CASE REPORT

Double Primary Aortoenteric Fistula

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Introduction

Aortoenteric fistulae are rare but potentially catastrophic entities that can affect either a diseased or reconstructed abdominal aorta and therefore they are classified as primary or secondary fistulae.

The subtleties of its presentation, lack of specific diagnostic tests, delay in therapy and lack of consensus on the optimal operative treatment have contributed to the high morbidity and mortality rates of this entity.

We present a case of two simultaneous primary aortoenteric fistulae into both duodenum and jejunum in one patient and describe our management.

Case Report

A 76-year-old man was admitted to our hospital with lower abdominal pain and melena without fever or hypotension. Some months ago he had suffered an attack of diverticulitis of the sigmoid colon proven by ultrasonography and colonoscopy. At that time an asymptomatic aneurysm of the abdominal aorta had been detected with a diameter of 35 mm. At admission his serum-haemoglobin was 4.6 mmol/l. Blood transfusions were given. One day after admission he had melena once again and also haematemesis and a short period of hypotension. Colonoscopy showed active diverticulitis in a short segment of the sigmoid without ulceration or fistulae. Oesophagastroduodenoscopy revealed a fresh blood clot in an ulcer in the third part of the duodenum. Computer tomography (CT) of the abdomen showed a retroperitoneal, ruptured abdominal aneurysm with two fistulae to the duodenum and jejunum (Fig. 1 and Fig. 2).

Immediate laparotomy was performed. At operation two aortoenteric fistulae were confirmed, one from the cranial right anterior aneurysm wall into the distal part of the duodenum and a second fistula from the distal left anterior part of the aneurysm into the jejunum approximately 50 cm distal to the ligament of Treitz. The thickened, inflamed segment of the sigmoid was adherent to the aneurysm without any communication to the lumen of the aorta, duodenum or jejunum.

After clamping of the abdominal aorta both orifices of the duodenal and jejunal fistulae were resected and the defects in the bowel were closed. The aneurysm was replaced by a knitted Dacron® aortic bifurcation graft which had been soaked for 10 min in a Rifampicin®-solution prior to insertion. An omental...
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Fig. 2. CT-image of the second aortoenteric fistula between the jejunum and the caudal part of the ruptured aortic aneurysm. A pedicle graft was placed between the aortic graft and bowel. Furthermore, the vascular prosthesis was covered with some gentamicin collagen pads (Gentacol®). Systemic prophylactic antibiotic therapy was started intravenously, and then orally for a period of six weeks as microbiological culture analysis of the fistula showed Enterococcus faecalis. Postoperative recovery was uneventful and the patient left hospital less than 3 weeks after his operation in good condition and without any complaints.

Discussion

The majority of patients with infrarenal abdominal aortic aneurysms are asymptomatic. A few patients will present with unusual complications of the aneurysm such as inflammatory aneurysm, aortovenous fistula, infected aneurysm, atheroembolism (blue toe syndrome) and primary aortoenteric fistula. Primary fistulae between aorta and the gastrointestinal tract are rare. The incidence of primary aortoenteric fistulae varies between 0.1 and 0.8%. In recent reviews in literature the mean age of patients with this entity is 60-63 years. Most aortoenteric fistulae communicate between the diseased aorta and the overlying distal portion of the duodenum (83%). On rare occasions other parts of the bowel may be involved. The first successful repair was not performed until 1957. In the literature less than 230 cases of spontaneous aortoenteric fistulae were tabulated. We found no previous reports of successful treatment of two simultaneous primary aortoenteric fistulae in one patient.

The classic triad of gastrointestinal bleeding, sepsis and abdominal pain is rarely present in any one patient. Haematemesis occurred in 65-78% of the patients and melaena in 54%. One of the characteristics of the aortoenteric fistulae is recurrent, initially self-limited, upper intestinal bleeding of variable severity; less than 5% of patients will present with severe haemorrhage and hypovolemic shock. Nearly two-thirds of patients have a period of more than 6 h between their initial haemorrhage ("herald bleed") and either death or operation. Despite communication between the aorta and bowel, sepsicaemia or fever is rarely observed.

Treatment of primary aortoenteric fistulae requires surgical intervention as without treatment, death is inevitable. Four surgical principles must be followed for a successful outcome: (1) control the bleeding, (2) repair the bowel defect, (3) eradicate associated infection and (4) selectively restore distal circulation. Although extra-anatomic bypass with repair of the aneurysm has been reported, a simpler treatment consists of repair of the aneurysm with in situ antibiotic-soaked Dacron graft and primary repair of the intestinal tract. Careful coverage of the graft and suture lines with retroperitoneal tissue or omentum to prevent its contact with any portion of the intestinal tract followed by a 4-6-week course of systemic antibiotic therapy based on intraoperative cultures is also important.

References

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