BACKGROUND

Local use of powdered vancomycin in wound closure has been described as a preventative technique against surgical site infection (SSI) following both instrumented and uninstrumented elective spinal surgery.^{1–3} Recent evidence has also shown intrawound vancomycin powder to be effective in reducing the SSI rate in arthroplasty.⁴ Doses of up to 2g of local vancomycin powder have been shown to be safe,⁵ with minimal systemic (nephrotoxic) effects in adults. Similarly, a dose of 500mg has been shown to be safe in children over 25kg.⁶ Delivery of antibiotic powder straight from the vial into a wound while maintaining asepsis and achieving accurate and even spread of the powder is difficult as its consistency changes immediately on contact with blood/tissue fluid, becoming highly adhesive to surgical instruments but considerably less so to body tissues.

TECHNIQUE

We describe the use of topical vancomycin powder, encapsulated in an absorbable 'pouch' (Fig 1), constructed intraoperatively using an absorbable dressing and a fast absorbing suture, such as Kaltostat®

Figure 1 Transfer of vancomycin powder into a 'pouch' made from an absorbable dressing

Figure 2 Delivery of the vancomycin 'parcel' into the wound

(ConvaTec, Deeside, UK) and Vicryl Rapide™ (Ethicon, Bridgewater, NJ, US). This results in a small 'parcel' that can be inserted into an infective focus (Fig 2), minimising spillage and loss of antimicrobial powder in other tissue planes or outside the wound.

DISCUSSION

The difficulties of treating deep musculoskeletal infection (including chronic osteomyelitis) are well known. Suppression therapy with antimicrobial agents may be interspersed with debridement and drainage of acute collections. By current convention, topical antibiotics in the setting of chronic infection are delivered in the form of absorbable or non-absorbable antibiotic eluting beads, which are not usually a stock item and entail considerable cost. Using only readily available stock items in the theatre department, this technique is a reliable method of delivery of a local antimicrobial agent to an infective focus, with clear cost advantages over other commercially available options.

References

1. Chiang HY, Herwaldt LA, Blevins AE *et al.* Effectiveness of local vancomycin powder to decrease surgical site infections: a meta-analysis. *Spine J* 2014; **14**: 397–407.
2. Sweet FA, Roh M, Sliva C. Intrawound application of vancomycin for prophylaxis in instrumented thoracolumbar fusions: efficacy, drug levels, and patient outcomes. *Spine* 2011; **36**: 2,084–2,088.
3. Molinari RW, Khera OA, Molinari WJ. Prophylactic intraoperative powdered vancomycin and postoperative deep spinal wound infection: 1,512 consecutive cases over a 6-year period. *Eur Spine J* 2012; **21**(Suppl 4): S476–S482.
4. Otte JE, Politi JR, Chambers B, Smith CA. Intrawound vancomycin powder reduces early prosthetic joint infections in revision hip and knee arthroplasty. *Surg Technol Int* 2017; **30**: 284–289.
5. Winkler C, Dennison J, Wooldridge A *et al.* Do local antibiotics reduce periprosthetic joint infections? A retrospective review of 744 cases. *J Clin Orthop Trauma* 2018; **9**(Suppl 1): S34–S39.
6. Gans I, Dormans JP, Spiegel DA *et al.* Adjunctive vancomycin powder in pediatric spine surgery is safe. *Spine* 2013; **38**: 1,703–1,707.

Dual mobility total hip arthroplasty: identification and reduction technique

R Coomber, S Dotivala, M Chowdhry, A Carrothers
Cambridge University Hospitals NHS Foundation Trust, UK

CORRESPONDENCE TO

Ross Coomber, E: rosscoomber@hotmail.com
doi 10.1308/rcsann.2018.0194

BACKGROUND

The use of dual mobility (DM) bearings in total hip arthroplasty (THA) is increasing. Identification of a DM bearing is difficult, even with trained eyes. There are subtle signs on radiography (Fig 1) but medical records are the only definitive way to establish which bearing has been implanted.

Closed reductions of DM bearing dislocations are prone to intra-prosthetic dislocation or stem pull-out from the large poly head being impacted in the soft tissues or acetabular rim. We present this technical note to caution orthopaedic surgeons that dislocation of a THA with a DM bearing is difficult to diagnose and inappropriate

reduction attempts may lead to exacerbation of an already difficult situation (Figs 2 and 3).

TECHNIQUE

In order to improve the likelihood of success and minimise complications, the patient’s leg should be positioned with 90° of hip and knee flexion, the hip adducted and internally rotated. This leg position disengages the DM shell from the soft tissue or acetabulum and gentle traction can be applied. The leg should not be pulled in extension. The additional use of gentle force on the medial proximal thigh in the lateral direction will assist the reduction.

DISCUSSION

If a DM bearing is present, reduction should only be performed in theatre, under general anaesthesia and image intensifier guidance.

Figure 1 Radiography showing halo around the large poly head, from the dual mobility bearing

Figure 2 Dual mobility bearing components, where intraprosthetic dislocation occurs

Figure 3 Radiography following attempted closed reduction in theatre with femoral stem pull-out and rotation

This will help to prevent forcing the reduction when the large poly head is caught on the acetabulum or ilium and reduce the incidence of intraprosthetic dislocation, stem pull-out or other complications such as periprosthetic fracture.

A tip to prevent total hip arthroplasty femoral stem pull-out

R Coomber, S Dotivala, M Chowdhry, A Carrothers
Cambridge University Hospitals NHS Foundation Trust, UK

CORRESPONDENCE TO

Ross Coomber, E: rosscoomber@hotmail.com
doi 10.1308/rcsann.2018.0199

Figure 1 The first postoperative film of a patient who has undergone total hip arthroplasty and acetabular fixation ('fix and replace' procedure)