INVITED COMMENTARY

# Arteriotomy Closure: More About Keeping Options Open

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An increasing number of therapeutic interventions are via large bore percutaneous femoral access, such as endovascular aneurysm repair (EVAR) and transcatheter aortic valve implantation (TAVI),[1] as emphasised by Chen et al.[2] As minimally invasive interventions, today it makes little sense to access the femoral artery via open cutdown, with the particular recognition of reduction in complications such as pain,[3] seroma formation, and wound infection,[4] and increase in benefits such as reduced operating time[5] and early return to activity.[3]

The authors emphasise that despite increased use of percutaneous access and the Perclose ProGlide vascular closure device (VCD; Abbott Vascular, Abbott Park, IL, USA), key factors such as puncture target depth, body mass index (BMI), and sheath size are associated with a higher deployment failure rate. Puncture depth and BMI are interrelated so the authors present a surrogate criterion of BMI, as shown elsewhere.[6]

The instructions for use (IFU) for ProGlide allows closure of arterial defects $\leq$ 26F, but caution is advised in patients with BMI $>$ 40 kg/m$^2$, only because this scenario was untested, i.e. an "absence of evidence" scenario typical of IFUs that should not be allowed to colour considerations of usage. This is contrary to other studies, albeit using different VCDs, that have suggested otherwise.[7] Anterior femoral calcification is really the only relevant issue, linking to peripheral arterial disease (PAD) as a surrogate;[8] the authors offer little clarity in defining PAD, and the high failure rates reported correspondingly may be biased. Carotid screening in this context is irrelevant and a waste of resources.

Surprisingly, presence of groin scarring is referred to as not relevant; this glosses over the fact that there may be deep seated fibrosis that disallows ProGlide deployment — we have certainly noted this in our own practice where we have resorted to using the "double Angio-Seal technique" successfully.[6]

What about patient selection? It would surely make more sense to opt for a percutaneous option in a patient with a deep, fatty groin. "Thick subcutaneous tissue" is a redundant, even spurious concept if earlier sheaths and indeed the VCD have traversed this previously. If ProGlide devices fail early, a decision to convert to open cutdown or use other VCDs is sensible. If there is suboptimal haemostasis, then a third ProGlide deployment may work, or as in our practice, a supplementary Angio-Seal VIP device (Terumo Medical Corporation, Somerset, NJ, USA).[9] This is something the authors have never considered in their practice, though they use triple ProGlides occasionally. Sometimes just being experienced with one VCD is not enough.

The 19F threshold for failure is lower than previously described, and lower than the IFU limit; with low sensitivity and specificity in the paper, the case for this cut off value is weak. In the context of EVAR, the focus of this study, if 19F is indeed to be considered at all, then a shift towards using low ($\leq$ 18F)/ultra-low ($\leq$ 16F) profile EVAR devices becomes relevant, as also is having a range of VCDs in one's armamentarium.

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