transfer device is sterile packed and, unlike other syringe techniques³ (e.g. a 60-ml syringe with 19-gauge needle), there are no chances of contamination and needle-stick injury as the needle of the transfer device is covered by the polystyrene crystal body. This arrangement has an advantage over other irrigation techniques² in that it requires minimum manipulation, without the use of scissors and cutting of the additive port and can be used to deliver the irrigant at high pressure.

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Clip application to inferior vena cava branches in hepatic resections

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BACKGROUND

Control of venous branches draining into the inferior vena cava in major hepatic resections is important in reducing blood loss during mobilisation of the right lobe of the liver. Whilst the application of staplers¹ has simplified division of the major hepatic inflow and outflow vessels, the short, thin-walled venous branches to the inferior vena cava (IVC) are not suitable for these large instruments. These branches are found on the posterior aspect of the liver, arising from segment I (caudate lobe) and draining directly into the inferior vena cava. Because of their short length, it is often only possible to place two metal clips, the security of which is dubious with further necessary dissection and handling of the liver. Thus ligation or suturing of these caudate veins remains the current accepted practice, used alone, or in combination with simple staples. The traditional way of tying hand knots is time consuming and avulsion

titanium ligature clip

Figure 1 Application of titanium clip on the vein.

Figure 2 Clips on IVC after retracting right lobe of liver.

or cutting through of the ties can result in extensive bleeding and an extending tear in the IVC.

TECHNIQUE

The unique locking titanium clip which we have used extensively in laparoscopic splenectomy to avoid use of more expensive staplers. We have used this instrument during major open liver resection to control the caudate lobe veins (Fig. 1). Due to its locking design, control of these vessels can be achieved safely with a single clip on either end of the vein. Slippage from the vessel stump does not occur even with very short vein stumps.

DISCUSSION

We have used this technique successfully in over 200 major liver resections without any additional requirement for ligatures or sutures. We have not experienced any slippage from these clips nor late complications attributable to them. We have also used this technique during laparoscopic liver resection without complication. We recommend routine use of this safe and quick

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

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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.