SHORT REPORT

Endovascular and Hybrid Treatment of Recurrent Thoracoabdominal Aneurysms in an HIV-positive Patient

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Introduction. We report a case of staged endovascular and hybrid treatment of recurrent thoracoabdominal aneurysms (TAAA) in a 55-year-old HIV-positive man.

Report. A patient, who had previously been surgically treated for a type III TAAA, presented with recurrent aneurysms. The patient was treated by a combination of endovascular and open surgery. Neither visceral nor spinal ischemia were observed.

Conclusion. The hybrid treatment of recurrent TAAA could offer lower mortality and morbidity. Patients with HIV/AIDS treated for aortic aneurysms require close follow-up.

Keywords: Thoracoabdominal aneurysm; False aneurysm; Endovascular repair; Vessel transposition; HIV.

Introduction

Redo surgery after open repair of thoraco-abdominal aneurysm (TAAA) represents a significant technical challenge. The ever-expanding incidence of HIV infection has introduced a spectrum of rare and often life-threatening lesions. HIV-related aneurysms have previously been reported although their pathogenesis remains unclear. We report a case of staged endovascular and hybrid treatment of recurrent TAAA in an HIV-positive patient.

Case Report

A 58-year-old man was referred to our department in July 2005 with back pain. He had a history of hypertension, smoking, dyslipidemia and HIV infection and had been on antiretroviral therapy since 1997. He had recently had cryptococcosis, CMV infection and pneumococcal meningitis. In July 2002 the patient underwent open repair of a Crawford type III TAAA by a clamp-and-sew technique. The last five intercostal were incorporated in the beveled proximal anastomosis and the visceral vessels were reanastomosed in a single button. Microbiological tests of aortic samples were negative for mycotic aneurysm. Two years later, a 72 mm symptomatic, non-infective pseudoaneurysm of the proximal anastomosis and a 50 mm true aneurysm of the intercostal patch were detected. The patient had no signs of sepsis, such as fever, leukocytosis, positive blood culture and gas on the CT-scan. Because of the urgent nature of the problem, a leukocyte-labelled scintigram was not performed. Two Talent (Medtronic AVE, Sunrise, FL) endografts were positioned (Fig. 1), immediately proximal to the celiac trunk (28-24-113) and up to the left subclavian artery (30-30-115), respectively. The patient did not experience spinal cord ischemic complications and a CT-scan six months later showed that the diameter had decreased to 46 mm without signs of endoleaks.

At the last examination, CT-angiography detected a contained rupture of the visceral aortic patch (Fig. 2A) and the patient underwent an emergency repair. Also in this case, the patient had no clinical, laboratory or CT-scan signs of infection. A retrograde revascularization from the aortic graft to the renal arteries and superior mesenteric artery was performed.
with a trifurcated graft (6 mm straight dacron graft sutured to a 14 mm × 7 mm bifurcated graft). A 28-28-130 straight Talent (Medtronic AVE, Sunrise, FL) endograft was introduced through a 10 mm service graft sutured to the main body of the trifurcated graft (Fig. 2B,C). The intraprocedural angiogram and a post-procedural angio-CT scan demonstrated the patency of renal and mesenteric revascularization and no signs of endoleaks. Post-operatively, cefuroxime (1 g iv tid for 7 days) and thereafter ciprofloxacin (500 mg po bid for 1 month) were administered. The patient was discharged on the eighth postoperative day.

Fig. 1. (A) A CT-scan 3 months after endograft implantation. (B) Details of an endograft immediately proximal to the celiac trunk.

Fig. 2. (A) CT-angiography demonstrating the contained rupture of the visceral aortic patch. Intraoperative view (B) and postoperative 3D CT-scan reconstruction (C) showing the retrograde revascularization of the superior mesenteric artery (SMA) right renal artery (RRA) and left renal artery (LRA).
day without renal or visceral ischemic complications. Nine months later the patient was doing well and a CT-scan showed the complete exclusion of the aneurysms.

Discussion

The occurrence of recurrent TAAA in HIV-positive patients\(^1\) raises questions about their etiology and therapeutic approach. With the increasing incidence of HIV seroprevalence, HIV/AIDS-related aneurysms and pseudoaneurysms are more frequently observed and appear as a distinct clinical and pathological entity.\(^2\) A number of mechanisms have been suggested for aneurysm formation including graft infection, direct virus action, leukocytoclastic vasculitis of the vasa vasorum and periadventitial vessels, accelerated atherosclerosis due to abnormal glucose and lipid metabolism secondary to antiretroviral therapy.\(^2\)–\(^3\)

Redo open thoraco-abdominal aneurysm repair is a technically demanding procedure.\(^4\) This may be associated with a high mortality and paraplegia rate, although data on this topic are conflicting. Endovascular techniques have the advantage of being less invasive and requiring a very short aortic clamp time. Although the long-term results are still under evaluation, endovascular procedures are usually considered the first choice in the treatment of descending thoracic aortic aneurysms (DTA) in elderly and debilitated patients.\(^5\) The endovascular approach, in addition to its less invasive nature, allows for repeat interventions. This is an advantage, especially in HIV-related aneurysms, when considering their remarkable multiple occurrence and location.

In the HIV-positive patient reported here, the multiple and sequential presentation of an aortic aneurysm with involvement of the visceral vessels required a staged hybrid treatment using endovascular exclusion and open surgical revascularization of both the renal and the superior mesenteric arteries with satisfactory early results.

In conclusion, considering the short follow-up, hybrid treatment of recurrent TAAAs, which seem to be more frequent in HIV-positive patients, is feasible and could offer a good outcome in selected patients. Moreover, since several case reports and small series of AIDS-related multiple and recurrent aneurysms have been reported in the literature, patients with HIV/AIDS undergoing treatment of thoracic or thoracoabdominal aneurysms require careful follow-up.

References


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