

Lump not Rump...The value of a sonographer led service.

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Introduction: Superficial soft tissue masses are common 3:1000 of the general adult population. The vast majority of superficial lumps are benign (99%) and Referral is usually for reassurance

Value of ultrasound for superficial masses:

- Confirm presence of a mass or identify hypertrophic but normal tissue
- Differentiate solid from cystic lesions
- Define anatomical extent- location, size, depth with regard to the deep fascia.
- Detect vascular lesions

Methods: A retrospective audit of prospectively acquired data from GP-referred lump ultrasound performed over an 8 month period by three trained and experienced sonographers.

Sonographers initially had all scans reviewed by consultants, reducing to selective review after 4 weeks. Standards set locally were:

- ≥90% of reports made through a structured template identifying cases needing further assessment;
- Images in 2 planes, with measurements and colour flow in ≥90%;
- consultant opinion in ≥90% of lumps >5cm, with deep infiltration, irregular margins, or suspicious intra-nodular flow.
- Exclusion- breast pts and those under age of 18

Technique

- Palpate lump to confirm existence and location;
- Ask patient if lump is growing rapidly;
- Use high resolution linear probe with liberal coupling gel as stand-off;
- Image in 2 planes on grey-scale with measurements of size;
- Image with colour flow or power Doppler on low flow, high sensitivity settings

Training:

- Read protocol and articles
- Review cases on PACS teaching folder
- 1 session with radiologist to observe.
- 1 session with sonographer.
- 2 sessions unaided with radiologist in parallel room. (ensure using reporting template)
- Review of above cases for sign off
- Start independent list.

Comment on:

- Whether appearances are benign or suspicious –
- check all suspicious findings with a radiologist or senior sonographer;
- Recommend clinical referral and/or biopsy for suspicious lesions;
- Recommend MRI for deep lesions incompletely assessed on US

A complete diagnosis is not required if appearances are benign

Results:

TOTAL: 113 SCANS (1st October 2016 – 1st June 2017),

- 30 patients- No lump identified
- 2 pts- template not used
- 3 scans not reported as benign. All 3 were double reported with a consultant MSK radiologist .

• **Use of Template:** 81/83 used template. **98% compliance**

2 pts did not use report template. 1-lipomatosis, 2 - Bakers cyst. (however both state size, location and lipomatosis comments on lack of vascularity)

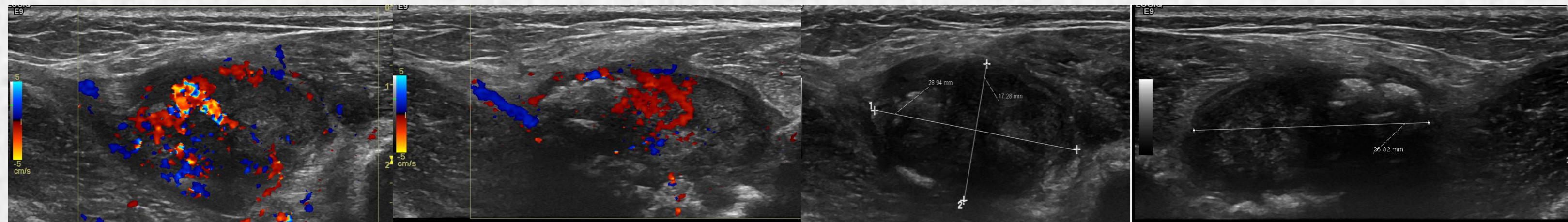
Report should be factual and contain:

- Location including side and site;
- Size;
- Depth with respect to deep connective tissue. Use angles of contact to identify whether superficial or deep for equivocal lesions;
- Nature- cystic or solid, homogenous or mixed echoes, presence of through transmission;
- Presence of colour flow and if florid or chaotic

Cases to review:

- >5cm, OR
- Infiltrated, irregular margins
- deep to deep fascia, OR
- with suspicious intra-nodular flow, OR
- If sonographer has concerns.

Images in 2 planes with colour Doppler show a soft tissue mass adjacent to the shoulder, (Fibro adenoma)



• **Measured in 2 planes:** 80/83 measured in 2 planes. **96% compliance**

No lump, bony prominence, lipoma- only 1 measurement on images- 3 reported ?images not sent to PACS.

• **Colour Doppler:** 75/83 used colour Doppler. **90% compliance**

2 epidermoid cysts, 3 ganglion, bakers cyst , bony prominence, Lipomatosis

• **Double reporting:** **100% compliance**

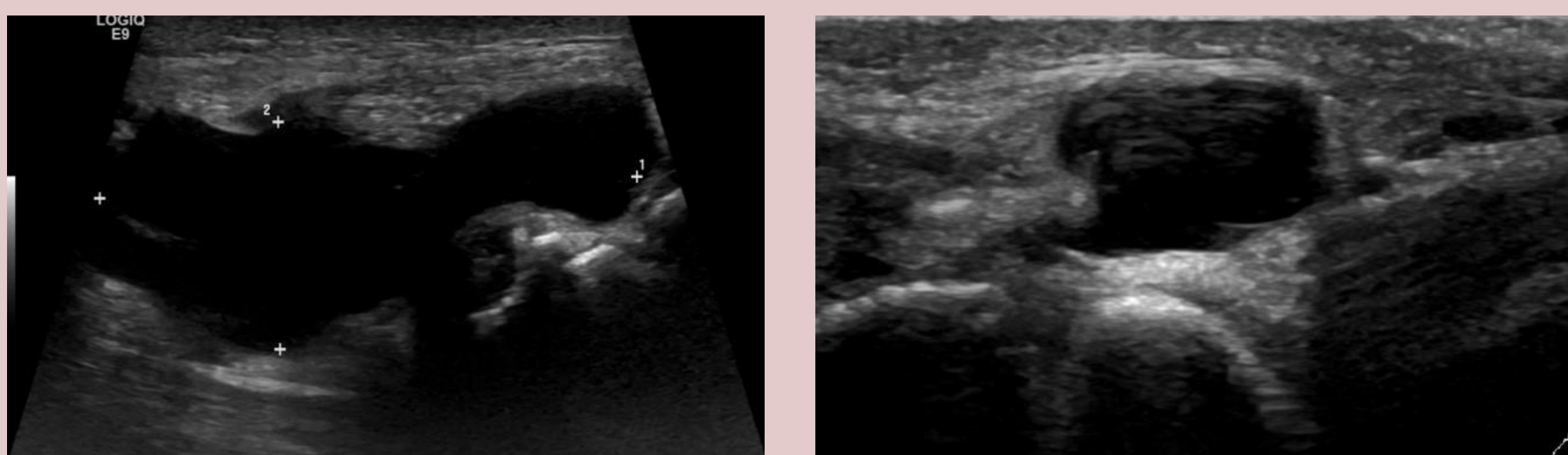
All scans not reported as benign or with deep extension and >5cm were double reported with consultant radiologists,

Conclusion: All standards have been met for the sonographer led lumps and bumps service. As expected, the pick-up rate of serious pathology is very low. We recommend that a sonographer run lump ultrasound service is feasible, efficient and uniform, and will allow consultant sessions to be released for complex cases. **No malignant lumps seen**

Cystic

GANGLION

- A ganglion cyst is a fluid-filled lobulated swelling that usually develops near a joint or tendon. Like a balloon on a stalk. The cyst can range from the size of a pea to the size of a golf ball.
- Most common in wrist, hand and fingers
- Can be painful and grow. Can be drained or cut with surgery.



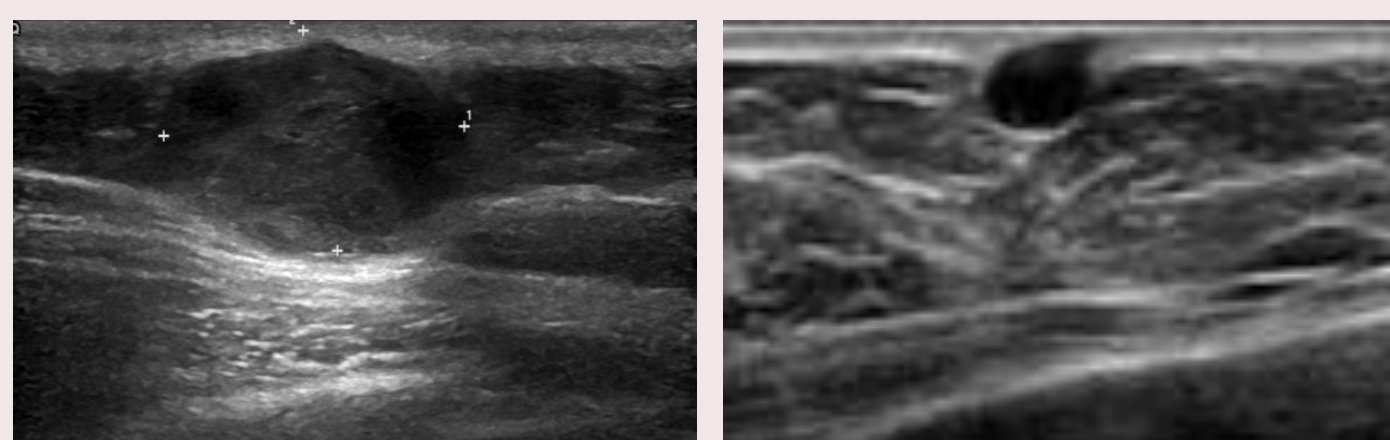
SEBACEOUS/EPIDERMAL INCLUSION CYST

- The cyst is situated in the dermis and raises the epidermis to produce a firm, elastic, dome-shaped protuberance that is mobile over the deeper structures
- Tethered to the epidermis, a central keratin-filled punctum may be present
- Cysts found near the skin surface are yellow-white
- Lesions enlarge slowly

Well circumscribed predominantly hypoechoic mass

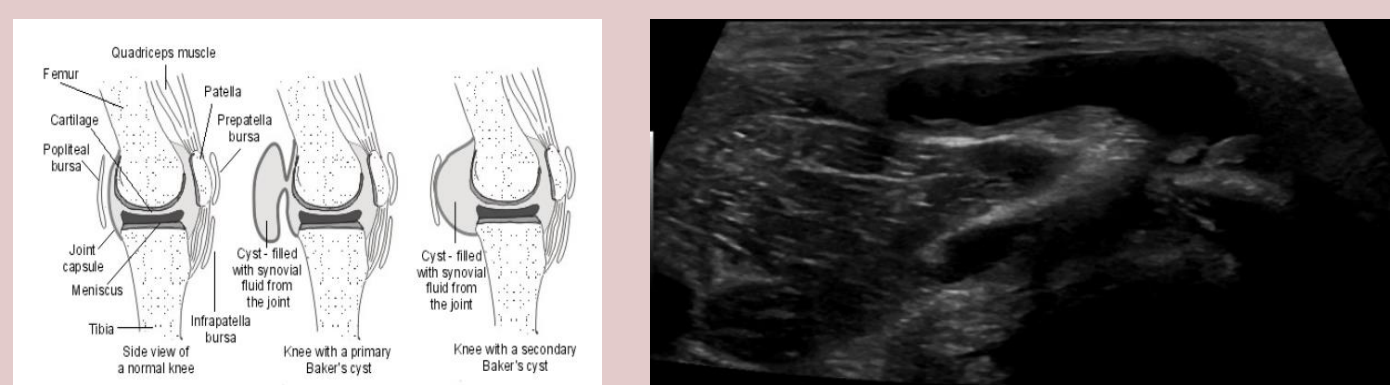
- ovoid to spherical: ~ 70%
- lobulated: ~ 20%
- tubular: ~ 8%.

• If small, it can mimic a typical anechoic cyst. Larger lesions can be a little heterogeneous. Usually no associated vascularity, can vary in appearance when ruptured



BAKER'S CYST

- Cystic nodule in medial popliteal fossa between semimembranosus and medial gastrocnemius tendons;
- Filled with synovial fluid from knee joint.



Solid

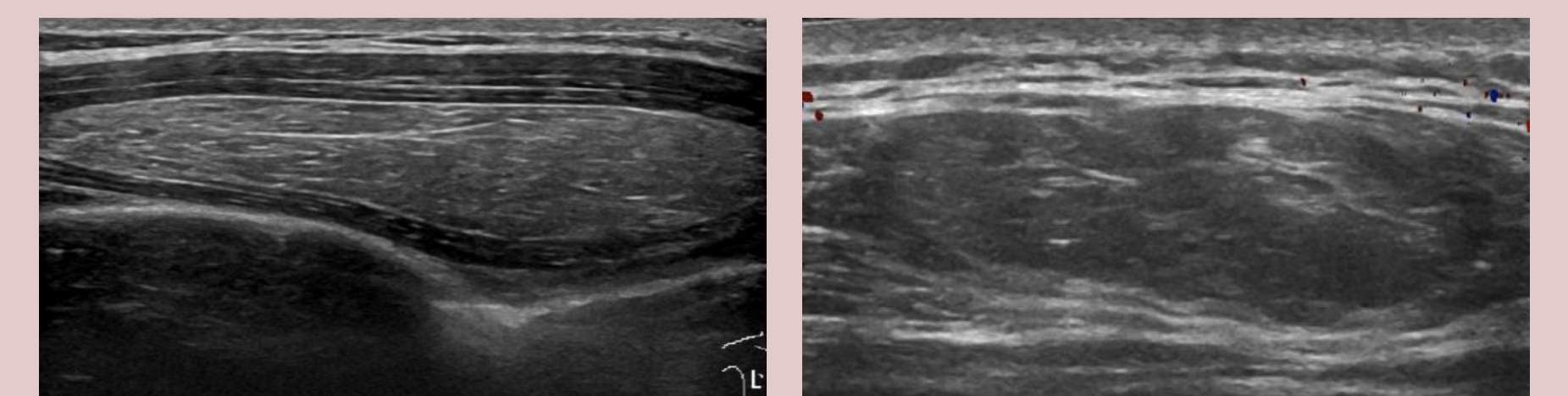
LIPOMA

Soft, fatty lumps which grow under the skin.

Benign and usually left alone. - caused by an overgrowth of fat cells.

Common sites: usually in 2% of population. Common sites include: shoulders, neck, chest, arms, back, buttock ,and thigh .

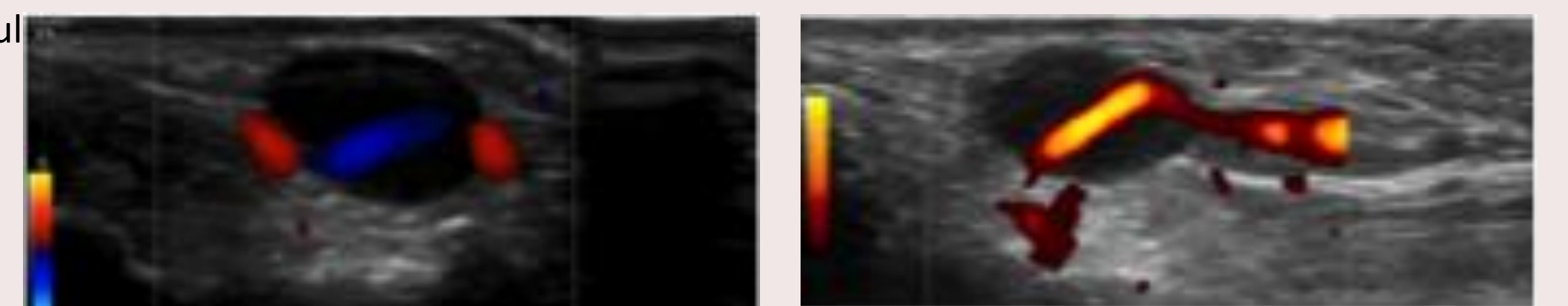
- Lentiform with parallel striations and compressible.
- Lipomas appear as echogenic and usually elongated If encapsulated, the capsule may be difficult to identify on ultrasound.
- hyperechoic: 20-52%.
- Isoechoic: 28-60%.
- Hypoechoic: 20%
- No acoustic shadowing.
- No or minimal colour Doppler flow



NERVE SHEATH TUMOUR

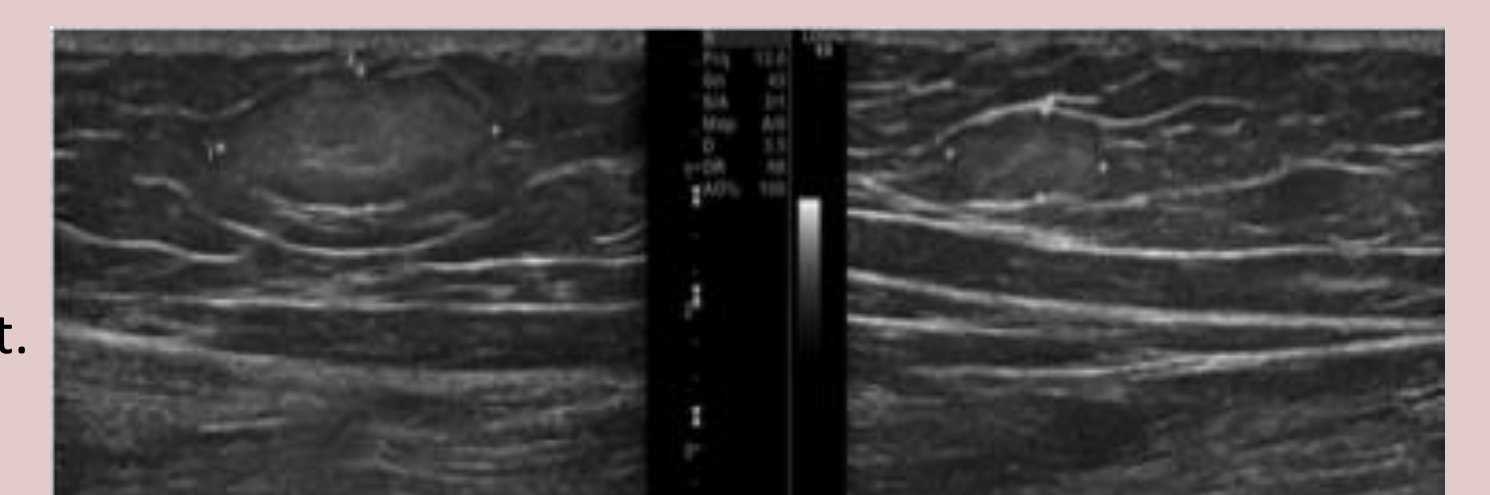
- fusiform, hypoechoic with through transmission and often nerve passing through. Benign tumours include Schwannoma.

- Heterogeneous
- Hypoechoic
- Fusiform mass
- Can be irregular in outline
- Can have pseudo capsule



FAT NECROSIS

- Cystic /solid with some flow in fat layer;
- Variable appearances
- Well-defined isoechoic mass with a hypoechoic halo and a poorly defined hyperechoic region in the subcutaneous fat.



HAEMANGIOMA

- Flow within but poorly marginated. May need second opinion;
- Variable appearance.
- Ill-defined or well-defined hypoechoic mass of heterogeneous echotexture with multiple cystic spaces within.
- Very little or no colour flow with Doppler.

GIANT CELL TUMOUR

- Vascular, often along tendon sheaths esp. in the wrist/hand;

