Figure 1 A Sterling punch is used to hit the metal shell of the acetabular component

Figure 2 Suction from a pulse lavage gun is used to form a seal around the ceramic bearing

TECHNIQUE

Our technique uses instruments available in all arthroplasty sets. Once adequate exposure of the entire cup is achieved, a Sterling punch is used to direct a forceful blow on the metallic shell only (Fig 1). Such action resonates the bearing and deforms the taper, causing loosening of the ceramic. The force must be applied to the metal shell only, and not the bearing, to avoid ceramic shattering. The tip from a pulse lavage gun, with integrated vacuum suction, is then used to create a seal around the periphery of the bearing. The suction creates a vacuum strong enough to pull the bearing out of the shell readily (Fig 2). We use this technique routinely when removing hard bearings from a securely fixed shell.

DISCUSSION

We have described a reliable technique that allows for safe extraction of ceramic bearings without the risk of shattering or the high costs associated with the loaning/purchasing of specialised equipment.

Reference

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Kocher forceps assisted pedicle screw insertion as an aid to the trainee spinal surgeon

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BACKGROUND

The reported incidence of misplaced spinal screws using uniplanar fluoroscopic guidance varies widely.¹ In addition to anteroposterior fluoroscopic screening, obtaining a true lateral image of the pedicles is the key to optimum screw placement but this can be difficult to achieve.² When difficulties arise in identifying the endplates (such as in the presence of significant osteopenia, degenerative scoliosis or high body mass index), screws can be inserted with increased confidence with the technique described. We describe a simple technique to improve intraoperative pedicle visualisation for the trainee surgeon.

TECHNIQUE

Kocher forceps are applied loosely to each of the two transverse processes of the vertebra to be instrumented and both are held together in position with a swab tie to avoid crushing the transverse processes (Fig 1). The image intensifier C-arm is adjusted until the two forceps are seen to overlap, thereby achieving a true lateral view with sharper definition of the pedicles (Fig 2).

DISCUSSION

This technique enables quicker and easier 'true lateral' visualisation of the pedicles, especially in the setting of degenerative lumbar

Figure 1 Spinal column sawbone model demonstrating placement of Kocher forceps on each transverse process to help facilitate fluoroscopic pedicle screw placement

Figure 2 Image intensifier fluoroscopy demonstrating C-arm adjustment to achieve overlap of the two Kocher forceps

scoliosis where difficulty is encountered in visualising endplates 'end on'. It facilitates more confident accurate pedicle screw placement, with reduced image intensifier screening time.

References

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2. Weinstein JN, Rydevik BL, Rauschnig W. Anatomic and technical considerations of pedicle screw fixation. *Clin Orthop Relat Res* 1992; **284**: 34–46.

An aide-mémoire for the Salter–Harris classification of paediatric growth plate fractures

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BACKGROUND

The Salter–Harris classification system has become established as the most commonly used system for describing paediatric growth plate injuries.¹ Correct identification of the type of injury is crucial as it can have significant ramifications on prognosis and treatment choice. Classification systems can be somewhat cumbersome and difficult to remember. However, there is a quick and straightforward way of recalling the aforementioned classification.

TECHNIQUE

The individual configurations of the different fracture types can be seen to resemble the number of the classification system they represent (Fig 1). As a result, even during a busy on-call shift, this *aide-mémoire* can allow quick and easy recall of the classification, allowing correct identification of the fracture type.

Figure 1 Diagram demonstrating the Salter–Harris fracture configurations resembling the number of the classification system that they represent: 1. Transverse fracture through the physis; 2. Fracture through the physis and metaphysis but sparing the epiphysis; 3. Fracture through the physis and epiphysis but sparing the metaphysis; 4. Fracture through the physis, epiphysis and metaphysis; 5. Compression injury of the physis.

DISCUSSION

This *aide-mémoire* presents a quick and easy way of recalling the universally recognised Salter–Harris classification system of paediatric growth plate injuries, allowing accurate diagnosis of the type of injury, which is salient in determining subsequent prognosis and management of the patient.

Reference

1. Salter RB, Harris WR. Injuries involving the epiphyseal plate. *J Bone Joint Surg Am* 1963; **45**: 587–622.