CASE REPORT

Percutaneous Treatment of Anastomotic Leak Following Elective Aortic Aneurysm Repair

N. J. Harris, S. Singh, P. Gaines, W. Morris-Jones and J. D. Beard

Department of Vascular Surgery and Radiology, Royal Hallamshire Hospital, Glossop Road, Sheffield, U.K.

Introduction

Anastomotic leak is a well-recognised complication of elective abdominal aortic aneurysm resection and repair.\textsuperscript{1-3} Current management of patients with this complication lacks universal agreement and depends on the cause. If simple mechanical breakdown of the anastomosis is the cause then direct repair is sometimes possible, but if infection is present then graft excision and \textit{in situ} or extra-anatomic bypass is required.

Case Report

A 76-year-old male presented with vague abdominal pain of several days duration. He had undergone elective resection of an abdominal aortic aneurysm and replacement with a 24 mm straight Dacron graft 6 years previously, and had remained well in the interim. He was haemodynamically stable and examination revealed a pulsatile upper abdominal mass. A Duplex ultrasound scan revealed good flow within the graft, but also pulsation of the sac around the graft with apparent blood flow within it. An arteriogram was therefore performed which confirmed reflux of blood from the distal anastomosis into the native aneurysm. There was no clinical or radiological evidence of sepsis and blood cultures were negative. The patient suffered from hypertension, bronchiectasis and had poor renal function. It was therefore decided to attempt bilateral aorto-iliac stenting to prevent leak into the native aneurysm sac rather than embark on further surgery. A 9 mm Wallstent was placed in the right aorto-iliac segment, and a 14 mm Wallstent placed in the left aorto-iliac segment, which was also noted to be aneurysmal (Fig. 1). The stents were 10 cm and 8 cm in length, respectively. However, the aneurysm remained clinically pulsatile, albeit less so. A repeat arteriogram was performed one week later and this revealed continued reflux from the distal anastomosis (Fig. 2). The spirals from 14 guide wires were then passed under radiological control into the

Please address all correspondence to: Dr. N.J. Harris, Flat 4, 906 Ecclesall Road, Sheffield S11 8TR, U.K.

Fig. 1. Bilateral aortoiliac stents placed in an attempt to prevent reflux into native aneurysm sac.
aneurysm sac across the interstices of the Wallstents already in position. This obliterated the space and no further reflux occurred (Fig. 3). Following wiring, the aneurysm became non-pulsatile clinically and the patient remains asymptomatic at 6 months.

**Discussion**

The complication rate associated with elective abdominal aortic aneurysm resection and grafting has been reported at 2–5%\(^1\)\(^2\) whereas re-operation for aortic false-aneurysm carries a mortality of 25% or more.\(^3\) Non-resective aneurysm therapy in high-risk patients has been well described.\(^4\) These methods are not without risks such as infection, visceral and renal ischaemia, coagulopathy and, most worrisome, failure of the aneurysm to thrombose with continuing expansion. Parodi and Barone recently reported 23 successful cases of transfemoral intraluminal, stent-anchored graft implantation in the treatment of abdominal aortic aneurysms.\(^5\) The open method of inserting wire into an aneurysmal sac was first practised by Moore and Murchison in 1864.\(^6\) In this case report reflux into the native aneurysm sac was treated successfully by percutaneous wiring following failure of conventional stents. It is likely that covered stents would have controlled the reflux but these are not yet available. Percutaneous embolisation of abdominal aneurysms is associated with an increased risk of infection and, more significantly, a subsequent aneurysm rupture. The infection risk is minimised by the prophylactic use of antibiotics whilst the risk of aneurysm rupture requires judicial comparison with the increased operative risk in such a frail patient. To our knowledge this is the first time that such a procedure has been performed percutaneously.

**References**


Accepted 29 March 1994