Technical Section [TECHNICAL NOTES AND TIPS

A method of fabricating an antibiotic cement spacer using an elastic nail for the treatment of intramedullary osteomyelitis

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BACKGROUND

Use of antibiotic cement spacers, including modified intramedullary nails, is an established method of delivering antibiotics for intramedullary osteomyelitis.¹ Numerous techniques for construction of these nails have been described previously.^{2,3} We illustrate a simple, versatile, cheap and effective fabrication method.

TECHNIQUE

A titanium elastic nail (Synthes, Solothurn, Switzerland) forms the 'core' of the intramedullary spacer ($\varnothing$ 2.5mm: tibia; $\varnothing$ 3mm: femur).

Figure 1 Fabricated antibiotic cement elastic nail

Figure 2 Radiography of the use of a titanium elastic nail antibiotic cement spacer for pan-medullary femoral osteomyelitis

The angled 'hook' end is further curved slightly using pliers, ensuring the nail cannot slide through the spacer on extraction and facilitating complete removal. The required spacer length is measured on radiographs or confirmed with image intensification. Antibiotic loaded cement is mixed and moulded around the nail by hand. The cement is moulded until cured and the spacer cooled with saline. The nail is then passed into the canal and the excess nail cut, ensuring sufficient nail remains proud for easy extraction. The spacers are removed between 4 and 8 weeks as a day-case procedure.

DISCUSSION

Elastic nails are readily available because of their use in paediatrics (cost: £95–£130). The bent tip and flexible nature of the nail helps negotiate mild malalignment. Extraction of the nail is facilitated by leaving the proximal end free of cement, with enough nail visible proximally, and by accentuating the hook on the end of the nail. Although moulding the cement by hand may seem laborious, this leaves an uneven finish, increasing the surface area of the spacer, theoretically increasing antibiotic elution. The described technique offers a cheap, easy and versatile antibiotic delivery system to aid management of intramedullary osteomyelitis.

References

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Optimisation of internal thoracic artery exposure using a simple retraction method for extrapleural dissection

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BACKGROUND

The internal thoracic artery (ITA) is regarded as the conduit of choice for coronary revascularisation. When anastomosed to the left anterior descending artery, it confers a 10% survival benefit at ten years.¹ Studies have identified a risk of pulmonary complications following ITA harvest attributed to parenchymal trauma, pleural effusion and atelectasis as a result of pleurotomy. Maintaining pleural integrity

Figure 1 The use of two artery forceps attached at right angles enabling a swab to splint the ventilated lung away from the operative field during left internal thoracic dissection

Figure 2 A simple modification of the internal thoracic retractor using a ratcheted extension bar could be a more permanent solution to lack of surgical exposure caused by ventilated emphysematous lungs.

during ITA harvest improves respiratory mechanics by minimising injury to the lung.² However, the advantage of ‘opening’ the pleura is that a large swab can be packed into the chest, thereby preventing the inflated lung from obscuring the operative field. This technique cannot be used if the pleura is left intact.

TECHNIQUE

We have devised a simple adjunct to prevent lung expansion into the surgical field by using two artery forceps clipped together at right angles (Fig 1). This device enables a swab to be used to splint the lung away from the operative site and yet remain securely fixed during the ventilatory cycle.

DISCUSSION

This technique allows pleural integrity to be maintained during ITA harvest without compromising surgical access. The benefits of maintaining an intact pleura include the potential reduction in postoperative respiratory dysfunction, the attenuation of haemothorax, the prevention of ipsilateral pleurodesis and the elimination of chest tube thorascostomy requirement, which is not only painful but impairs the patient's ability to take deep breaths. A simple modification of the current sternal retractor used could be the next evolution of this technique (Fig 2).

References

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