Lump and Bumps Ultrasound Evaluation

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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
- Varicoscit
- Muscle hypertrophy-contralateral side
Lipoma
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

Left palmar aspect
Fat necrosis
Baker’s cyst
Semi-membranosus gastrocnemius bursa
Varicosity
Muscle Hypertrophy
Recalcitrant haematoma

Beware haematoma vs. malignancy with absence of trauma ‘warning’
Equivocal lesions - further referral/imaging necessary
Small mass - unknown aetiology
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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
Dupytren's
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
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- Soft tissue MDT referral - excision and widespread reconstruction - angiosarcoma – subsequently gone on to develop liver mets.
Suspicious lesion - further referral/imaging necessary
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- High grade Spindle Cell Sarcoma - amputation
Suspicious lesion - further referral/imaging necessary
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• 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.
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.'
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.'
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 of 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.