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The Successful Treatment of a Proximal Type I Endoleak using the Aptus™ Heli-FX™ EndoAnchor System

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Background

Endovascular aneurysm repair (EVAR) is safe, effective, and the preferred treatment for managing infrarenal abdominal aortic aneurysms (AAA)[1-2]. Endoleaks remain a common complication and are the most frequent re-intervention indication[3-4]. Type I endoleaks are associated with rupture and warrant treatment. We report a case of treatment of a proximal type I endoleak using HeliFX EndoAnchors (Medtronic).

Case Report

An 85-year-old male presented with symptoms of acute lower limb ischaemia to the left leg. Computed tomography angiography (CTA) confirmed a mobile thrombus at the left femoral bifurcation and an incidental 6.8cm infrarenal AAA. Lower limb perfusion was restored with surgical embolectomy and the patient was subsequently anticoagulated.

He proceeded to elective EVAR a month later. A Medtronic Endurant endograft was placed without complication. Post-deployment imaging demonstrated good proximal sealing of the endograft with no evidence of endoleak. The patient was discharged from hospital the following day. One-month post-EVAR CTA identified a posterior type-1 endoleak with associated proximal neck morphological changes **(Figure 1A)**.

Endovascular Procedure

A proximal cuff extension was not possible because of the highly angulated aneurysm neck and close proximity of the initial endograft to the renal arteries. We utilised Heli-FX EndoAnchors to secure the proximal endograft to the aortic wall which would optimise the proximal seal and treat the endoleak without adversely affecting the renal artery blood flow.

Safe | Personal | Effective

Endovascular Procedure

Intra-operative imaging confirmed alteration in the proximal neck anatomy but not the endoleak. Based on pre-operative imaging concerns, a decision to proceed to repair was taken. After systemic heparinisation, an 18F sheath facilitated proximal neck moulding with a Reliant balloon for 2-minutes followed by an additional 5-minutes. We then inserted circumferential Aptus endoanchors **(Figure 2)** (n=8) concentrating on the site of endoleak where the stent graft was not fully opposed to the aortic wall **(Figure 1B)**.

All endoanchors were deployed without difficulty. For reassurance the proximal neck was further scaffolded with a 32mm x 80mm uncovered stent (Optimed sinus XL). The patient was discharged the following day. One, six and twelve-month surveillance CT scans remain satisfactory with no evidence of endoleak (**Figure 1C**).

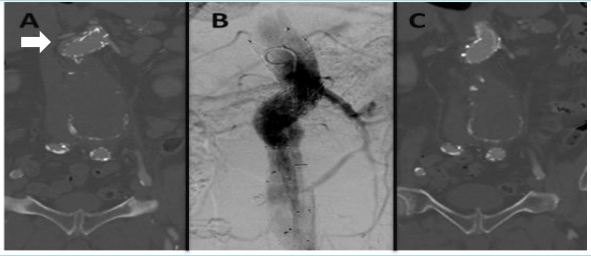

Figure 1:
A) One month CTA demonstrating type-1 endoleak following initial primary EVAR.
B) Intra-operative Aptus Endoanchor deployment demonstrating no evidence of endoleak
C) One-month follow-up CTA showing resolution of endoleak.

Aptus™ Heli-FX™ EndoAnchor System

The HeliFX EndoAnchor System is a mechanical fastening device that involves deploying small helical anchors to lock the endograft to the aorta. It can be used as a primary adjunct to EVAR or during rescue procedures for the treatment of endoleaks. It is contraindicated in cases of severe aortic calcification or when aortic neck thrombus burden exceeds 2mm in depth.

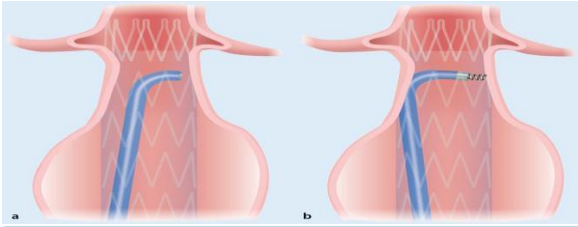

Figure 2: A) Device positioning B) Endoanchor deployment

Conclusion

Our case reports the utilisation of multiple adjunct manoeuvres to successfully treat a type-1 endoleak. As current EVAR practice continues to be affected by adverse aortic neck anatomy, Endoanchors represent an important additional treatment modality for these complex AAAs.

Endoleaks remain a complication of EVAR and it is important for specialist vascular units to have the skill sets to offer a range of interventions, for each type of endoleak.

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