

## CASE REPORT

# Aortovenous Fistula to the Inferior Mesenteric Vein in a Ruptured Abdominal Aortic Aneurysm

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### Introduction

Aortovenous fistulas are found in 2-7% of cases of ruptured abdominal aortic aneurysms (RAAA).<sup>1,2</sup> Of these, 80% are aorto-caval fistulas.<sup>3</sup> Fistulas to the iliac veins and the left renal vein are less common.<sup>1,4-8</sup>

This paper presents a case of an aortovenous fistula from an RAAA to the inferior mesenteric vein.

### Case Report

A 74-year-old man with Parkinson's disease, but no history of cardio-pulmonary or bowel disease, was admitted with acute abdominal pain and shock. An immediate ultrasound examination revealed a large RAAA. At emergency laparotomy, a widespread left retroperitoneal haematoma was found and the sigmoid colon appeared ischaemic. After opening the aneurysm and removing the thrombus, a 5 cm long aortovenous fistula to the inferior mesenteric vein was visualised. The fistula was closed from inside the aorta. The retroperitoneal aneurysmal rupture was on the left side posterior to the fistula. A 16 mm Dacron tube graft (Unigraft, Braun-Melsungen) was inserted. The retroperitoneum was closed over Gentacoll 130 mg (Implantat Gentamicinum, Schering-Plough) and the ischaemic left colon removed. Postoperatively the patient was treated with intravenous cephalosporine, aminoglycoside and metronidazole for 11 days. After discharge, oral cephalosporine was continued for 2 weeks. There was no postoperative infection. At 3

month follow-up the patient was well and within a year bowel continuity was re-established.

### Discussion

An RAAA most often ruptures to the retroperitoneum. If the venous system is involved in the rupture, the aneurysm ruptures solely into the vein in 79% of the cases.<sup>1,2,4,9</sup> In the remaining 21% the aneurysm also ruptures to the retroperitoneum.<sup>3,5-8</sup> Preoperatively the following signs and symptoms should alert the vascular surgeon to the possibility of an aortovenous fistula: leg oedema and pain, continuous abdominal bruit, cardiac decompensation, cyanosis of the legs despite femoral pulses, renal dysfunction and haematuria.<sup>1,3</sup> An abdominal bruit is found in up to 80% of cases.<sup>1</sup> The degree of cardiac insufficiency depends on the size of the shunt.

Despite adequate preoperative clinical evaluation and investigation with ultrasonography, angiography, computer tomography (CT), MRI, radioisotope scanning, venous pressure measurement and/or oxygen saturation measurement the presence of an aorto-venous fistula is not recognized in 25-50% of cases.<sup>3,4,9</sup>

An aortovenous fistula may be asymptomatic when covered by a thrombus. During surgery for asymptomatic aortic aneurysms a fistula may unexpectedly be found when the thrombus is removed. In RAAA the rupture itself may loosen the thrombus from the wall of the aneurysm, resulting in opening of an existing fistula. In these cases a large aorto-caval fistula will cause acute cardiac failure. In the case presented here

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the haemodynamic changes resulted in increased venous pressure in the inferior mesenteric vein for a sufficient period to cause necrosis of the left colon.

Without surgery an aortovenous fistula is invariably fatal within a few months.<sup>2,5</sup> The postoperative mortality in RAAA patients is lower when the rupture is solely to the venous system, especially if the condition is diagnosed preoperatively.<sup>3,9</sup>

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