Closed fracture manipulation – improving Charnley's three point fixation technique

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BACKGROUND

Closed manipulation of fractures is an important skill for orthopaedic surgeons. When closed treatment fails, open intervention is often necessary. This has an associated increased risk of complications. A well-moulded plaster reduces the chances of fracture displacement ('bent plaster, straight bone').

TECHNIQUE

Sir John Charnley¹ describes a method of three point fixation when applying a moulded plaster. The fracture is reduced and a plaster cast is applied. The plaster is moulded to apply pressure at the site of the fracture and proximal/distal to the fracture (Fig. 1). Determining the exact site of the fracture can be difficult once the cast is applied. Moulding at a site away from the fracture can result in subsequent fracture displacement. Sir John Charnley did not have the advantage of image intensification. The fracture is reduced and plaster applied. A metal pointer (e.g. a pair of scissors) is placed beside the limb and moved to the site of fracture by using the image intensifier as a guide (Fig. 2). The plaster cast is moulded and final radiograph images are obtained (Fig. 3).

Figure 1 Charnley technique of three point fixation.

Figure 2 Radiograph showing positioning of the metal pointer to guide moulding and achieve three point fixation.

Figure 3 Radiograph showing the plaster after moulding has been applied at the point determined by the metal pointer.

DISCUSSION

This modification of the classic Charnley technique is easy to perform and may be used when applying any plaster in the operating theatre.

Reference

1. Charnley J. *The closed treatment of common fractures*. Cambridge: Colt Books, 1999.