technique for control of caudate lobe branches draining into the IVC during liver resection (Fig. 2).

Reference

1. Fung Y, Blumgart L. Useful stapling techniques in liver surgery. *J Am Coll Surg* 1997; **185**: 193-200.

A frame-mounted X-ray guide for the Taylor Spatial Frame

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BACKGROUND

The Taylor Spatial Frame® is an external fixator used in the management of limb fractures and deformities (Smith and Nephew, 15 Adam Street, London WC2N 6LA, UK). Two rings are connected to the bone segments and are connected by six telescopic struts. These struts can then be adjusted and re-adjusted to correct complex deformities. Correction requires anterior-posterior and lateral radiograph to be taken in an orthogonal plane to the reference ring. Measurements of the deformity and frame position are determined from the radiograph and a computer program determines required strut lengths. In our unit, many radiographs were being taken not perfectly orthogonal to the ring, requiring numerous repeat radiographs. We have

made a device that allows the radiographer to align radiographs orthogonal to the desired ring.

TECHNIQUE

A spirit level is attached to a standard bolt. This bolt is attached to the reference ring prior to the radiograph being taken (Fig. 1). The radiographer then aligns the limb until the spirit level shows the reference ring is orientated at 90° to the ground. A radiograph taken in the standard vertical direction will then be perfectly orthogonal to the reference ring. The X-ray beam is then rotated 90° to obtain the second radiograph, also orthogonal to the reference ring.

DISCUSSION

This device is easy to manufacture and inexpensive to produce. Its placement on the desired ring assists the radiographer in producing perfectly aligned radiographs. It also makes it clear which ring the surgeon needs the radiograph centred on. In our unit, this has virtually abolished the need for repeat radiographs, reducing X-ray exposure and saving time for patients, radiographers and surgeons.

Parallel screw fixation of the medial malleolus

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BACKGROUND

Isolated fractures of the medial malleolus with over 2 mm of displacement have a reported non-union rate of 5–15%.¹ Open reduction and internal fixation is, therefore, considered the standard management for these fractures.^{1–3} Single screw fixation can be used;⁴ however, most authors advocate the use of two screws to prevent rotation.^{1–3,5} An interfragmentary lag screw is most efficient when it is perpendicular to the fracture surface.⁵ Therefore, when two screws are used to fix a transverse fracture of the medial malleolus (Fig. 1), they should be parallel to each other. Passing truly parallel screws in this situation can be technically difficult.

TECHNIQUE

The fracture is exposed, cleared and reduced with pointed reduction forceps. A 2-mm K-wire is passed up the tibia perpendicular to the fracture line. The AO parallel K-wire guide

Figure 1 The frame mounted X-ray guide.