Introduction

- At present, manufacture of custom endovascular devices requires complex design assessment, with a production lead-time of 6 to 8 weeks, precluding their use for emergency situations.
- The question therefore arises, “can patients who are unfit for open repair, presenting acutely with symptomatic or leaking complex aneurysms be treated by endovascular means?”
- On-site (‘bench’) surgeon modification of endovascular grafts for branch vessel preservation is an alternative endovascular strategy when ‘off-the-shelf’ stent-grafts are not suitable but urgent intervention is necessary.
- We present an interesting and unusual case where a surgeon-modified endograft limb was employed to seal a pseudo-aneurysm while maintaining patency of a complex thoraco-femoral graft repair.

Case

- 66 year-old female patient presenting to our unit in January 2015 with a painful pulsatile swelling in her left groin.

- Multiple previous aortic interventions - aortic end-arterectomy followed by thoraco-bifemoral (SFA) Dacron bypass, the right limb of which had subsequently occluded, perfusion to the right leg maintained via recanalisation of the aortic bifurcation and patent iliac vessels.


- Urgent CT Angiography demonstrated left groin anastomotic pseudoaneurysm 69x49mm and confirmed that perfusion of both legs was dependent on this remaining left graft limb.

- Patient was deemed very high-risk for open surgical repair. The challenge for endovascular repair was to seal the anastomotic line to exclude the pseudo-aneurysm but also preserve adequate retrograde flow to the native vessels to maintain perfusion to the right leg.

Methods

- A retrograde open puncture of left SFA was used to deploy a Surgeon modified Zenith Spiral – Z™ limb ZSLE 9mm x 90mm (Cook Medical) with postero-medial fenestration to accommodate 10mm x 38 mm Advanta V12 (Atrium Medical Corp.) stent-graft.

- The modified EVAR limb was placed across the presumed surgical anastomotic line, with equal parts within the Dacron graft limb and the left proximal SFA. The limb was aligned rotationally such that the fenestration faced the native left CFA. The Atrium stent was then placed across the fenestration into the left CFA, thereby excluding the pseudoaneurysm while preserving retrograde flow into the native iliac arteries.

- A satisfactory completion angiographic result was obtained. At 3-month follow up, USS duplex shows resolution of the pseudoaneurysm and the patient had resumed her daily activities.

- A follow up CTA in November 2016 showed patency of the stents and thrombosis of the pseudo aneurysm.

Conclusion

- Surgeon modified stent grafts (fenestration) represent an additional minimal-access strategy to deal with a potentially wide range of emergent vascular conditions where ‘off-the-shelf’ grafts are not available and open repair is unfavourable.

- This option appears effective in the short to mid-term.