make the use of the Hardinge introducer a threat to the integrity of the bone. The use of a 2.0-mm threaded guide wire produces a sound, safe and accessible construct for the insertion of the cement restrictor. In our experience, migration of the restrictor has not been observed. Figure 2 demonstrates the device's efficacy.

References

1. Mulroy RD, Harris WH. The effect of improved cementing techniques on component loosening in total hip replacement. An 11-year radiographic review. *J Bone Joint Surg Br* 1990; **72**: 757–60.
2. Zimmer.co.uk (homepage on the Internet). UK: Zimmer, Inc. *Coonrad/Morrey Total Elbow Surgical Technique* [site updated 31 July 2008, technique updated 1 May 2005]. <http://www.zimmer.co.uk/web/enUS/pdf/surgical_techniques/Coonrad_Morrey_Surgical_TECHNIQUE_97-8106-102-00_Rev_1_05-2005.pdf>.
3. Faber KJ, Cordy ME, Milne AD, Chess DG, King GJW, Johnson JA. Advanced cement technique improves fixation in elbow arthroplasty. *Clin Orthop* 1997; **(334)**: 150–6.
4. Danter MR, King GJW, Chess DG, Johnson JA, Faber KJ. The effect of cement restrictors on the occlusion of the humeral canal. *J Arthroplasty* 2000; **15**: 113–9.

The use of a mechanical lithotripsy device as an adjunct to common bile duct exploration

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BACKGROUND

Laparoscopic common bile duct exploration is an accepted alternative to laparoscopic cholecystectomy with endoscopic retrograde cholangiopancreatography (ERCP) and is of particular use in those patients who are unable to undergo ERCP for whatever reason as an alternative to open surgery.[1,2] Recent UK guidelines recommended laparoscopic common bile duct exploration as the treatment of choice for patients with common bile duct stones undergoing laparoscopic cholecystectomy.[3] Commonly, stones are retrieved using a choledocoscope and Dormier basket technique; however, this technique can prove inadequate for management of particularly large stones impacted at the ampulla.

TECHNIQUE

Standard laparoscopic cholecystectomy with on-table cholangiogram via the cystic duct is performed. Where the on-table cholangiogram or pre-operative imaging suggests an impacted large stone, a longitudinal choledochotomy is made and the findings confirmed on choledochoscopy. Where it proves impossible to remove the stone with a Dormier basket, the stone can be

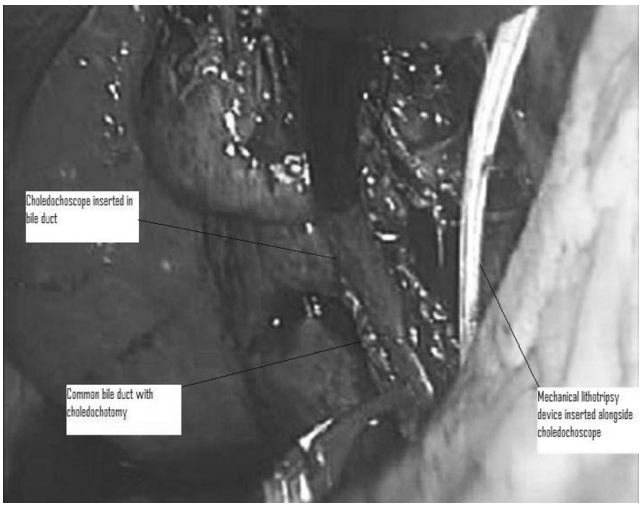

Figure 1 Demonstration of the set-up with the mechanical lithotripsy device inserted within the common bile duct alongside the choledochoscope.

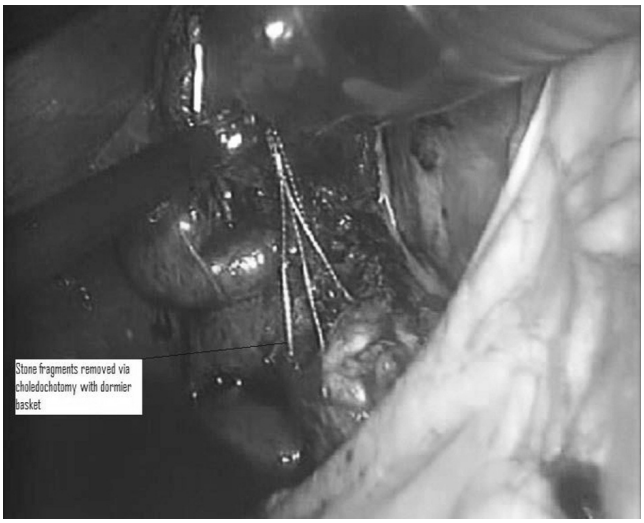

Figure 2 Stone fragments being withdrawn using the Dormier basket.

crushed using a Lithocrush Mechanical Lithotriptor (Olympus UK Ltd). Whilst it is not possible to pass this device down the 3-mm working channel of a choledochoscope, it can be inserted into the abdomen through a 5-mm port and then passed into the common bile duct through the choledochotomy alongside the choledochoscope (Fig. 1). The stone is then grasped with the lithotriptor under direct vision and crushed into small fragments which can then be extracted with ease using the Dormier basket (Fig. 2). After confirming that the duct is clear, the choledochotomy is closed in a standard manner.

DISCUSSION

Our method for managing impacted large common bile duct stones with a mechanical lithotripsy device provides an acceptable alternative to open surgery for patients unable to undergo ERCP.

References

1. Martin DJ, Vernon DR, Toouli J. Surgical versus endoscopic treatment of bile duct stones. *Cochrane Database Syst Rev* 2006(2):CD003327.
2. Tinoco R, Tinoco A, El-Kadre L, Peres L, Sueth D, Tinoco R *et al*. Laparoscopic common bile duct exploration. *Ann Surg* 2008; **247**: 674–9.
3. Williams EJ, Green J, Beckingham I, Parks R, Martin D, Lombard M. Guidelines on the management of common bile duct stones (CBDS). *Gut* 2008; **57**: 1004–21.

The dermatotraction technique for closure of breast wounds following flap necrosis

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BACKGROUND

Dermatotraction techniques for delayed primary closure of fasciotomy wounds have only been reported in the last two decades.[1] Flap necrosis following breast reconstruction leaves patients with very large wounds which need skin grafting for closure and can be technically demanding. We describe a technique for closure of such wounds using Foley catheter dermatotraction.

TECHNIQUE

Following breast reconstruction, flap necrosis is a recognised complication (Fig. 1). Removal of the dead and necrotic tissues leaves patients with a large wound which requires skin grafting. A 12-Ch Foley catheter is used to provide traction to the wound edges to allow successful subsequent closure of the defect. The technique involves fixing the catheter in a 'zig-zag' arrangement between the wound edges (Fig. 2). The catheter is secured to the skin approximately 1 cm from the wound margin using clips, before being manually tightened and secured. The wound is cleaned daily and the catheter loops are tightened at 48-h intervals until primary closure can be achieved using interrupted mattress sutures (Fig. 3). We applied this technique successfully to close a large breast wound measuring 20 × 12 cm following TRAM flap necrosis.

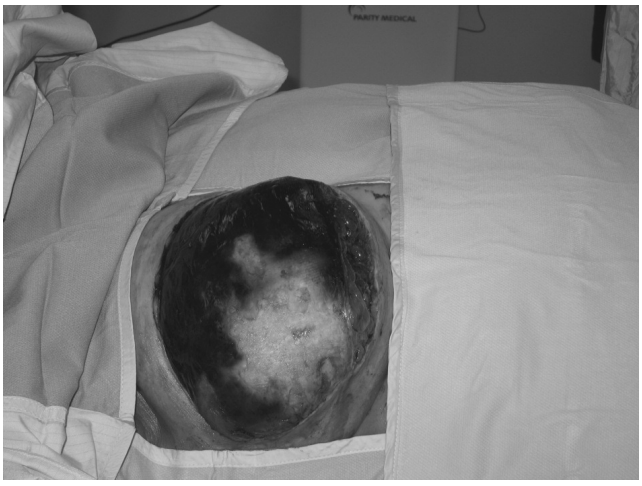

Figure 1 Necrotic TRAM flap resulting in an extensive wound.

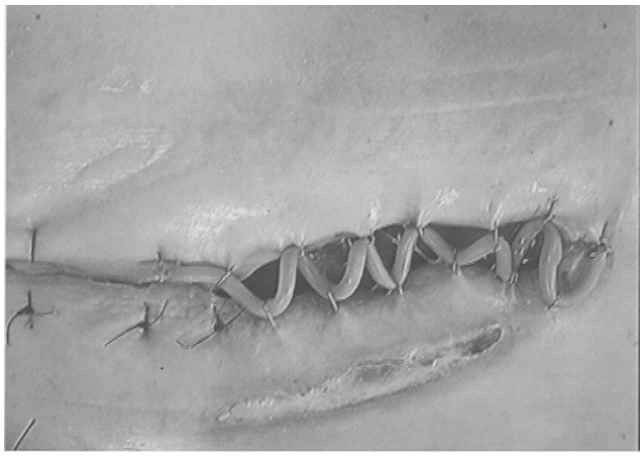

Figure 2 Application of dermatotraction technique in breast wound.

Figure 3 Successful breast wound closure following dermatotraction.

DISCUSSION

In its application to breast surgery, this technique provided all the benefits previously shown in the closure of fasciotomy wounds; it is cost-effective, provides good cosmetic results without the need for skin grafting. The procedure does not require additional equipment or training. Furthermore, this technique allows daily inspection of the wound and toilet if needed. Possible limitations include larger defects and the risk of pressure-related necrosis to the tissues.

Reference

1. Sandiford N, Hotouras A, Rao S. The dermatotraction technique for closure of fasciotomy wounds. *Internet J Orthop Surg* 2007; **5**: 2.