EMERGENCY CASEBOOK

Fibular fracture: detection with high resolution diagnostic ultrasound

This case illustrates a fibular fracture in an adult male, sustained while jogging, not apparent on the initial plain radiograph, that was identified using high resolution ultrasound and confirmed on a follow up plain film (fig 1A, B, C).

Figure 1 (A) Initial PA and lateral radiograph of right lower leg taken on the day following the onset of symptoms which is unremarkable; (B) Ultrasound image of right lower leg, performed 30 min after the initial radiograph using a 10 MHz linear array probe, showing the striated muscle belly, the bony cortex (thick arrow), the cortical fragment (arrowhead), and the elevated periosteum (thin arrow) below which there is a subperiosteal haematoma; (C) AP radiograph of right fibula 14 days after the onset of symptoms, showing the comminuted fracture.

Diagnostic ultrasound is normally used to visualise soft tissues and great advances in both computer and ultrasound technology have led to more sophisticated equipment capable of producing high quality, high resolution images. The role of ultrasound in the evaluation of the bony skeleton is, however, limited. The major application of skeletal ultrasound to date is in the assessment of neonatal congenital dislocation of the hip, although it has been suggested that ultrasound should be the first line investigation in newborn infants with suspected clavicular fracture.¹ Sonographic detection of occult bone fractures in infants with localised painful swelling and initially normal radiographs has also been reported.²

While there is no disputing the role of plain radiography in the primary assessment of bony injury in adults we advocate the use of diagnostic ultrasound in cases where there is a high index of clinical suspicion and an unremarkable plain radiograph.

1 Katz R, Landman J, Dulitzky F, *et al.* Fracture of the clavicle in the newborn. An ultrasound diagnosis. *J Ultrasound Med* 1988;7:21-3.

2 Graif M, Stahl-Kent V, Ben-Ami T, *et al.* Sonographic detection of occult bone fractures. *Pediatr Radiol* 1988;18:383-5.

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