Quantitative banding for steal syndrome secondary to arteriovenous fistulae

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BACKGROUND

Steal syndrome, secondary to arteriovenous fistulae, requiring intervention occurs in approximately 4% of patients. The ideal treatment improves distal flow, whilst preserving function of the arteriovenous fistula.¹ Steal syndrome secondary to excessive fistula blood flow, rather than distal arterial stenosis, can successfully be treated with banding.² Using intra-operative ultrasound to quantify fistula blood flow can decrease the risk of postoperative thrombosis.³

TECHNIQUE

Intra-operative ultrasound of the arteriovenous fistula is performed to establish baseline velocity (Fig. 1A). The arteriovenous fistula is exposed and dissected circumferentially. An 8-mm Gore-Tex arteriovenous graft is cut to a length of 15 mm and split anteriorly (Fig. 2). It is placed around the proximal portion of the fistula and secured with large clips (Fig. 3). Clips may be added or removed to adjust flow. In our experience, ideal results are achieved when the initial velocity is reduced by

Figure 3 Gore-Tex graft banding – clip application.

50% with blunting of the systolic up-stroke on ultrasound, whilst maintaining a palpable thrill beyond the band on examination (Fig. 1B).

DISCUSSION

Quantitative arteriovenous fistula banding utilises intra-operative ultrasound to maximise improvement in distal flow whilst maintaining fistula patency. It has the added advantage that the arteriovenous fistula can be used immediately for haemodialysis.

References

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Figure 1 (A) Ultrasound prior to banding; (B) ultrasound after banding.

Figure 2 Gore-Tex graft banding – preparation.