Technical Section [TECHNICAL NOTES AND TIPS

A simple technique to achieve parallel transverse cuts in the scarf osteotomy

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BACKGROUND

The scarf osteotomy is a reliable operation to correct moderate to severe deformity in hallux valgus.¹ The proximal and distal transverse osteotomies must be parallel to each other to allow lateral displacement of the distal plantar fragment while also maximising stability.^{2,3} Inserting the end of the metallic scarf ruler into the distal transverse osteotomy acts as a parallel guide to aid the surgeon in achieving a parallel proximal transverse cut.

Figure 1 Z scarf osteotomy marked out on the first metatarsal

Figure 2 Distal transverse osteotomy marked out dorsally

Figure 3 Metallic scarf gauge

Figure 4 Ruler inserted across the distal transverse osteotomy as a parallel guide viewed medially (above) and dorsally (below)

TECHNIQUE

After marking out the Z scarf osteotomy on the first metatarsal (Fig 1), complete the horizontal cut with the micro-oscillating saw. Make the distal transverse osteotomy (Fig 2) and insert the metallic scarf ruler (Fig 3) into the cut (Figs 4). The long medially protruding

Figure 5 Medially protruding straight edge of the ruler in the distal transverse osteotomy acting as a guide to orientate the saw before commencing the proximal osteotomy

Figure 6 Saw completing the proximal transverse osteotomy in a parallel fashion

edge of the ruler will act as a guide to confirm that the proposed proximal transverse osteotomy is parallel to the completed distal osteotomy. Place the micro-oscillating saw against the medial metatarsal cortex and orientate the blade so that it is parallel to that of the ruler edge (Fig 5). Perform the osteotomy, checking regularly that the blade is parallel to the ruler edge (Fig 6). Once complete, remove the ruler and displace the distal plantar fragment laterally as required for optimal correction. Stabilise with two K-wires. Complete the rest of the procedure as routine.

DISCUSSION

The scarf osteotomy is a technically demanding procedure with a steep learning curve.⁴ This technique will increase the surgeon's confidence and reliability of making parallel transverse cuts, particularly when at the bottom of the learning curve.

References

1. Barouk LS. Osteotomie Scarf du premier metatarsien. *Med Chir Pied* 1990; **10**: 111–120.
2. Barouk LS. Scarf osteotomy of the first metatarsal in the treatment of hallux valgus. *Foot Dis* 1995; **2**: 35–48.

3. Kristen KH, Berger C, Stelzig S *et al*. The SCARF osteotomy for the correction of hallux valgus deformities. *Foot Ankle Int* 2002; **23**: 221–229.
4. Weil LS. Scarf osteotomy for correction of hallux valgus. Historical perspective, surgical technique, and results. *Foot Ankle Clin* 2000; **5**: 559–580.

How to measure distal locking screws for intramedullary nails without a depth gauge

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Measuring length of distal locking screws is sometimes challenging owing to the gauge hook tethering soft tissues or failing to engage with the distal cortex. 'Hand-eye' memory is also lost when exchanging the drill for the depth gauge.

This method measures the screw length accurately prior to setting up for the lateral view. Screws can be opened pre-emptively and inserted immediately after drilling.

The majority of intramedullary nails are 10mm ±1.5mm in diameter. The known diameter of the nail (x) acts as a numerator (on an anteroposterior view) for the diameter of the bone (y). Using the fluoroscopic image and a ruler, measure the number of nail diameters that would be required to span the diameter of the bone.

$$\text{Screw length} = x \left(\frac{y}{x} \right) + 5\text{mm}$$

Figure 1 Annotated diagram of the distal locking screw length measurement technique