prior anatomical reduction – and maintaining this throughout the procedure – is key to correct insertion of the fibula nail rather than relying on the nail and targeting guide as is described commonly.¹

One can use the Lauge Hansen Classification to define and reverse the deforming forces prior to fibula nail insertion.² The commonest fracture is the supination external rotation injury (SER) which is associated with spiral oblique fractures of the fibula (Fig 1).

TECHNIQUE

The SER fracture is reduced by traction, internal rotation and pronation of the foot (Fig 2); reversing original forces and facilitating anatomical guidewire placement and subsequent fibula rod insertion. Reduction is maintained while drilling the distal 4cm of fibula as this sets the nail's insertional channel (Fig 3). Drilling/reaming can displace the distal fibula fragment. Hence, a K-wire or an assistant to reverse the supination and external rotation and maintain reduction while reaming is important.

The fibula nail is inserted (Fig 4) and locked into place with anteroposterior and lateral screws (Fig 5). Minor adjustments to the reduction can be achieved by locking the distal fragment and undertaking traction and/or internal/external rotation. These manoeuvres compromise anatomical placement of the syndesmosis/lateral screw. Therefore, it is ideal to have reduction prior to nail insertion.

DISCUSSION

Understanding fracture patterns and deforming forces in common ankle fractures (eg SER/pronation external rotation) prior to fibula nail insertion helps avoid malreduction, optimising nail stability.

References

1. Bugler KE, Watson CD, Hardie AR *et al*. The treatment of unstable fractures of the ankle using the Acumed fibular nail: development of a technique. *J Bone Joint Surg Br* 2012; **94**: 1107–1112.
2. Yde J. The Lauge Hansen classification of malleolar fractures. *Acta Orthop Scand* 1980; **51**: 181–192.

Safe pedicle tunnelling and retrieval for free flap surgery

SA Haque, A Woollard
Royal Free Hospital, London, UK

CORRESPONDENCE TO

Shameem Haque, E: shameemhaque@hotmail.com
doi 10.1308/rcsann.2020.0165

BACKGROUND

Free flaps are used to cover distant soft tissue defects. Sometimes this involves tunnelling of the pedicle. Passing the pedicle through a tunnel is a blind procedure, during which, trauma to the pedicle in the tunnel may occur, either from the contents in the tunnel or by instruments and sutures used to hold the pedicle. Kinking, shearing

and twisting of the pedicle may occur. The pedicle may even stick to the tunnel walls and retrieving it may cause further trauma to the vessels. Various techniques have been described for tunnelling using endotracheal tubes,¹ Penrose drains,² rubber catheters,³ and surgical gloves.⁴

TECHNIQUE

We describe an effective pedicle retrieval method using the Yankauer sucker (Pennine, Derby, UK). The flap pedicle, once divided, is transferred to the recipient site where a subcutaneous tunnel may have been necessary for the pedicle to pass for anastomosis to the donor vessels. The suction strength is minimised (10-20kPa mmHg)

Figure 1 The pedicle of the Medial Sural Artery Perforator (MSAP) flap is tunneled under a bridge of skin using the sucker tip and pulled through to the donor vessels for lower limb reconstruction

Figure 2 The pedicle of a radial forearm flap for orbital reconstruction is tunneled under the skin using the sucker tip (reversed for larger pedicle) to reach the superficial temporal vessels for anastomosis

and the sucker tip is passed through the tunnel to retrieve the pedicle. The pedicle is then orientated and placed close to the tip and gently suctioned in (Fig 1). The sucker tip is then withdrawn, gently bringing the pedicle with it. If the pedicle is larger, the sucker is reversed, using the wider end (Fig 2).

DISCUSSION

We found this to be a useful technique as it involves minimal pedicle handling. The advantage of this sucker is the rounded tip with an atraumatic opening. It is made of clear material so the pedicle is visible for safe introduction.

References

1. Moschella F, D'Arpa S, Di Lorenzo S, Cordova A. Safe pedicle tunnelling in maxillary reconstruction. *J Plast Reconstr Aesthetic Surg* 2010; **63**: e289.
2. Yi HS, Park EJ, Kim H II, Park JH. Safe and Effective Method to Transfer Pedicle Vessels in Free Flap Reconstruction. *J Craniofac Surg* 2017; **28**: e416–417.
3. Sharan R, Sharma M, Vijayaraghavan S *et al*. A simplified technique of free flap pedicle transfer for reconstruction of defects following head and neck cancer ablation. *J Surg Oncol* 2009; **99**: 80–81.
4. Nambi G, Yadav P, Ahmad Q, Shankhdhar V. Pedicle transfer in oral cavity reconstruction. *Indian J Plast Surg* 2010; **43**: 79.

Ankle arthrodesis: using K wires in two planes to confidently correct and maintain anatomical alignment during articular surface preparation

TD Donnelly, B Fischer, P Thorpe

Institution to Mersey Orthoplastics Group, Broadgreen Hospital, Liverpool, UK

CORRESPONDENCE TO

Thomas Donnelly, E: tdonnelly@doctors.org.uk
doi 10.1308/rcsann.2020.0175

BACKGROUND

Ankle arthrodesis (Fig 1) is a commonly performed procedure in orthopaedics and one that requires due care and attention when preparing the joint surfaces for fusion. There are six degrees of freedom that, if not specifically thought about, could lead to malalignment and a poor outcome. We propose a technical tip using Kirschner wires as an alignment guide when preparing the joint surfaces.

TECHNIQUE

In a normal ankle, the lateral process of the talus should be directly below the tibia on a lateral radiograph. On an anteroposterior (AP) film, the anatomical axis of the tibia and the talus should overlap. Using these radiological landmarks, we can create a well-aligned fusion site. Once the tibiotalar joint has been fully exposed, and with the use of an image intensifier, 2.0mm Kirschner wires are passed in both sagittal and coronal planes, perpendicular to the anatomical axis for both the talus and tibia. Then, using an osteotome with the

blade aligned in the direction of the sagittal wire, it is advanced from lateral to medial following the direction of the coronal wire. Both surfaces are ultimately prepared and the fusion is compressed and stabilised with a circular frame. Figures 2 and 3 show the wire

Figure 1 Anatomically aligned arthrodesis

Figure 2 An ankle with significant valgus deformation. You can see four K wires numbered; wires 1 and 3 pass from lateral to medial, perpendicular to the anatomical axis.