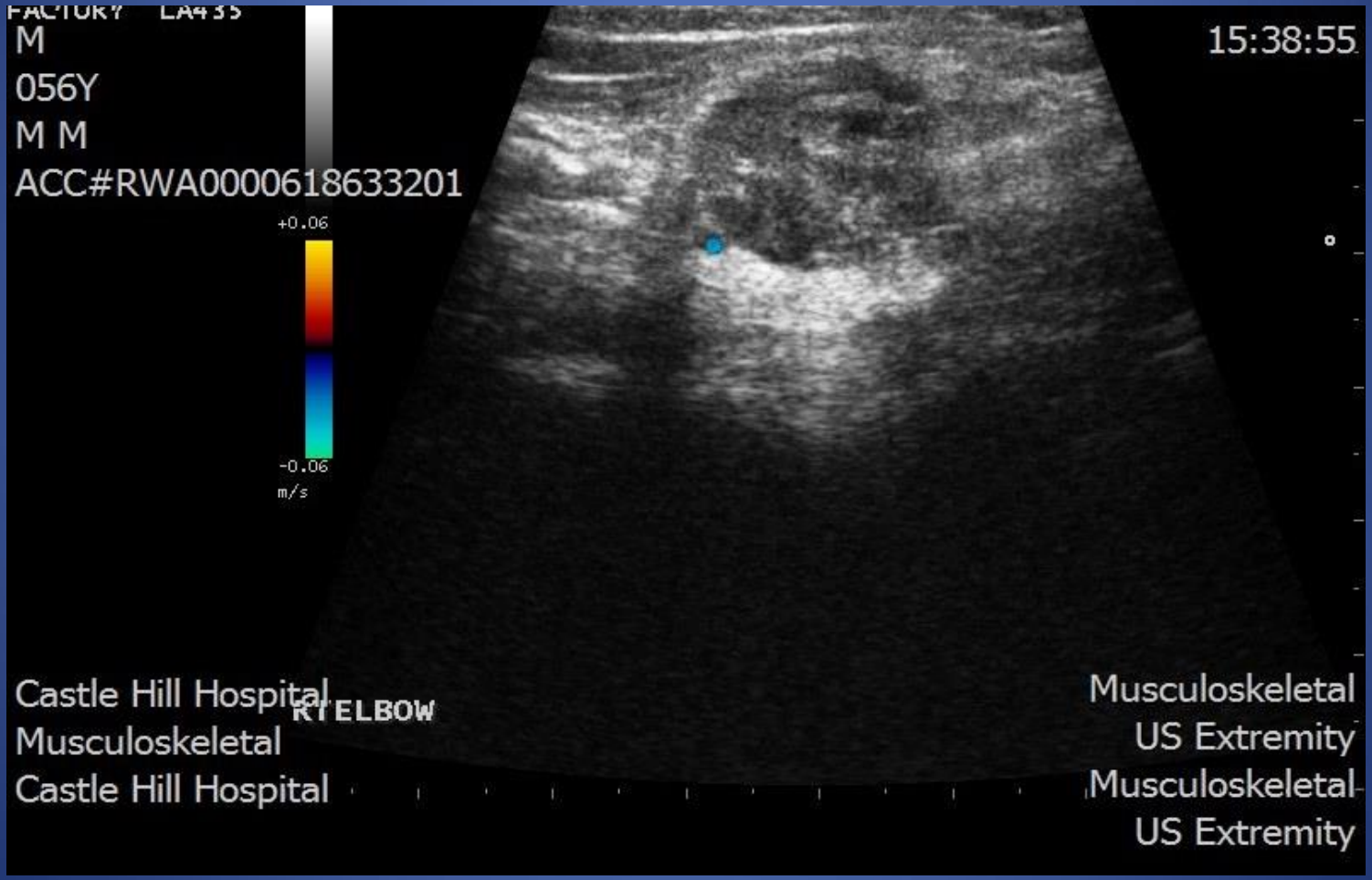


Achilles Tendinopathy

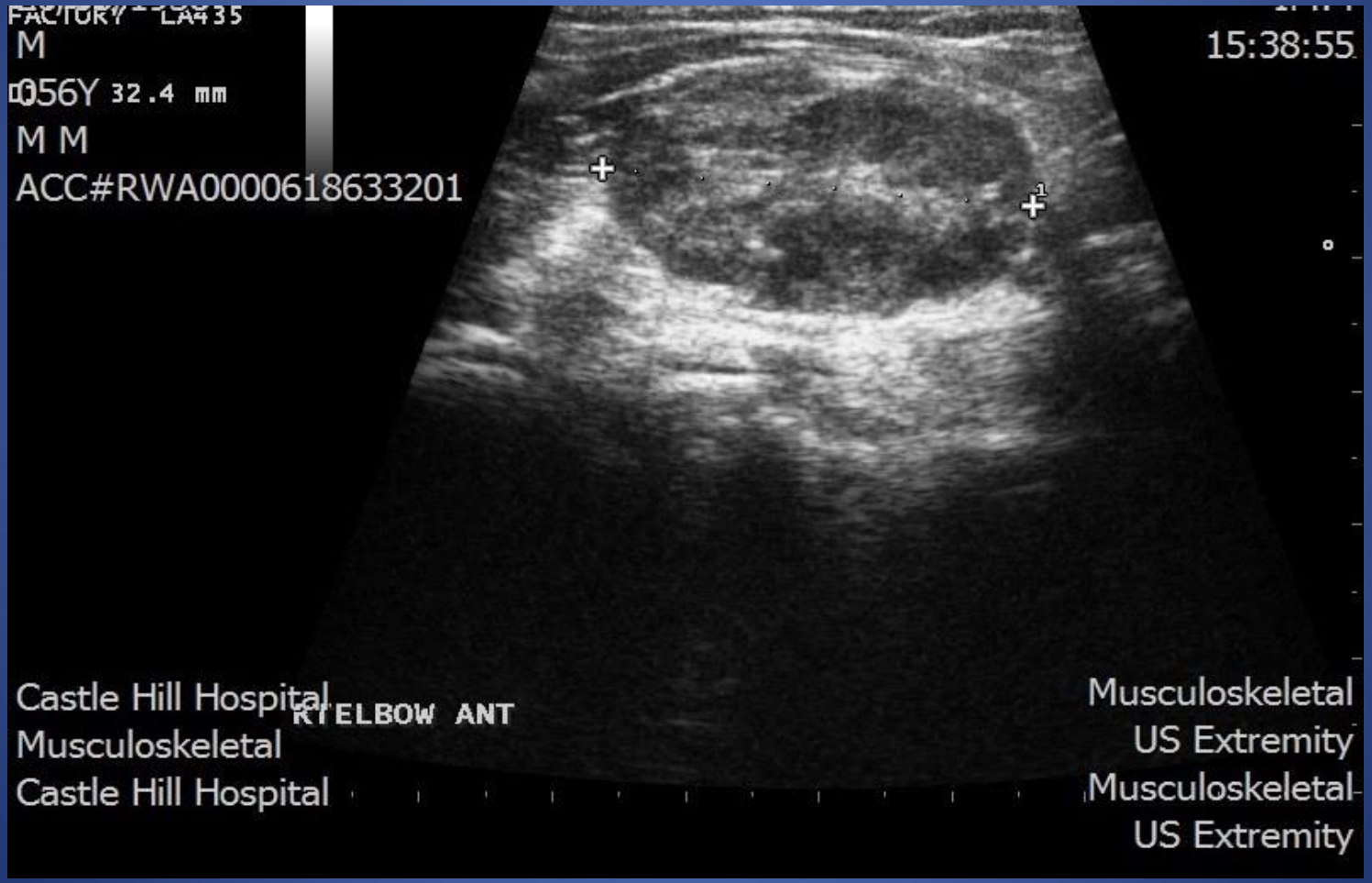
Peripheral nerve sheath tumours



Malignant PNST



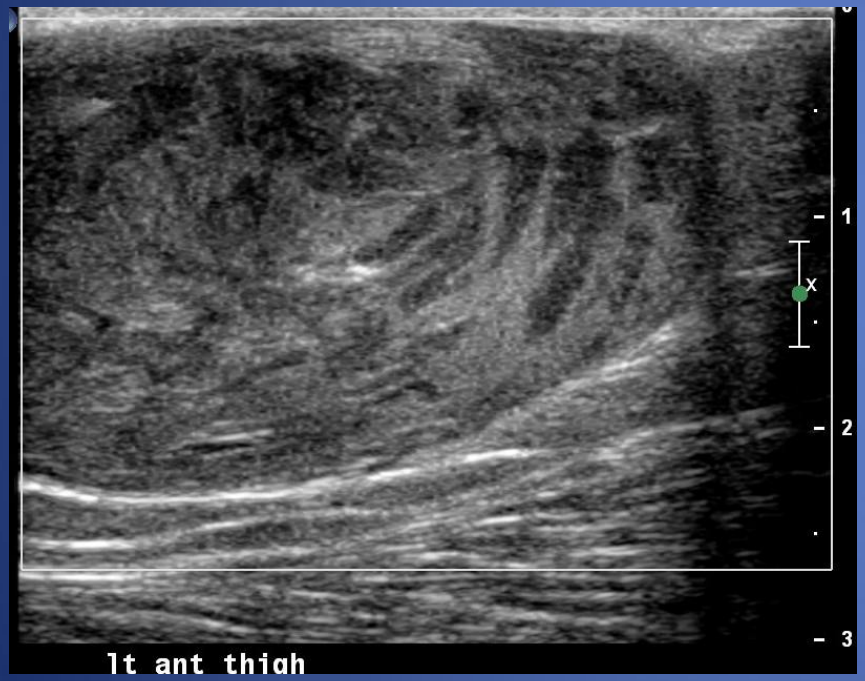
Malignant PNST – wide excision



Suspicious lesion - further referral/imaging necessary

- infiltrative margins
- branching internal vascularity
- breeching fascial planes
- noticeable change in size
- internal calcifications-(xray first)
- exceeds 5cm max diameter-history dependant

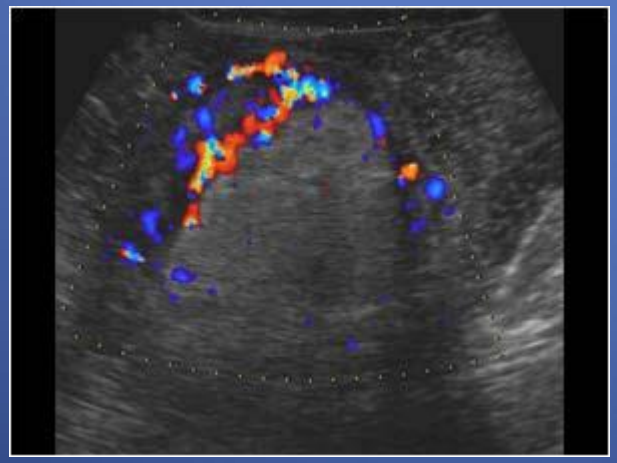
Suspicious lesion - further referral/imaging necessary



Suspicious lesion - further referral/imaging necessary

- Sebaceous cyst!

Suspicious lesion - further referral/imaging necessary

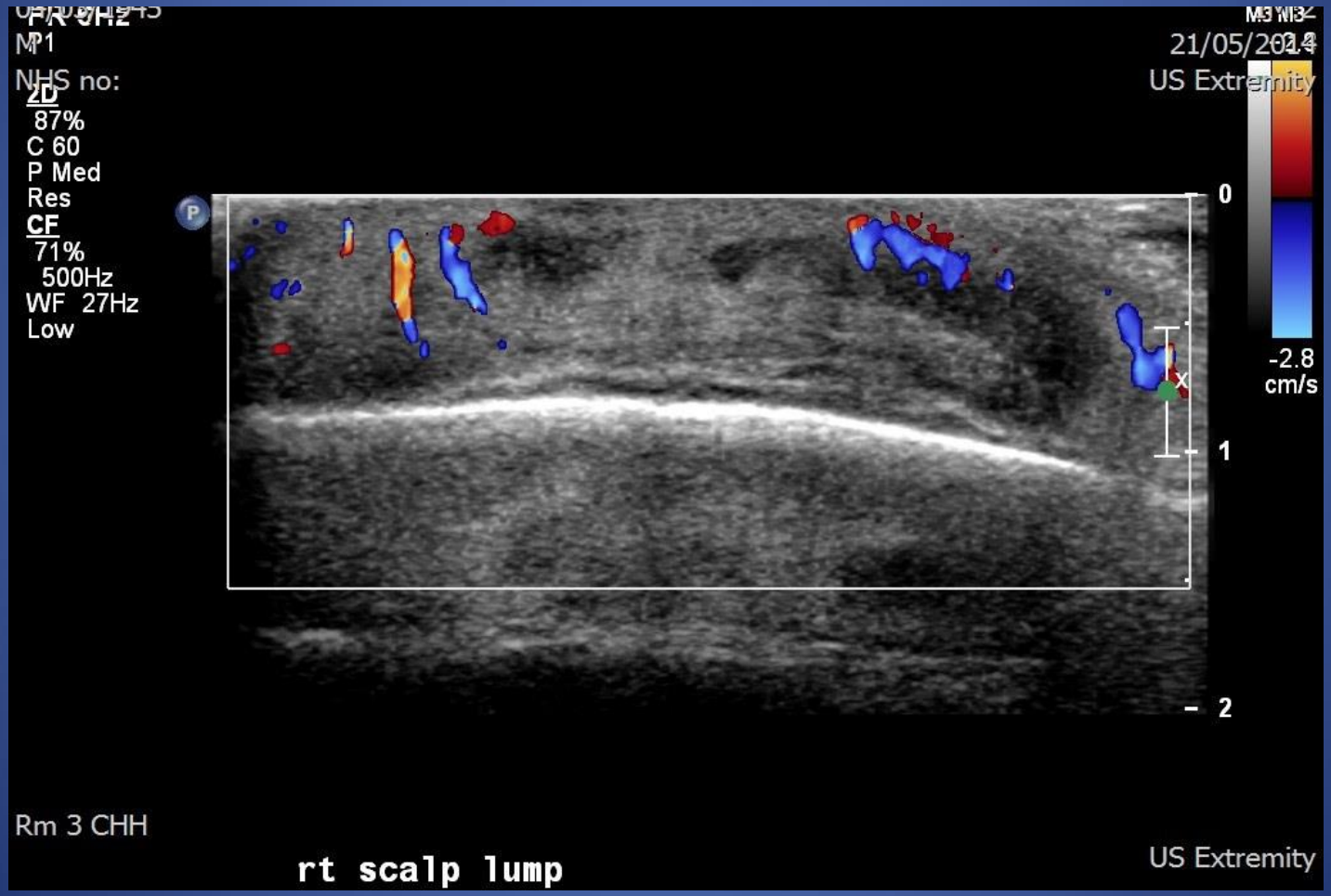


Suspicious lesion - further referral/imaging necessary

- Liposarcoma.

Suspicious lesion - further referral/imaging necessary

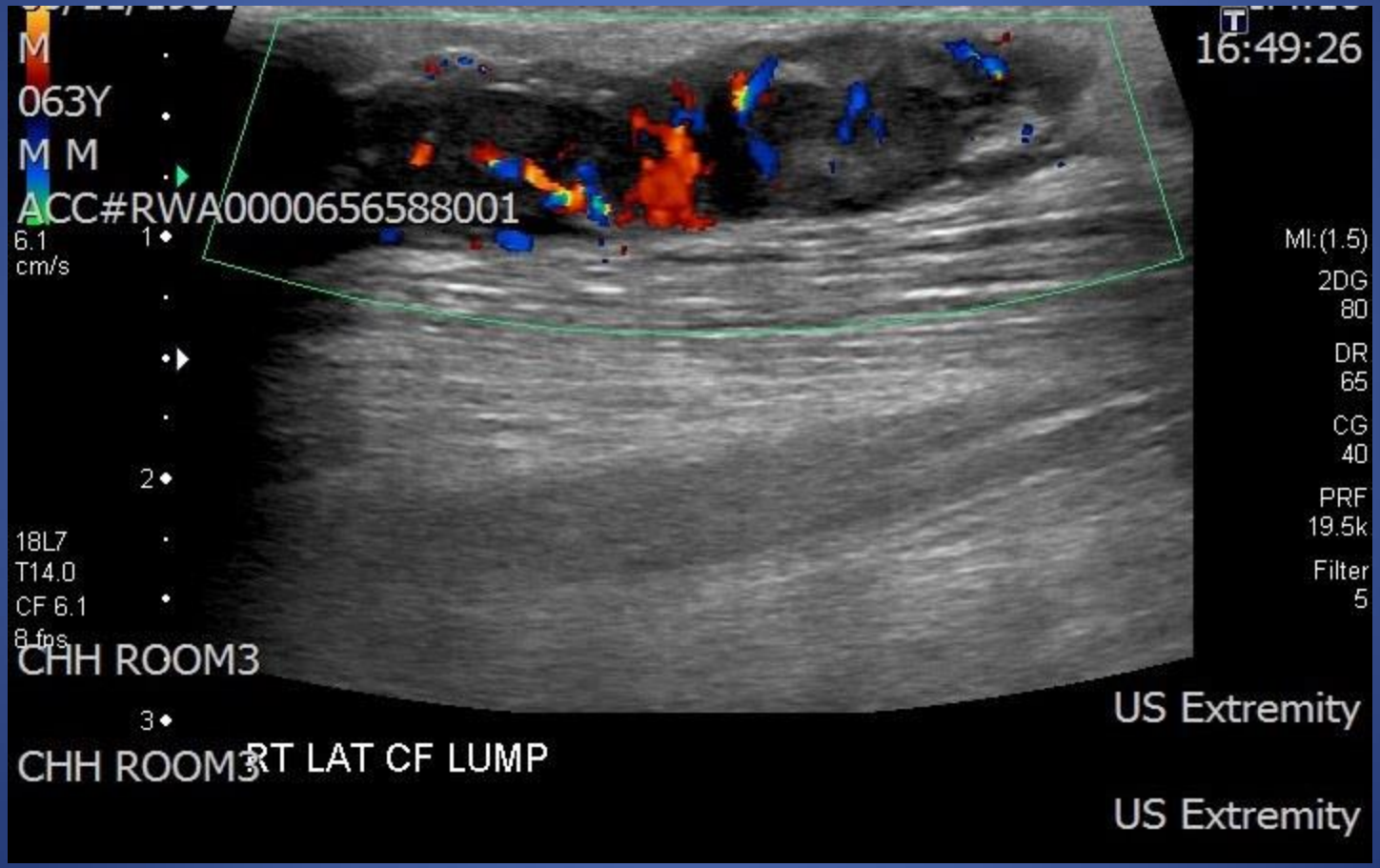
Suspicious lesion - further referral/imaging necessary



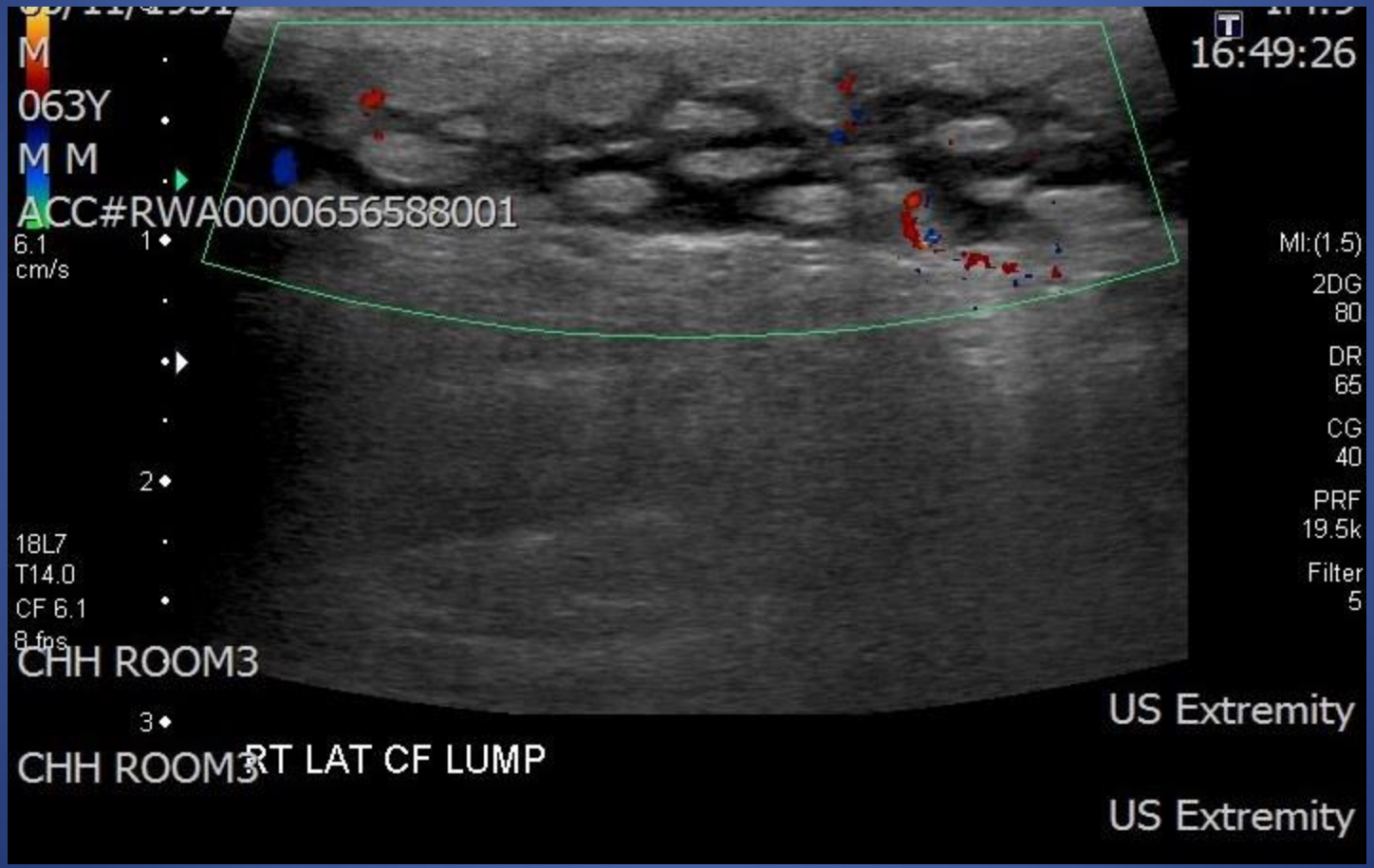
Suspicious lesion - further referral/imaging necessary

- Soft tissue MDT referral- excision and widespread reconstruction- angiosarcoma – subsequently gone on to develop liver mets.

Suspicious lesion - further referral/imaging necessary



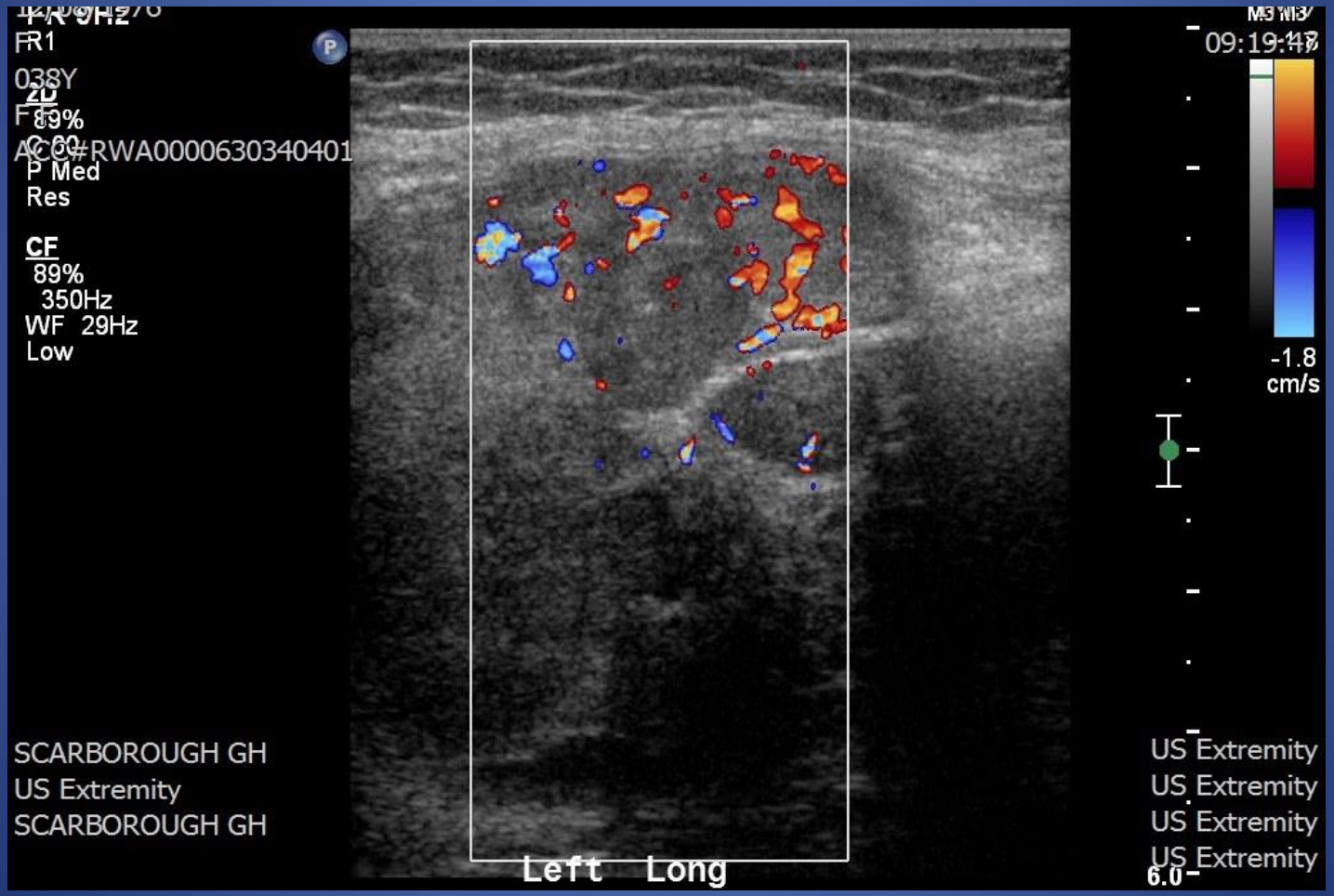
Suspicious lesion - further referral/imaging necessary



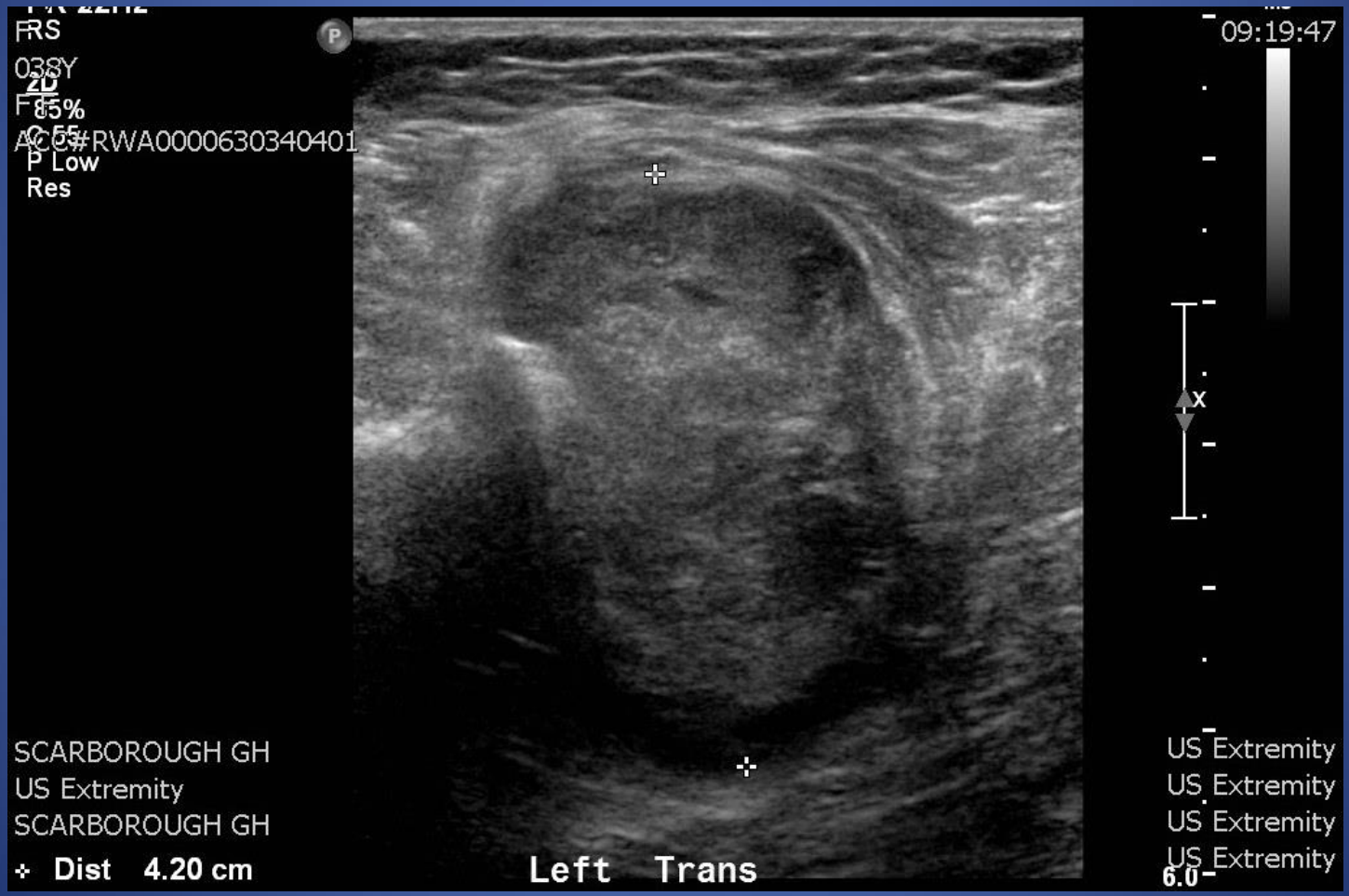
Suspicious lesion - further referral/imaging necessary

- High grade Spindle Cell Sarcoma- amputation

Suspicious lesion - further referral/imaging necessary



Suspicious lesion - further referral/imaging necessary



Suspicious lesion - further referral/imaging necessary

- Extraosseous ewings sarcoma- amputation- 3 month history

Is your US examination alone sufficient to obtain a diagnosis?

- Site – Is it clear?
- Extent – Can you see all of the lesion?
- Definitive diagnosis – Do you know what it is?

If NOT you need to recommend either further imaging or a specialist referral (second opinion from a specialist colleague)

Report:

- Brief history and examination
- Outline findings
- Summary statement should include:

  a) a diagnosis if possible

  b) a recommendation for next move,if applicable.

Report: No action-unequivocal

‘The patient describes a soft, non tender, mobile lump on the anterior aspect of her forearm that has been present for 2 years- in that time it has not grown in size.
The lump corresponds to a well circumscribed mass within the subcutaneous fat of 2cm maximum diameter. No internal vascularity.

Conclusion-Appearances are in keeping with a subcutaneous lipoma. No sinister features.

Should this mass increase in size or become painful, a rescan is advised.’

‘

Report:Sinister findings- urgent action

The patient describes a 3 month history of a painless swelling to the left distal medial thigh- on examination this is firm and fixed. The swelling corresponds to a non mobile mass within the vastus medialis muscle of 5cm maximum diameter. It demonstrates an irregular outline, a heterogenous echotexture and marked internal vascularisation.

Conclusion -This mass is highly suspicious of a soft tissue sarcoma.

Urgent referral to the plastic surgeons via the soft tissue MDT is necessary- report faxed to GP.'

Report:Equivocal findings- further referral

- The patient describes a lump of 3 months duration on the radial border of the distal phalanx of his right index finger. He became aware of this lump following a direct puncture wound from a thorn. It has remained the same size since he has been aware it. It was initially painful- following 2 courses of antibiotics the pain has subsided but the lump persists.

- The lump corresponds to a diffuse mass with ill defined borders of 1.5 cm- it does demonstrate some internal vascularity. A foreign body within this mass is difficult to exclude owing to the complex nature of this mass.

- Conclusion It is difficult to determine the exact nature of this mass on ultrasound- given the three month duration of this mass and its failure to respond to antibiotics coupled with the fact the patient describes a general malaise, then plastic surgical referral is necessary for further management.