

CASE REPORT

Endovascular Aneurysm Sealing for Management of Aortic Occlusive Disease

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Introduction: Endovascular management of aortic occlusive disease is an alternative to open surgery. This case describes the use of a Nellix graft to treat infrarenal aortic stenosis, outwith the graft indication for use.

Case report: A 71 year old man with multiple comorbidities, presented with bilateral buttock claudication. A computed tomography angiogram (CTA) showed significant infrarenal aortic stenosis. Under local anaesthetic, using a percutaneous approach, Nellix grafts were inserted. The patient was discharged within 24 hours. His claudication improved significantly. A 6 month follow-up CT showed stent patency.

Conclusion: Although further research is necessary, this case suggests that Nellix is safe and effective for primary stenting of the stenotic infrarenal aorta.

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INTRODUCTION

Aortobifemoral bypass or aortic endarterectomy is the preferred treatment for aortic occlusive disease in most UK centres as the long-term results of endovascular intervention are inferior to open surgery.¹

Endovascular intervention has been proposed as an alternative to surgery, especially in high risk patients with multiple comorbidities.^{2,3}

There are various endovascular options to manage aortic occlusive disease; however, in long lesions, more than one stent is usually needed to provide a good outcome.

The Nellix system consists of two identical catheter based devices with a 10 mm flow lumen being created by two balloon expandable polytetrafluoroethylene covered cobalt–chromium stents. The stents are surrounded by polyurethane endobags. The system is used for the repair of abdominal aortic aneurysm and incorporates an endobag to prevent type 2 endoleak.

In this case, the Nellix endovascular aneurysm sealing (EVAS) system was used as a novel technique for managing aortic occlusive disease outside the instructions for use (IFU).

Case Report

A 71 year old man with significant cardiopulmonary comorbidity presented to the outpatient clinic with bilateral 20 metre buttock claudication.

Physical examination showed absent femoral pulses, capillary refill of 4 seconds on both lower limbs, and an ankle brachial pressure index (ABPI) of 0.56 on the right and 0.6 on the left.

A computed tomography angiogram (CTA) revealed a significant infrarenal aortic stenosis (Fig. 1).

The patient was initially treated conservatively with the best medical therapy in the form of an antiplatelet, a statin, and a supervised exercise programme but with no improvement. He then started to develop rest pain in his left foot.

The multidisciplinary team discussion recommended that an endovascular option would be safer because of his multiple comorbidities and the high risk of undergoing a general anaesthetic.

The patient consented and was informed about other endovascular alternatives. He was also aware of using the Nellix graft for the first time in aortic occlusive disease outside the IFU, and the potential risks including graft migration and aortic rupture.

Under local anaesthetic, bilateral ultrasound guided retrograde puncture of both common femoral arteries was performed. Two Proglide closure devices were inserted on each side. An initial diagnostic angiogram was performed to confirm the length of stents required (Fig. 2).

Two 10 × 150 mm Nellix grafts were inserted. After retracting the covering sheaths, the stent grafts were deployed by simultaneous inflation of the balloons within the stents to 7 atm. A polymer (20 mL) was injected per graft with careful monitoring of the endobag pressure making sure not to exceed 200 mmHg (Fig. 3).

Completion angiography showed a satisfactory result (Fig. 4), with good femoral pulses at the end of the procedure.

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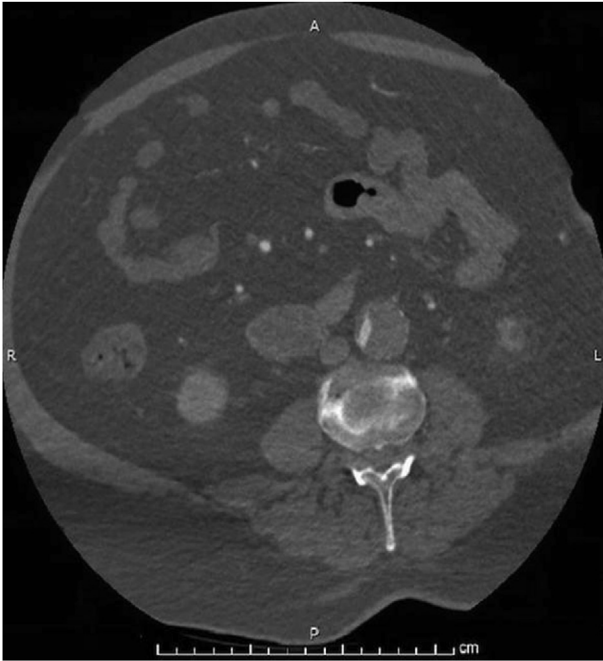


Figure 1. CTA showing significant long infrarenal aortic stenosis.



Figure 3. Angiogram showing severe stenosis of the distal aorta.

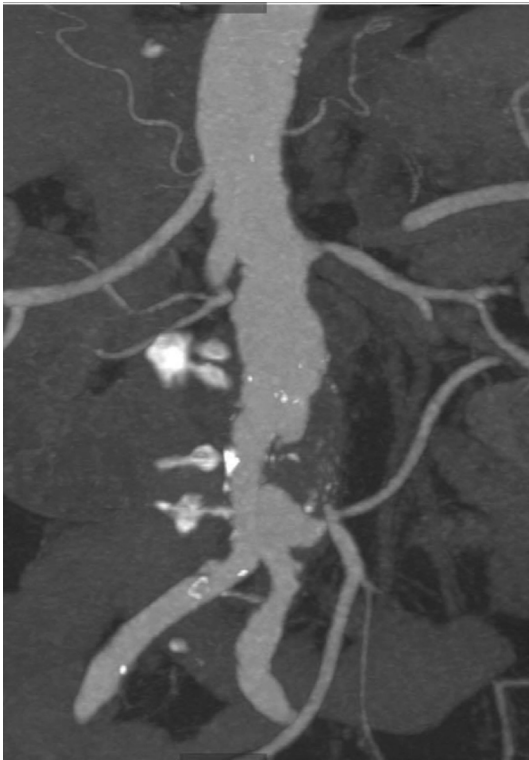


Figure 2. CTA showing significant long infrarenal aortic stenosis.

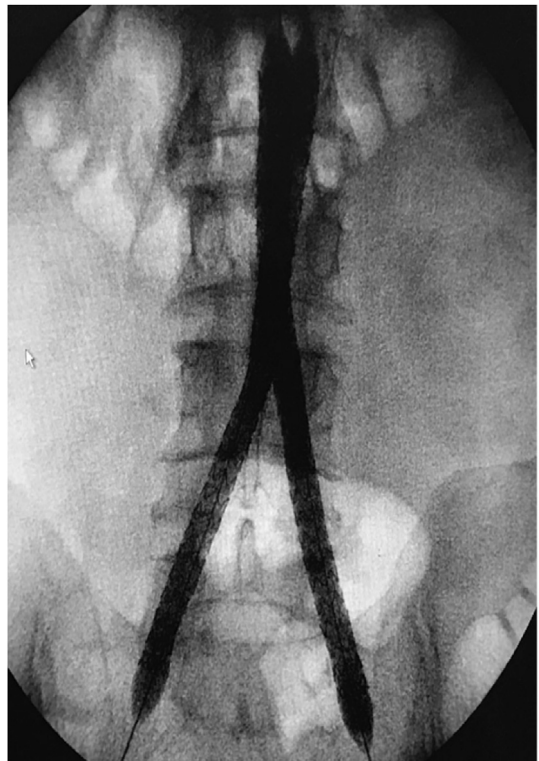


Figure 4. Nellix Balloon inflated to open the stent; polymer (20 mL) is injected in each limb.

An uneventful recovery followed with discharge within 24 hours. A 6 month follow-up CTA showed patent stents with no migration (Fig. 5). Technical success was accompanied by clinical resolution of symptoms with an increase in ABPI to 0.9 on the right lower limb and 0.85 on the left side (see Fig. 6).

DISCUSSION

Aortobifemoral bypass has long been the gold standard for management of aorto-iliac occlusive disease with a 10 year patency rate of 80–90% and a peri-operative mortality of

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