SHORT REPORT

Iliac Pseudoaneurysm Stenting after Conventional Abdominal Aneurysm Repair

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Anastomotic iliac aneurysms after surgical repair of abdominal aortic aneurysms are associated with a significant morbidity and mortality. Conventional open surgical repair of such aneurysms involves general anaesthesia and may necessitate complex redo vascular reconstruction. We report a case of endoluminal treatment of a 35 mm aneurysm of the right common and external iliac arteries with a superadded external iliac artery stenosis in a 60-year-old female following surgical implantation of an aorto-biiliac prosthesis 25 years previously.

After occlusion of the internal iliac artery with metal coils, the stenosis of the external iliac artery was treated by means of percutaneous transluminal angioplasty (PTA) via a transcutaneous right femoral artery approach. The aneurysm was then successfully excluded by the implantation of a stent-graft into the common and external iliac artery. Interventional stent graft placement under local anaesthesia provides a useful therapeutic approach for anastomotic aneurysms of the iliac arteries.

Key Words: Aneurysm; Endovascular repair; Percutaneous transluminal angioplasty; Stent graft.

Introduction

Surgical treatment of anastomotic iliac aneurysms following abdominal aortic aneurysm repair is associated with increased morbidity due to possible tissue adhesions. Endovascular repair under local anaesthesia seems attractive especially in high risk patients. Today, prosthetic stenting is frequently used for the treatment of thoracic and abdominal aortic aneurysms.¹⁻⁴ Data on the endovascular treatment of iliac artery aneurysms are limited.⁵⁻⁸ We report a case of an asymptomatic 35 mm anastomotic aneurysm of the right common iliac artery following the implantation of an aorto-biiliac-prosthesis 25 years previously. Whereas, conventional open surgery for iliac aneurysms needs general anaesthesia and may necessitate a complex redo vascular reconstruction, an endovascular approach under local anaesthesia appears very attractive.

Case Report

A 60-year-old female presented after an outpatient visit with a 3.5 cm aneurysm of the right iliac artery in the anastomotic area after implantation of an aorto-biiliac dacron prosthesis 25 years previously. She had undergone several other vascular procedures over the last 30 years including repeated bilateral thrombectomy of the superficial femoral arteries, and reconstruction of the right renal artery due to renal artery stenosis with arterial hypertension. She stopped smoking 10 years ago and had been asymptomatic regarding symptoms of peripheral occlusive disease for the previous 10 years.

At an outpatient follow-up visit there were no symptoms of claudication. The Ankle–Brachial Pressure Index was 0.8 in both legs. Oscillography showed normal amplitudes over the femoral and tibial pulses with reduced amplitudes over the left and no signal over the right foot.

Duplex ultrasound scanning revealed a bifurcation graft which was normal in diameter. However, at the right iliac anastomosis, a 4.1 × 3.1 cm² (length ×
A diameter) aneurysm was seen; the left iliac artery
diameter was 1.7 cm. Angiography confirmed that the
aneurysm was suitable for endovascular treatment;
the femoral artery diameter was greater than 7 mm
and would thus allow introduction of the stent. In
addition, a 70% stenosis of the external iliac artery
was found.

After reaching an interdisciplinary consensus
between the vascular surgeons, interventional radi-
ologists, and angiologists, we decided to use an
interventional technique for treating the aneurysm.
The procedure was performed under local anæ-
esthesia via a retrograde right femoral approach
using an 11F introduction sheath. The right internal
iliac artery was occluded using steel coils (3–5 mm,
William Cook Europe A/S, Bjaerverskør, Denmark)
to prevent an endoleak. Both the common iliac and
external iliac arteries were dilated satisfactorily
using percutaneus transluminal angioplasty (PTA).
A stent graft (Wallgraft™ Endoprothesis, diameter
10 mm, length 70 mm, Boston Scientific, Boston,
MA, USA) was introduced and placed in the
common iliac and external iliac artery without
complications.

Angiography confirmed successful coiling of
the internal iliac artery without retrograde filling of
the aneurysm as well as complete exclusion of the
aneurysm from the circulation. Perioperative anti-
biotic prophylaxis was achieved with ceftriaxone
(Rocephin 2 g intravenously). The patient was dis-
charged from hospital on the second postoperative
day without complication. Follow-up CT scan a month
after the intervention confirmed successful exclusion
of the iliac aneurysm without an endoleak. Eighteen
months after the procedure the patient remains
symptom free without any buttock claudication or
signs of pelvic or peripheral ischæmia assessed with a
duplex scan (Fig. 1).

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Fig. 1. (a) LAO angiogram of a 55-year-old female patient
who received an open surgical aorto-iliac bifurcated graft for
occlusive aortic disease more than 15 years ago. Bypass also
to the right renal artery. Narrowing at the distal iliac
anastomosis on the right with a large anastomotic aneurysm
having a total diameter exceeding 35 mm. (b) Initially, the
right internal iliac artery was embolized with multiple coils
(arrowheads) to prevent endoleaks due to backflow. There-
after, a Wallgraft (10 mm diameter, 70 mm length) was
placed across the anastomotic site extending from the graft
limb into the external iliac artery (arrows). Note the excellent
visibility as well as the flexibility of the Wallgraft combined
with sufficient radial force to hold the stenotic segment open
following balloon angioplasty. (c) The control angiogram
shows successful exclusion of the aneurysm.
Discussion

Standard open surgical repair of anastomotic aneurysms of the abdominal and thoracic aorta and iliac arteries is generally associated with significant morbidity and mortality.8 The incidence of iliac aneurysm rupture is high and may be up to 38% at initial presentation; rupture has been reported to carry a 58% mortality rate.9 Larger aneurysms are associated with a higher risk of rupture. Even though the iliac aneurysm in our patient was asymptomatic, the aneurysm had exceeded a critical size so we decided to treat it using a stent graft in order to minimize the risk of spontaneous bleeding.

Conventional open surgery for the treatment of an iliac aneurysm requires general anaesthesia or at least regional anaesthesia. Redo-open surgery is always difficult because adhesions complicate the procedure and lead to excess blood loss. We chose an endovascular approach since stent graft placement appeared to be much simpler, without further scarring. Early discharge after the procedure without excessive intensive care surveillance is possible if the procedure is straightforward. Nevertheless, endovascular stent graft placement itself may not fully exclude aneurysms and lead to endoleakage, which may require additional intervention. As far as the intermediate and long-term interaction between the conventional aortobiiliac prosthesis and the implanted stent-graft at its proximal landing zone is concerned, we speculate that after successful initial placement and good results after eighteen months the development of an endoleak is unlikely. Nevertheless, regular follow-up examination including repeat CT scans is needed to confirm this.

The right internal iliac artery arose from the anastomotic aneurysm and was, therefore, occluded. The intentional coil occlusion of one or, especially, both internal iliac arteries may lead to ischemic complications.10–12 We occluded the right internal iliac artery prior to endografting, and the patient developed no signs of pelvic ischemia, such as exercise-induced buttock pain. Even at eighteen months follow-up after the procedure she remained completely asymptomatic.

The advantages of stent grafting are that the procedure can be performed with a low risk especially as a prophylactic approach, provides sufficient long-term elimination of the aneurysm with an acceptable hemodynamic result. This approach is minimally invasive, can be performed under local anaesthesia and the patient can be discharged early after the procedure.

References

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