CASE REPORT

An Unusual Case of Renal Artery Stenosis Following Endovascular AAA Repair


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Introduction

Endovascular abdominal aortic aneurysm (AAA) repair seems an effective treatment. Although complications are frequent, secondary radiological intervention is usually successful.1 We present an unusual case of ostial renal artery stenosis following endovascular repair of abdominal aneurysm, without graft misplacement.

Case Report

A 79-year-old woman with a non-functioning right kidney, due to atherosclerotic occlusion and hypertension, was admitted for treatment of an infrarenal AAA. The preoperative angiogram showed an infrarenal AAA classifiable as type II B.2 Contrast enhanced CT estimated a maximal diameter of 50 mm with a proximal neck of 15 mm in length, 20 mm in diameter and a normal distal cuff of 5 mm in length: an aneurysm (that is, more than twice the minimum diameter) of both the common iliac arteries was also present. No calcification or thrombus was noted in the aortic neck. The patient underwent successful implantation of a 24 × 145 mm, bifurcated TalentTM graft (Global Medical Manufacturing Corporation, Sunrise, Florida, U.S.A.) with 1 cm of bare stent for suprarenal fixation. Two AneurXTM iliac cuffs (Medtronic AVE Inc., Santa Rosa, California, U.S.A.) of 16 × 55 mm and 14 × 55 mm were also implanted to cover both common iliac artery aneurysms.

The intraoperative and pre-discharge angiograms and computed tomography control showed no endoleaks and a patent left renal artery. One month later the patient developed acute renal failure and needed dialysis. An emergency angiogram showed an ostial stenosis of the left renal artery (Fig. 1a). There was no misplacement of the bifurcated TalentTM graft and the covered portion of the prosthesis did not cover the vessel. A 6.0 × 20 mm angioplasty balloon inflated repeatedly to 16 atm was unsuccessful (Fig. 1b). Intravascular ultrasonography showed that the stenosis was due to a crease of the aortic intima caused by the expansive stress forces of the struts (Fig. 1c). A 7 × 15 mm Corinthian stent (Cordis Europa, Roden, The Netherlands) has been deployed at 10 atm, protruding between the open bare wires of the graft (Fig. 2b). This resolved the ostial functional stenosis (Fig. 2c).

At 3 months' follow-up there was no angiographic evidence of restenosis and complete exclusion of the aorto-iliac aneurysms.

Discussion

The main complications about the endovascular therapy of the abdominal aneurysm are endoleaks, graft thrombosis and migration, and iliac artery injuries. Cardiac and pulmonary complications have also been reported. Renal stenosis is an uncommon complication and it usually occurs when the graft is misplaced.3-4

This case was not caused by misplacement of the endoprosthesis but was due to an uncovered strut of

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Fig. 1. (A) Angiogram of left ostial renal artery stenosis (arrow); (B) inflation of the balloon has no effect on the stenosis (arrow); (C) intravascular ultrasound showing a patient’s renal artery ostium (arrowed) with the overlying strut.

Fig. 2. (A, B) The stent-balloon expansion shifts the strut. (C) Final result after deployment.

the prosthesis compressing the renal artery ostium. This situation could only be relieved by using another stent to hold the strut away from the renal artery ostium.

References


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