Technical Section

TECHNICAL NOTES & TIPS

Technical Notes

Removal of broken drill bits and locking screws from an intramedullary nail

SJ MATTHEWS, RE LANDSMEER, TL THOMAS
Department of Orthopaedic Surgery, Colchester General
Hospital, Colchester, Essex, UK

CORRESPONDENCE TO

Mr Simon J Matthews, 2 Beeleigh Link, Chelmsford, Essex
CM2 6RG, UK. M: +44 (0)7973 718706;
E: simon@doctorslash.com

BACKGROUND

Intramedullary nails are commonly used for internal fixation of long-bone fractures. When locking screws are used, both drill bits and screws may break at the time of insertion. Screws may also fail *in situ*, especially in the case of delayed or non-union. Both cause a problem should the nail require removal, resulting in a large, soft-tissue dissection and cortical disruption to retrieve the broken item.

Figure 1

Figure 2

Although methods have been described to push a fractured screw into the surrounding soft tissue via the use of a k-wire¹ or insertion of a new screw,² we describe below a technique for complete removal via small stab incisions.

TECHNIQUE

The patient is positioned on a radiolucent table and draped as usual. Under image intensifier guidance (an ankle is shown for example), a stab incision is made either side of the broken item and a small artery forceps is used to dissect through the soft tissue bluntly. In the case of a fractured screw, the head is removed by the use of an appropriate screwdriver. A drill bit is passed through the incision, to make a cortical hole sized to accept a 10-cm length of stainless steel tube of an appropriate diameter (Figs 1 and 2). On the other side of the limb, a smaller cortical hole is made in the same way and a thin stainless steel rod punch drives the item into the tube (Figs 3 and 4). The item is thus removed with the minimum damage to the soft tissue or bone, allowing for early mobilisation with reduced risk of fracture. The stainless steel rod and tubing used are readily available from hardware shops, can be easily cut to length to form a set of various diameters and can be effectively sterilised by autoclaving.

ACKNOWLEDGEMENT

We would like to thank Mr G Matthews for preparing the illustrations.

References

1. Sancineto CF, Rubel IF, Seligson D, Ferro GV. Technique for removal of broken interlocking screws. *J Orthop Trauma* 2001; **15**: 132–4.
2. Davies NM, Farnell RD, Unwin AJ, Jones JR. A technique for removal of fractured locking screws from an intramedullary nail. *Injury* 1997; **28**: 159.

Laparoscopic assessment of bowel viability after reduction *en masse*

NISHATH ALTAF, JAVED AHMED, JOHN DORAN
Department of Surgery, Queen's Medical Centre, Nottingham, UK

CORRESPONDENCE TO

Mr Nishath Altaf, Research Fellow, Department of Surgery,
Queen's Medical Centre, Nottingham NG7 2UH, UK
T: +44 (0)115 924 9924 (ext 44057); F: +44 (0)115 970
9140; E: nish.altaf@nottingham.ac.uk

BACKGROUND

Strangulated inguinal herniae are common in the emergency setting and are associated with significant morbidity and mortality.^{1,2}

Reduction *en masse* may occur in the initial stages of the operation and visualisation of the viability of the bowel is essential before the hernia repair. This usually involves an extension of the original incision and/or a laparotomy resulting in a longer hospital stay, morbidity, mortality² and, in a significant number of cases, bowel resection is not required. We, therefore, describe a laparoscopic technique that allows an adequate assessment of bowel viability without increasing the size or nature of the initial incision.

TECHNIQUE

Should a reduction *en masse* occur in the early stages of the operation, a 10-mm laparoscopic port is inserted through the hernia sac into the peritoneal cavity. A purse string is then secured around the port, a pneumoperitoneum is established and a 30° laparoscope is passed to assess the intraperitoneal cavity. A further 5-mm port is inserted superiorly, allowing insertion of a non-traumatic instrument. This will allow an adequate assessment of bowel viability, thereby allowing the surgeon to decide whether a bowel resection is required.

DISCUSSION

This unique application of laparoscopy allows the surgeon to assess bowel viability after reduction *en masse* during the early stages of strangulated hernia repair and, in some cases, will prevent a larger abdominal incision. We have only recently started using this technique; of the three cases managed in this way, one had ischaemic-looking bowel which, after laparoscopic assessment over 20 min, was deemed viable. In the other two cases, there was no evidence of bowel ischaemia. All three patients had uneventful recoveries. A possible false negative rate is a concern and larger study to assess this is warranted.

References

1. Alvarez JA, Baldonado RF, Bear IG, Solis JA, Alvarez P, Jorge JI. Incarcerated groin hernias in adults: presentation and outcome. *Hernia* 2004; **8**: 121–6.
2. Kurt N, Oncel M, Ozkan Z, Bingul S. Risk and outcome of bowel resection in patients with incarcerated groin hernias: retrospective study. *World J Surg* 2003; **27**: 741–3.

Reduction of abdominal pressure for prophylaxis of the mesenteric artery syndrome (cast syndrome) in a hip spica – a simple technique

S SHARMA, T AZZOPARDI

Department of Orthopaedics, Royal Hospital for Sick Children, Glasgow, UK

CORRESPONDENCE TO

Mr Sunil Sharma, 47 Shuna Place, Newton Mearns, Glasgow G77 6TN, UK. T: +44 (0)141 639 3820; E: sssharma2@yahoo.co.uk

BACKGROUND

The application of hip spica cast is a routine procedure in paediatric patients, used mainly for the treatment of femoral fractures and developmental hip dysplasia.¹ However, attention to detail is important to

reduce the risk of complications such as mesenteric artery syndrome (cast syndrome) due to increased abdominal pressure.² We present a simple technique that facilitates the creation of an abdominal space, thereby avoiding increased abdominal pressure, in either a synthetic or plaster of Paris hip spica cast.

TECHNIQUE

A single, hemispherical spacer made of rubber, which is manufactured in-house is used. The spacer which is 2.5 inches in height and available in two different diameters (3 and 5 inches), is first positioned over the abdomen, then padding is rolled from the nipple line down to the ankles. Next, 4-inch or 6-inch plaster is wrapped around the padding, starting at the proximal end of the padding. At the end of the cast application and after the cast hardens, the spacer is removed.

DISCUSSION

Using this method, we have been able to create a well-contoured hip spica cast easily. A folded towel is commonly used as a spacer.³ However, the height of a folded towel is variable and has the potential to deform under the load of the plaster. Spacers made of rubber, on the other hand, are unlikely to deform. We have not observed any complications related to the cast or instability of the construct in the last 12 months that this technique has been used.

References

1. Infante AF, Albert MC, Jennings WB, Lehner JT. Immediate hip spica casting for femur fractures in pediatric patients: a review of 175 patients. *Clin Orthop* 2000; **376**: 106–12.
2. Hutchinson DT, Basset GS. Superior mesenteric artery syndrome in pediatric orthopedic patients. *Clin Orthop* 1990; **250**: 250–7.
3. Kiter E, Demirkan F, Kilic BA, Erkula G. A new technique for creating an abdominal window in a hip spica cast. *J Trauma* 2003; **17**: 442–3.

Obtaining an optimal bone–cement interface in total knee arthroplasty

STEPHEN M BLAKE, PETER J COX

Princess Elizabeth Orthopaedic Centre, Royal Devon and Exeter Hospital, Exeter, UK

CORRESPONDENCE TO

Mr SM Blake, Princess Elizabeth Orthopaedic Centre, Royal Devon and Exeter Hospital, Barrack Road, Exeter EX2 5DS, UK
M: +44 (0)7799 146282; E: stephenblake_uk@yahoo.co.uk

BACKGROUND

Survival of a total knee arthroplasty is dependent on numerous factors including soft tissue balancing, limb alignment, implant choice, insertion technique and patient activity levels. Poor cementing technique results in reduced shear strengths¹ and early failure. Thorough lavage, complete coverage with cement,