

CASE REPORT

Delayed Presentation of Ischaemic Colon Following Repair of Ruptured Aortic Aneurysm

K. J. Molloy, A. Nasim*, D. Payne, A. R. Naylor and M. M. Thompson

Department of Vascular and Endovascular Surgery, Leicester Royal Infirmary NHS Trust, LE1 5WW, UK

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Introduction

The ischaemic colon is a recognised complication following abdominal aortic aneurysm (AAA) repair. Presentation is usually in the early postoperative period. We report the cases of two patients who recovered from their initial emergency surgery for ruptured AAA but presented late with an ischaemic colon and secondary graft infection.

Case Reports

Case One

An 80-year-old lady presented to the casualty department with severe abdominal pain and collapse. On examination it was apparent that she had a ruptured AAA and she underwent repair of her aneurysm with a gelatin-impregnated straight Dacron graft. At the end of the procedure, she was noted to have a caecal tumour and a right hemicolectomy was performed. Histological examination confirmed as Dukes' B adenocarcinoma. She made an uneventful recovery and was discharged 17 days postoperatively. She was reviewed 4 weeks following hospital discharge and was noted to be well.

The patient was readmitted 51 days after her initial



Fig. 1. CT scan showing false aortic aneurysm containing a significant amount of gas.

surgery with abdominal pain and anaemia. A computed tomography (CT) scan showed a false aortic aneurysm containing a significant amount of gas, suggestive of infection (Fig. 1). An axillobifemoral bypass was performed under general anaesthesia immediately prior to a laparotomy. This revealed an ischaemic sigmoid colon, with a fistula into a large false aneurysm at the distal aortic graft anastomosis. The aortic graft was removed, the proximal aortic stump was closed and the common iliac arteries were ligated. A subtotal colectomy with ileostomy formation was performed. Histological examination of the resected colon revealed

* Please address all correspondence to: A. Nasim, Department of Surgery, Robert Kilpatrick Clinical Sciences Building, Leicester Royal Infirmary, LE2 7LX, UK.

extensive mucosal ulceration and an inflammatory reaction consistent with ischaemia. She was fed enterally via a jejunostomy for 3 weeks. She was discharged home 4 weeks postoperatively and remains well with 6 months' follow-up.

Case Two

A 59-year-old lady presented to the casualty department with symptoms of severe abdominal pain and collapse. A diagnosis of ruptured AAA was made and she underwent emergency repair with a straight Dacron graft. Her recovery was uneventful and she was discharged home on the eighth postoperative day.

The patient was readmitted 32 days after her initial surgery with severe abdominal pain radiating to her back and melaena. On examination she had a large left-sided abdominal mass. Her haemoglobin was found to be 7.2 g/dl. A contrast-enhanced CT scan was performed which showed a large retroperitoneal haematoma, extending from just below the left kidney down into the pelvis. A laparotomy was performed which revealed an ischaemic colon, an infected aortic graft and a large retroperitoneal haematoma. She underwent a subtotal colectomy and ileostomy formation, with oversewing of the rectal stump. The aortic graft was excised and replaced with a rifampicin-bonded graft. Histological examination of the colon revealed severe focal ischaemic changes.

Whilst still in hospital, 27 days following this second operation, the patient collapsed and became severely hypotensive. Intra-abdominal haemorrhage was suspected and, therefore, a further laparotomy was performed. This demonstrated secondary haemorrhage, due to disruption of the proximal aorta 1 cm above an intact aortic anastomosis, caused by candidiasis. The graft was therefore completely excised and an axillo-bifemoral bypass was performed. Unfortunately, the patient died shortly afterwards on ITU, due to irreversible coagulopathy.

Discussion

The ischaemic colon is a dreaded and potentially fatal complication of aortic aneurysm surgery. It usually affects the sigmoid colon and occurs in around 7% to 10% of patients undergoing repair of ruptured aneurysm.¹ Several factors contribute to this complication, with the most important being interruption

of the primary or collateral blood supply of the left colon by atherosclerosis, embolisation, thrombosis, ligation or stretch injury to the left colonic mesenteric vessels. This complication usually presents either at the end of the procedure, with a dusky appearance of the colon, or in the early postoperative period with left-sided abdominal tenderness, metabolic acidosis and a bloody diarrhoea.

Tollefson and Ernst² suggest distinguishing between three degrees of severity of ischaemic colon (mucosal, mucosal and muscular, and transmural involvement). Whereas mucosal ischaemia only is usually reversible with no sequelae, it is well known that mucosal and muscular ischaemia may lead to a colonic stricture, which can present late with chronic diarrhoea or constipation. Late presentation of transmural gangrene as seen in our two cases is unusual and to our knowledge has not been reported before.

These cases highlight the difficulty in recognising this complication on account of paucity of symptoms. Monitoring of sigmoid intramucosal pH (pHi) with tonometry is not accepted routine practice. Schiedler *et al.*³ and then Bjorck and Hedberg⁴ showed that this method served as an early warning for the development of an ischaemic colon. They looked at patients undergoing both elective and emergency surgery for AAA and found that those patients who develop an ischaemic colon had a pHi of less than 6.86 intraoperatively. Rectosigmoidoscopy is also effective for detecting ischaemic colon after aortic surgery,⁵ and certainly at such low pHs, ischaemic changes will be evident.

Early diagnosis of this condition clearly requires a high index of suspicion if late presentation with graft infection is to be avoided.

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