

## IMAGING OF FOREIGN BODY INJURIES

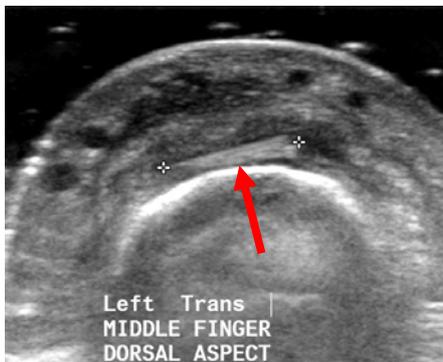
**Foreign Bodies (FBs)** from traumatic or iatrogenic injury will be seen from time to time in routine practice and imaging may have an important role in confirming the presence of a foreign body as well as its location should removal be considered or required. Road traffic crashes, bullet wounds (e.g. shotgun pellets) and debris from weapons used in physical assaults are causes of traumatic foreign bodies. Minor accidents and mishaps resulting in puncture wounds account for the majority of foreign bodies seen in standard clinical practice.

**Radiopaque foreign bodies** are easily diagnosed using **radiographs** and include metallic objects (with the notable exception of aluminium), most animal bones, some fish bones and **all glass** regardless of lead content. Visibility of radiopaque objects does depend on the size of the object e.g. a less than 1-2mm piece of glass buried deeply within soft tissue may not be visible.



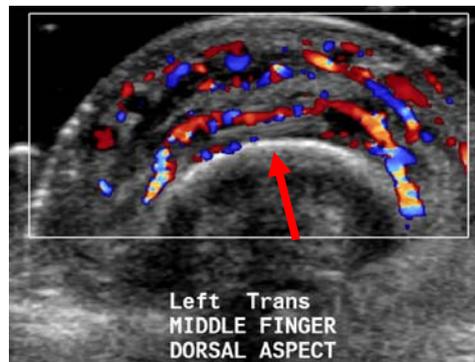
**Fig 1.** A splinter of glass in a finger (arrow)

**Nonradiopaque objects** comprise some fish bones, most wood, splinters, thorns including phoenix and nikau palm spikes, most plastics and most aluminium. Performing radiographs for these suspected FBs is usually redundant as they are not sufficiently radiopaque as to be visualised. **Ultrasound** is the imaging modality of first choice.

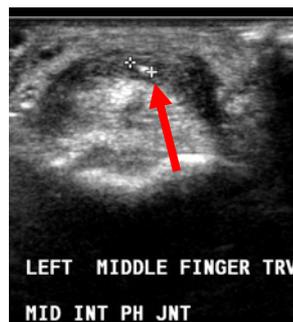


**Fig 2(a).**

US images demonstrate a phoenix palm spike adjacent to bone of the middle finger proximal phalanx with typical surrounding hypoechoic inflammatory change, resulting in florid increased colour Doppler flow (Fig 2b). Aside from confirmation of FB, US enables precise detail of size, orientation, position and depth to facilitate treatment planning.



**Fig 2(b).**



**Fig 3(a) & (b).** Longitudinal and transverse US images in a 46y female patient with suspected rose thorn FB, following penetrating injury pruning roses 3 weeks earlier, demonstrates a small, linear echogenic FB within a thickened and hypoechoic flexor tendon sheath.

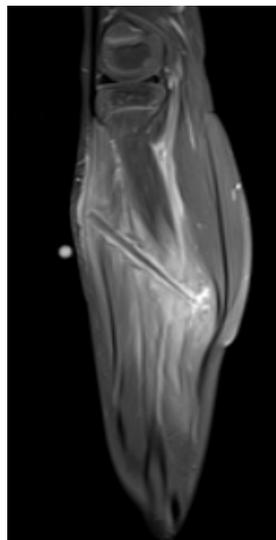
## **SUGGESTED IMAGING PATHWAY for PUNCTURE WOUNDS/PENETRATING INJURY**

**Suspect radiopaque FB** – perform **radiography**; if negative and high index of suspicion request ultrasound. Remember that **all glass is radiopaque**. The size, depth, orientation and position of the FB can be indicated and marked on the skin.

**Likely radiolucent FB** – request **ultrasound**, unless deep seated when CT or MRI could be considered. **A word of caution:** air in a wound, either as a result of the injury or from recent attempted surgical removal, will create echogenic areas on ultrasound and reduce the sensitivity and specificity for foreign bodies.



**Fig 4(a).** 6 year old boy with a history of a phoenix palm spike penetrating injury to his right leg one month prior to admission. This was treated intermittently with antibiotics but swelling persisted. He remained otherwise well and afebrile with no systemic features. Plain radiographs were requested but the thorn was not visible, although periosteal reaction at the lateral border of the proximal tibia was demonstrated, suggesting bone involvement (arrow).



**Fig 4(b).** Subsequent MRI shows the deeply embedded phoenix palm spike with soft tissue inflammatory change which resulted in deep infection and osteomyelitis.

**Clinton Pinto**

## **IMMEDIATE IMMIGRATION CHEST XRAY REPORTS**

**Electronic reporting of immigration chest xrays has now been authorised by the NZ Department of Immigration.**

**Immediate immigration chest xray reports are now available at all ARG branches throughout greater Auckland.**