Abdominal wall reconstruction with biological mesh: novel reinforcement with mesh 'off-cuts'

S Warraich, R Lovegrove, R Guy

Oxford University Hospitals NHS Trust, UK

CORRESPONDENCE TO

Richard Guy, E: richard.guy@ouh.nhs.uk

BACKGROUND

Abdominal wall repair for complex defects is challenging, especially when restorative intestinal surgery is also undertaken (eg enterocutaneous fistula surgery). Under these circumstances, using a biological mesh enables single stage repair with a lower risk of infection than conventional meshes.^{1,2} Controversy remains over the optimal reconstruction technique and the most suitable position for mesh placement in the abdominal wall. In our opinion, components separation (CS) is the ideal approach. This enables advancement of the rectus muscles and anterior rectus sheath towards the midline³ (Fig 1) with intraperitoneal underlay fixation of biological mesh as a 'bridge', with 3–5cm overlap (Fig 2). However, subsequent defects created laterally by CS are potential sites of weakness, particularly below the arcuate line where there is no posterior rectus sheath.

TECHNIQUE

We use Strattice™ (LifeCell, Branchburg, NJ, US) porcine collagen mesh, which is produced as a rectangular sheet. As the abdominal wall defect requiring bridging is oval, the redundant mesh corners can be removed prior to fixation. Following completion of the midline

Figure 1 The result of components separation with medial advancement of the sheath (in this case also preserving perforator vessels)

Figure 2 Abdominal wall following fixation of Strattice™ biological mesh in an intraperitoneal bridging inlay position with internal overlap

repair, these 'off-cuts' are more usefully sutured separately in an onlay position to reinforce the CS lateral defects (Fig 3). The subcutaneous tissues and skin are closed in layers over suction drains.

DISCUSSION

Complex abdominal wall reconstruction is time consuming and demanding. The described technique combines the advantages of underlay mesh placement for the full-thickness midline defect and onlay reinforcement where it is most needed, aiming to reduce the risk of further abdominal wall failure and repeat surgery.

Figure 3 Appearance following onlay reinforcement of the lateral components separation defects with Strattice™ 'off-cuts' below the level of the arcuate line

References

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Custom fitted articulating cement spacers for use in two-stage revision knee replacement

PO Coe, NPM Jain, DS Johnson

Stockport NHS Foundation Trust, UK

CORRESPONDENCE TO

David Johnson, E: david.johnson@stockport.nhs.uk

BACKGROUND

In two-stage revision knee replacement, insertion of a temporary cement spacer is followed by implantation of the definitive prosthesis 6–12 weeks later. Static spacers restrict knee movement, leading to soft tissue contracture and bone loss.¹ Articulating spacers maintain range of movement and elute more antibiotics than metal equivalents.² Commercially available products have their limitations. We therefore describe a novel technique for creating custom fitting articulating spacers, which can include any heat stable antibiotic.

TECHNIQUE

Tibial and femoral spacers are made independently with two separate double mixes of antibiotic loaded cement. A trial tibial insert is sized on the proximal tibia, usually one size greater than the implant removed. Cement is moulded in the hollow insert to a thickness that matches the extension gap less 10mm; a tibial stem is created (Figs 1 and 2). A femoral spacer is made using a femoral trial, usually one size less than the one removed. Cement is moulded to the contours of the trial adding a femoral shaft stem. The distal cement should be

Figure 2 The tibial spacer is removed as the cement becomes firm.

Figure 3 A femoral spacer is created laying a sheet of cement over the femoral trial/impactor.

Figure 1 Cement is inserted into a hollow tibial trial and a stem created.

Figure 4 Both spacers are inserted after the cement has hardened.