Figure 2 The hook in use

An inexpensive alternative method in the management of paediatric forearm fractures

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BACKGROUND

Elastic stable intramedullary nailing (ESIN) revolutionised paediatric long bone fracture management. Prebent nails create a stable, non-rigid, bending moment; preserving the thick, osteoblast rich paediatric periosteum encourages rapid bone healing.

Figure 1 Preoperative radiography of a nine-year-old boy with right midshaft forearm fractures

Figure 2 Postoperative radiography of the same patient three months after using the 'save a nail' technique

In paediatric diaphyseal forearm fractures, a single nail is sufficient for each bone; the radius and ulna form a synergistic unit via the interosseous membrane. Nails of identical diameter create equal opposing bending forces, avoiding malalignment. Often more difficult to reduce, the radius is frequently splinted first. The ulna typically reduces spontaneously. Nail ends are cut 5mm from the cortex with excess nail length being discarded.

TECHNIQUE

Our technique involves cutting a single nail in half to give two nails, more than sufficient in length, to splint both bones. The radius is nailed retrogradely and ulna reduction is ensured before the radial nail is cut. The retained radial nail is used as the ulna nail. Bending the nail end with pliers simulates the action of the smooth prebent nail tip. This allows easy ulna anterograde nail insertion and manipulation for fracture reduction. Aftercare and later nail removal is identical to traditional treatment.

DISCUSSION

In using one rather than two nails, the implant cost is halved. In a continuing case series, we have not noticed any technical or outcome difficulties (Figs 1 and 2). Our orthopaedic trauma unit performs paediatric forearm ESIN between 15 and 20 times a year; the costs from different companies vary between £95 and £130 per nail. We believe this technical adjustment could save a similarly sized orthopaedic department between £1,425 and £2,600 a year.