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, mortality[2] 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, Baldonedo 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

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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

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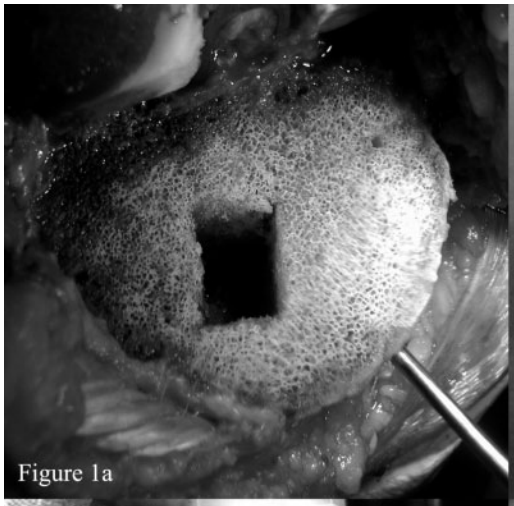
BACKGROUND

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 strengths[1] and early failure. Thorough lavage, complete coverage with cement,



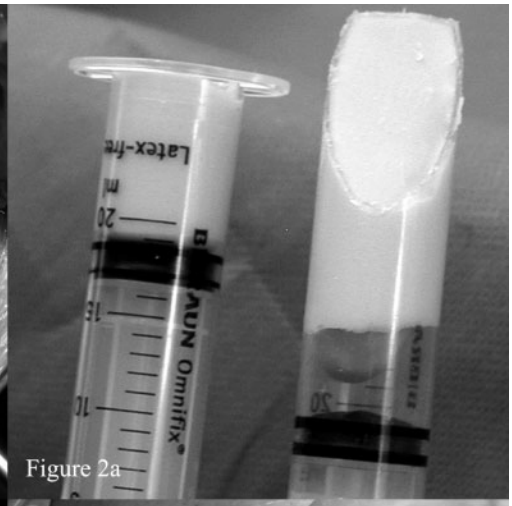


Figure 1 (a) Prepared tibial surface prior to cement application note inserted Wolf needle providing suction. (b) Cement is pressurised into tibial surface by a syringe delivery system. (c) Final cement mantle is applied prior to insertion of prosthesis.

Figure 2 (a) Syringes cut for unicondylar cementing. (b) Unicondylar tibial cement pressurisation. (c) Unicondylar femoral cement pressurisation.

minimal blood contamination and reduced intramedullary bleeding pressure[2] optimise the bone–cement interface. Cement pressurisation and suction techniques are employed to ensure penetration and interdigitation with bone. Pressurisation can be achieved by forcing the knee into extension after insertion of implants;[3] however, this has the potential disadvantage of tipping components out of position and does not guarantee penetration. Cement impactors[4] ensure superficial cement penetration but are expensive and potentially increase the risk of fat embolism. The suction techniques, *e.g.* via a Wolf needle,[5] reduce both the fat embolism risk and bleeding pressure; however, they can lead to excessive local cement penetration. The method described has the advantages of both techniques and costs a fraction of the amount of the commercially available cement guns.

TECHNIQUE

The tibial, femoral and patella surfaces are prepared using standard techniques. A Wolf needle is inserted in the proximal tibia, below the prepared surface and in a position which will not interfere with tibial component insertion (Fig. 1a). Two 20-ml syringes have their plungers removed, their distal ends cut off, and the plungers re-inserted the wrong way around. The cement is drawn up into the syringes. One syringe is used for the tibial surface and one for the femoral and patella surfaces. The collar of the syringe acts as a seal to prevent cement extrusion so that when the plunger is depressed pressure forces cement into the prepared cancellous surface (Fig. 1b). This focal pressurisation process is then repeated over the entire surface of the tibia. Finally, a mantle of cement is applied on the top of the pressurised cement (Fig. 1c) and the prosthesis is inserted. Excessive cement penetration can be avoided by turning off the suction intermittently on the Wolf needle. The process is repeated on the patella and femoral surfaces, with the Wolf needle positioned in either of the femoral condyles.

This technique can also utilised when performing unicondylar knee replacements; however, one needs to trim the tibial syringe differently to allow for the femoral condyle presence (Fig. 2a). Excellent penetration can still be achieved on both surfaces (Fig. 2b,c).

DISCUSSION

We believe this is a valuable technique which fulfils all the requirements of a third generation cement insertion method but with negligible cost implications.

References

1. Halawa M, Lee AJC, Ling RSM, Vangala SS. The shear strength of trabecular bone from the femur, and some factors affecting the shear strength of the bone cement interface. *Arch Orthop Trauma Surg* 1978; **92**: 19–30.
2. Majkowski KA, Miles AW, Bannister GC, Perkins J, Taylor GJ. Bone surface preparation in cemented joint replacement. *J Bone Joint Surg Br* 1993; **75**: 459–63.
3. Walker PS, Soudry M, Ewald FC, McVickar H. Control of cement penetration in total knee arthroplasty. *Clin Orthop* 1984; **185**: 155–64.
4. Kim YH, Walker PS, Deland JT. A cement impactor for uniform penetration in the upper tibia. *Clin Orthop* 1984; **182**: 206–10.
5. Norton MR, Eyres KS. Irrigation and suction technique to ensure reliable cement penetration for total knee arthroplasty. *J Arthroplasty* 2000; **15**: 468–74.

Temporary abdominal wall closure using a sterile drape technique

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BACKGROUND

Various methods of temporary abdominal wall closure have been described for use in patients with abdominal compartment syndrome, utilising different materials from meshes to irrigation bags. We describe a simplified technique of vacuum closure using a sterile drape that is easy to perform and has various advantages.

TECHNIQUE

A small drape is folded to approximate to the size of the laparotomy wound. Two Opsite (Smith & Nephew Medical, Hull, UK) sheets are then used to sandwich the drape, thus making its surface non-adherent. The drape is positioned on the viscera and its edges tucked underneath the anterior abdominal wall. Two drains are positioned on the drape to run along the edges of the open wound, crossing inferiorly and tunnelled subcutaneously to exit on each side of the abdomen. A useful tip is to ensure the drains are tunnelled at least 10 cm away from the skin edge to achieve an air-tight seal. The surrounding skin is dried and a large

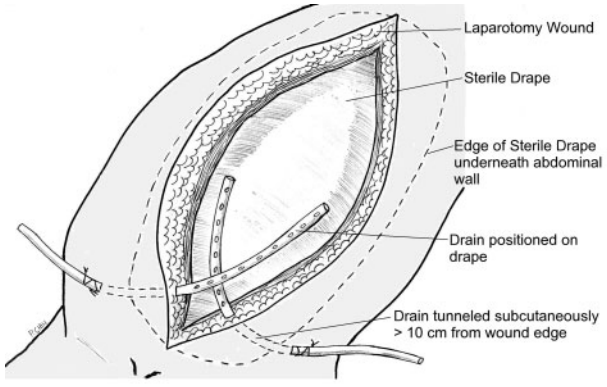

Figure 1 The sterile drape technique for temporary abdominal wall closure.