Technical Section

TECHNICAL NOTES & TIPS

TECHNICAL NOTES

A simple technique to verify the correct placement of locking screws through intramedullary nails

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BACKGROUND

Imaging in two orthogonal planes is required to confirm the correct placement of locking screws when performing intramedullary nail fixation of long bones. Proximal locking screws are often inserted through a jig while distal screws are usually inserted freehand under fluoroscopic control. Correct placement is confirmed with a second orthogonal view; however, obtaining this view is often technically difficult especially in the proximal femur, for example when performing anteroposterior locking of a retrogradely inserted femoral nail. We have developed a technique which we have found useful in our clinical practice to overcome this problem which also minimises radiation exposure and the need to rotate the image intensifier C-arm.

TECHNIQUE

After insertion of the nail, the most distal locking screw is inserted either freehand using fluoroscopy or with a jig if one is available. Correct placement of the screw is confirmed by re-introducing the intramedullary guide wire. Its passage through the nail will be blocked by the screw only if it has successfully passed through the nail. This same technique can be used to verify the position of the drill prior to insertion of the screw. The guide wire is marked at the end of the nail introducer with a Kocher or clip (Fig. 1) and is then removed from within the intramedullary cavity and placed parallel to the nail adjacent to the leg. The tip of the wire should correspond to the level of the drill or screw entry point (Fig. 2). Correct placement of further, more proximal, locking screws can be confirmed in a similar fashion.

DISCUSSION

We have found this technique ideal for supracondylar and retrograde femoral nails and tibio-talar-calcaneal fusion nailing but can be used with any cannulated intramedullary system

Figure 1 Guide wire marked at the end of the nail introducer with a Kocher or clip.

Figure 2 Tip of the wire corresponds to the level of the drill or screw entry point.