A novel surgical technique to treat sacral fractures

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BACKGROUND

Two bilateral fixation points distal to the S1 vertebra are often required when treating displaced S1 fractures surgically. We obtain two distal fixation points bilaterally using a modification of the S2 alar iliac screw technique, first described by the senior author.^{1,2}

TECHNIQUE

Using an awl, define the first screw's entry point. This is located 1mm lateral and 1mm distal to the S1 dorsal sacral foramen. A 2.5mm drill, angled 40° lateral and 20–30° caudal, is used to create a hole crossing the sacroiliac joint and reaching to the far iliac cortex. This is facilitated by fluoroscopy (Fig 1). An anteroposterior view verifies that the drill is less than 20mm from the greater sciatic notch while a teardrop view confirms that the drill is in the thickest part of the ilium (Fig 2). A probe is used to confirm the hole is entirely intraosseous. A guidewire is placed in the hole and the hole tapped.

A second entry point is defined, 2–4mm lateral and 4–8mm distal to the S1 foramen. A second hole is drilled and tapped parallel to the first guidewire. Finally, two partially threaded cannulated screws of 9–10mm in diameter and at least 80mm in length are inserted. Figure 3 shows the postoperative computed tomography.

DISCUSSION

This reliable and reproducible technique stabilises sacral fractures and facilitates the correction of associated deformities. The technique can

Figure 2 Intraoperative anteroposterior and teardrop radiography confirming both screws are positioned satisfactorily

Figure 3 Postoperative computed tomography

also be used when treating fractures of the L5 vertebra and spinal deformities including high grade spondylolisthesis.

References

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Figure 1 Intraoperative fluoroscopy showing guidewire in the distal hole and drilling of the proximal hole

A novel approach to closed reduction of distal femur fractures

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BACKGROUND

Fractures of the distal femur are common and periprosthetic fractures are becoming more prevalent. Muscle attachments often cause shortening, varus displacement and an extension deformity, which must be addressed at reduction.^{1–4} We describe the use of a posterior reduction device (PORD™; Orthofix, Bussolengo, Italy) to successfully achieve closed reduction and fixation of periprosthetic fractures of the distal femur.

Figure 1 Patient positioning on traction table using PORD™

Figure 3 Image intensifier projection showing lateral view of supracondylar periprosthetic fracture of right distal femur with the PORD™ being positioned too proximally (left) and correctly (right) on femur

TECHNIQUE

The PORD™ is attached to a standard traction table with clamps. The patient lies in the supine position and gentle longitudinal traction is applied (Fig 1). The PORD™ is placed under the distal femur. It acts as a fulcrum, against which the lower limb is flexed while maintaining traction. This relaxes the gastrocnemius and soleus complex, providing a counterforce to the muscle pull. As such, longitudinal, sagittal and rotational displacement can all be controlled during surgery. Coronal displacement is overcome by reduction on to or with the plate.

Figure 2 Anteroposterior (left) and lateral (right) radiography showing supracondylar periprosthetic fracture of right distal femur

Figure 4 Anteroposterior (left) and lateral (right) radiography showing successfully reduced supracondylar periprosthetic fracture of right distal femur using plate fixation

DISCUSSION

The PORD™ is designed and marketed predominantly for the assistance in reduction of proximal femoral fractures on a traction table. It has not been described in the use of reduction of fractures of the distal femur. Others have described the concept of a PORD™ in the form of a bolster, rolled up towels, a padded drip stand or even a crutch^{3,4} but maintaining reduction can be challenging with these devices and they cannot be used with a traction table. Furthermore, the PORD™ facilitates easy use of the image intensifier. We have found that the PORD™ is a powerful tool, enabling a stable anatomic reduction to be achieved and maintained even for very distal peri-prosthetic fractures (Figs 2–4).

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A method to remove stuck external fixator half pins

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Half pins used with external fixators can be difficult to remove, particularly if they have a smooth shaft or a hydroxyapatite coated thread.^{1,2} Drill chucks can become worn and often slip on smooth pins, and removal tools do not work when there is no bevelled edge on collarless half pins. We recommend bolting a five-hole rancho cube to

Figure 1 Clinical photograph illustrating the use of a five-hole rancho cube to remove a 6mm half pin

a 5mm or 6mm half pin to provide a long lever arm for quick and easy removal of half pins that have become stuck in a long bone.

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Intraoperative bile leakage detection during liver surgery using propofol

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BACKGROUND

Advances in surgical technique and postoperative management have significantly reduced morbidity and mortality rates during liver surgery. However, bile leakage remains a common complication after major liver surgery, increasing morbidity, hospital stay and cost.¹ During the last decade, many intraoperative tests have been reported to help identify and manage bile leakage.^{2,3}

TECHNIQUE

At the end of the procedure, a 18G venous catheter is inserted through the common bile duct or the cystic duct stump if a cholecystectomy was performed. The distal common bile duct is either occluded manually or with the use of a vessel loop. 5–10ml of propofol 1% is injected slowly into the biliary tree with a syringe. With propofol being a milk-like solution, if any leakage is present, white fluid will be visualised on the surgical margin. All detected open bile ducts are closed with a polydioxanone suture. The surgical site is washed off with sterile saline and the test is repeated if necessary. At the end of the test, any residual propofol in the biliary tree is washed away with sterile saline and the catheter insertion site is closed with a polydioxanone suture.

DISCUSSION

Intraoperative detection of bile leakage during liver surgery using propofol is based on the White test.⁴ Instead of using fat emulsion, we prefer using propofol, which is also a fat soluble, white preparation, readily available in any operating theatre. We have successfully used propofol intraoperatively for bile leakage detection during major liver resections and hydatid liver cyst surgery with no adverse effects.

References

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