

Bone Pathology

A series of bone pathologies diagnosed with ultrasound.

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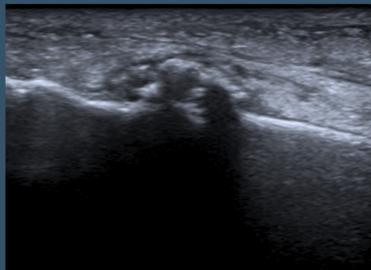
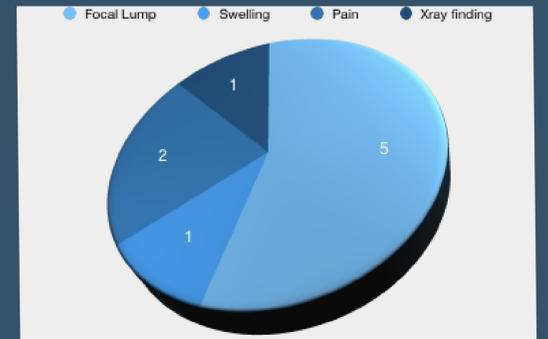


“Ultrasound images of the musculoskeletal system provide pictures of muscles, tendons, ligaments, joints and soft tissue throughout the body”¹. It is often over looked that the integrity and shape of the bone cortex can also be assessed.

The number of clinical ultrasounds performed annually in the UK is close to 10 million and is steadily increasing². Limb and superficial imaging is often performed to investigate musculoskeletal clinical features or increasingly as the first-line investigation to evaluate soft-tissue lumps.³

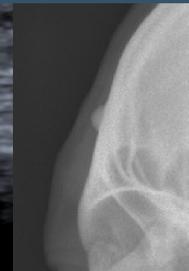
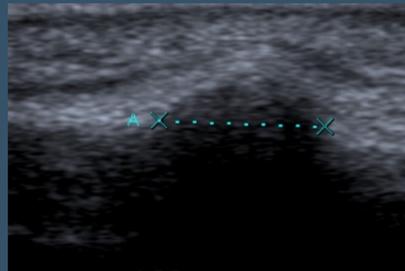
There is limited literature or case reports of bone pathology detected with ultrasound. Anecdotally in our institution we have made a number of diagnoses of bone pathology with ultrasound. Often the clinically indication has been the common, “soft tissue” lump or pain thought to be due to soft tissue pathology. We have collected these cases as examples of what can be diagnosed with ultrasound and to open the practitioners’ minds to look beyond the soft tissues and assess the bones for other potential causes of the clinical presentation.

Indication for Ultrasound.



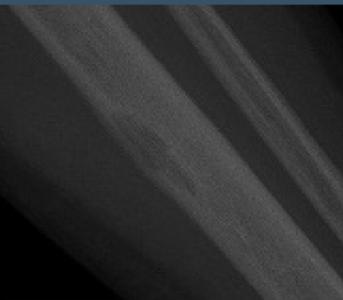
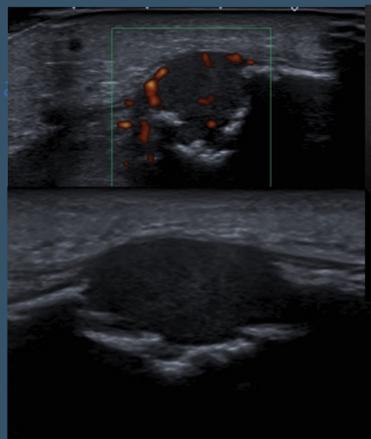
Metacarpal Stress Fracture

Presentation; 2 month history of foot pain ? Morton’s Neuroma. Cortical thickening and callus formation. Mx conservative rest to reduction in load.



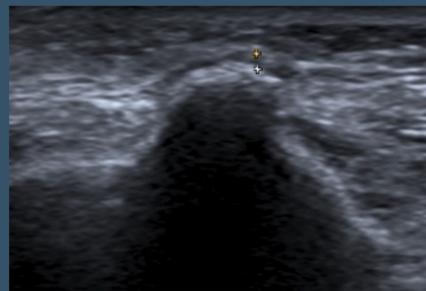
Osteoma

Presentation; lump extending from the frontal bone. Cortical protrusion with no soft tissue abnormality. Benign no further management.



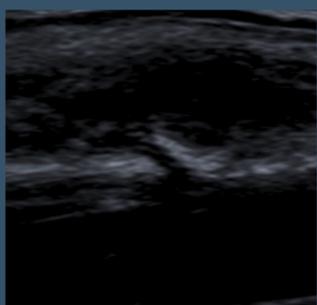
Bone Metastasis

Presentation; lump anterior shin. Cortical defect with vascular soft tissue mass. CT showed lung cancer.



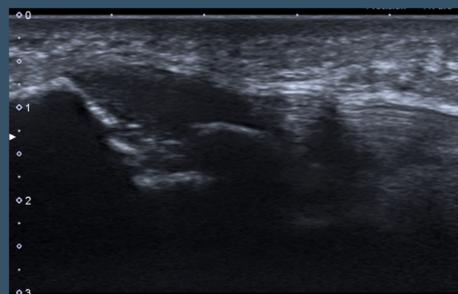
Osteochondroma

Presentation; 30yrs of enlarging lump outer aspect of leg. indicating a cough fracture. Cortical lump with a cartilage cap. Mx surgical referral if painful or growth of the cartilage cap (>15mm thickness) as there is an increased risk of malignant transformation.



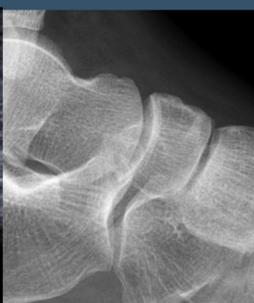
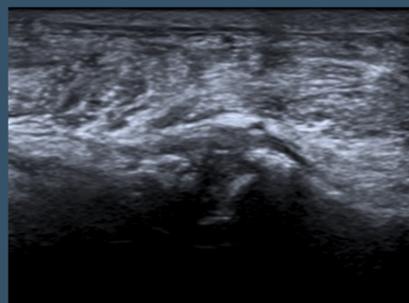
Rib Fracture

Presentation; lump above right nipple treated with antibiotics. Cortical defect indicating a cough fracture.



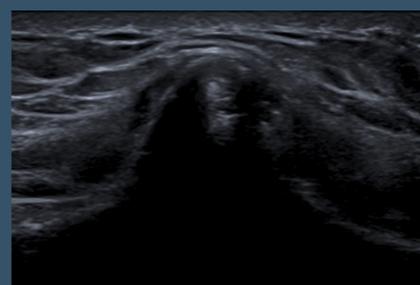
Patella Sleeve fracture

Fall off bike, direct knee blow. Patella Alta on xray. Separation of two bone fragments of the patella indicating a fracture.



Tarsal Coalition

Presentation; Ankle injury with no fracture on going lateral pain. Irregularity of anterior process of calcanium possible coalition confirmed on CT. Mx short term steroid injection or osteotomy of the coalition.



Manubriosternal OA

Presentation; lump lateral aspect of sternum. Osteophytes extend from the manubriosternal joint.



Learning

When examining soft tissues and joints with ultrasound and particularly when the pathology is not initially apparent. It is important to carefully assess the bones. As the above cases demonstrate, this approach may provide valuable information, help to guide management and further investigation more appropriately.

References.

- 1 British Medical Ultrasound Website - Musculoskeletal ultrasound.
- 2 Diagnostic imaging dataset annual statistical release. NHS 2017/18
- 3 Ultrasound of Musculoskeletal Soft-Tissue Tumors Superficial to the Investing Fascia Esther Hiu Yee Hung et al. AJR.