A tissue sparing technique to remove the distal fragment of a broken femoral nail

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BACKGROUND

Subtrochanteric femoral fractures are often managed with intramedullary nailing. Should non-union develop, the nail may fail, necessitating revision surgery (Fig 1). Depending on the site of nail fracture, retrieval of the distal segment of the nail can be difficult. We report a new extraction technique, using instruments available in any trauma surgery unit, that minimises tissue trauma and bone loss.

TECHNIQUE

The stainless steel reverse threaded screw extraction device in the Synthes (Solothurn, Switzerland) small fragment set (Fig 2) is used primarily for removal of screws with a damaged recess. Attached to a T-handle, it can also be reverse screwed into the cannula channel of the distal fragment of the intramedullary nail (made from softer titanium) until good purchase is achieved. Purchase is facilitated by initially retaining distal locking screws; they are subsequently removed and the distal nail fragment can then be pulled or tapped out easily (Fig 3).

Figure 1 Failure of the intramedullary nail and non-union

Trauma > Small Fragment > LCP Small Fragment Instruments > Instruments

309.521 Extraction Screw for Screws Ø 3.5 mm

Figure 2 Synthes screw extraction device

Figure 3 The removed distal fragment of the intramedullary nail

DISCUSSION

Retrieval of the distal fragment of a fractured femoral nail can be a difficult challenge. This technique is useful in all but the most distal nail fractures. It minimises soft tissue stripping and does not require any bone window.