SHORT REPORT

Aortic Rupture due to Salmonella Infection—Surgical Reconstructive Options

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Introduction

Aortitis is a rare and life threatening complication of local or generalized bacterial infections. It most commonly affects the abdominal aorta. We present the diagnostic and therapeutic associated with a case of salmonella aortitis which we have treated for 18 months.

Case Report

A 51-year-old man was admitted urgently with a 3 week history of back pain. Clinical examination revealed a tender abdomen and a temperature of 39 °C. There was a leucocytosis of 15 900. An abdominal CT scan was immediately performed and this confirmed the presence of a saccular abdominal aortic aneurysm. Because of the presence of retroperitoneal extravasation and a probable rupture, a laparotomy was performed. During para-aortic dissection a large abscess arising from the back of the aorta was found. There was a 25 mm perforation of the aorta which extended up to the left renal artery (Fig. 1). The aorta was resected obliquely above the abscess, preserving the right renal artery (Fig. 1). The aorta was resected above the celiac trunk and the visceral circulation was restored through an aorto-coeliac bypass using saphenous vein. The right renal blood supply was re-established through a saphenous vein interposition between the right renal artery and the aorta (Fig. 2). The aneurysm cavity was opened and drained. A further laparotomy performed two days later in order to assess the blood supply of the gastrointestinal tract was satisfactory.

Five months later the patient was admitted as an emergency and operated on for disseminated peritonitis caused by multiple small ischaemia-induced perforations in the ascending colon. An intraoperative swab grew the same serotype of salmonella enteritidis as before, and an endogenous reinfection was diagnosed. A right hemicolectomy was performed and because of the poor intestinal blood supply, an
additional aorto-mesenteric spermatic vein bypass was inserted between the aorto-coeliac bypass was patent. The surgical procedure was completed with a cholecystectomy despite the bland macroscopic gall-bladder wall in order to remove a potential salmonella reinfection focus and salmonella was indeed found in the patient’s gallbladder. The patient’s weight had dropped to 45 kg from a starting weight of 69 kg before his first operation.

The patient is alive and well 4 years after his first operation. He describes his physical condition as age-related and weights about 74 kg. He complains only about the constant need to take medication for anticoagulation.

Discussion

Infected aortic aneurysm is a very rare disease. Most bacteria begin their vascular invasion from a small focus, generally from an atherosclerotic plaque. Our patient had no known arteriosclerotic plaque. Our patient had no known arteriosclerotic lesions and no pre-existing aortic aneurysm. His past history included a short episode of diarrhea during a holiday in southeastern Europe about 3 months before his first clinical admission. Bacterial spreading through the vasa vasorum after a gastrointestinal infection seems, to be the infection pathway.

In this case, good result was only achieved after removal of the gallbladder. Even after prolonged antibiotic treatment with Ciprofloxacin, an enormous number of salmonella bacteria were found in the patient’s gallbladder after his cholecystectomy which was performed after his colonic perforation. Salmonella seems to be able to grow within the gallbladder even during antibiotic treatment, so it is reasonable to assume, that an early prophylactic cholecystectomy would have avoided some of the subsequent surgical procedures undergone by the patient.

There is no justification for the therapeutic antibiotic treatment of aortitis without surgery. At surgery an extensive debridement of the infected retroperitoneal area is mandatory. There are however some disagreements about the surgical options when restoring the arterial blood circulation. In the literature, an anatomical in-situ reconstruction is more often recommended, but extra-anatomical bypass seems to have a better prognosis. The mortality rate after axillofibemoral reconstruction is given as 29% (10 deceased in 35 cases) whereas in-situ reconstruction carries a mortality of 49% (28 deceased in 57 cases).

Based on our experience after a successful surgical treatment, antibiotic treatment for a least 3 months is recommended by the authors although there is no evidence based approach in the literature.

The authors also recommend prophylactic cholecystectomy to remove a potential salmonella reservoir and to prevent endogenous reinfection.
References


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