A novel method for passing sutures to aid fracture fixation

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The authors declare they have no conflicts of interest.

BACKGROUND

Periprosthetic or articular fractures provide many challenges. To aid reduction prior to primary fixation (for example, with plates or intramedullary nails) hardware such as cerclage wires are often used. However, these risk periosteal vascular compromise, major vascular injury and soft tissue disruption.¹⁻³ In patients with extensively comminuted fractures, significant soft tissue disruption and co-morbid factors, such a method may jeopardise bone and soft tissue healing. We describe a novel method obviating the use of such hardware, in situations when soft tissue and periosteal preservation is paramount.

TECHNIQUE

Temporary fracture reduction is performed as necessary (for example, using Hey Groves forceps, bone clamps and K-wires). Rather than using cerclage wires, multiple size 5 Ethibond® (Ethicon, Somerville, NJ, US) sutures are passed twice each around the reduced fragments, using a straight plastic suture grabber via a curved metal wire passer. This facilitates temporary maintenance of reduction to allow optimal plate application while minimising disruption to the periosteum and soft tissues. The sutures do not need removal subsequently. Figures 1 and 2 illustrate a challenging comminuted distal femoral fracture. This was reduced using the above method (Fig 3).

DISCUSSION

This novel method involves passing large sutures using a straight but flexible suture grabber, via traditional wire passing instruments. It

allows temporary reduction with minimal periosteal and soft tissue disruption in challenging and high risk patients, obviating the need for cerclage wires.

References

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Figure 2 Computed tomography reconstruction

Figure 1 Distal femoral fracture

Figure 3 Subsequent fixation