SHORT REPORT

Mycotic Aneurysm of the Abdominal Aorta Due to Streptococcus bovis Infection

M.J.L. Descamps, M. Lei and S. Brearley*

Department of Surgery, Whipps Cross University Hospital, London E11 1NR, UK

We present a 67-year-old man who was admitted urgently with a mycotic aneurysm of the infra-renal abdominal aorta which lead to a subsequent diagnosis of a dysplastic colonic adenoma.

The aneurysm was successfully repaired with a bifurcated Dacron graft. Streptococcus bovis was grown from pre-operative blood cultures and aortic tissue cultures. Eighteen months previously, the patient had undergone a curative resection of a gastric adenocarcinoma with adjuvant chemotherapy. There was no evidence of an abdominal aortic aneurysm at that time nor on computed tomography scanning 9 months post-gastrectomy. We, therefore, postulate that chemotherapy rendered the patient susceptible to a S. bovis bacteremia, which in turn caused development of a mycotic aneurysm, as opposed to merely colonising a pre-existing aneurysm. As there is a known association between S. bovis and gastrointestinal disease, the patient underwent a colonoscopy, which demonstrated a pedunculated lesion of the descending colon. Histological examination revealed a severely dysplastic villous adenoma.

Keywords: Streptococcus bovis; Mycotic aortic aneurysm.

Introduction

Mycotic or infected aneurysms of the abdominal aorta are rare (2% of aneurysms). They develop rapidly and rupture easily, resulting in a high mortality. We report a case of a mycotic aneurysm of the infra-renal aorta due to infection with Streptococcus bovis, an association that has not previously been reported. S. bovis bacteremia is, however, associated with colorectal diseases and further investigation of our patient revealed a severely dysplastic villous adenoma in the descending colon.

Case Report

A 67-year-old man was admitted with a 2-day history of lower back pain and rigors, a fever rising to 39.8 °C and a leucocytosis of 16.0 × 10⁹/L. Lumbar spine X-ray revealed a calcified abdominal aortic aneurysm. Abdominal ultrasound and CT scans (Fig. 1) showed a 5.9 cm diameter infrarenal aortic aneurysm, a right common iliac aneurysm, an ectatic left common iliac artery and surrounding soft tissue thickening. Eighteen months previously the patient had undergone a D2 total gastrectomy and adjuvant chemotherapy for a gastric adenocarcinoma.

The patient underwent urgent aneurysm repair. The retroperitoneal tissues had a brownish tinge and were oedematous but no pus was present. There was no evidence of intra-abdominal malignancy. Following clamping, the aneurysm sac was carefully debrided and a gelatine-impregnated 18 × 9 mm² bifurcated Dacron graft (Gelsoft, Salter Vascutech Ltd) was anastomosed to the infrarenal aorta and the common iliac bifurcations. The patient made an uncomplicated recovery.

S. bovis was grown from pre-operative blood cultures and aortic tissue cultures. An echocardiogram proved normal, however. Intravenous benzylpenicillin and gentamicin were given for 1 week post-operatively. The patient was discharged on a 2-week course
of intravenous ceftriaxone, has since been continued on oral amoxycillin and remains well at 29 months follow-up.

Because of the known association between \textit{S. bovis} bacteraemia and colorectal disease, and despite the absence of any bowel symptoms, the patient was referred for colonoscopy. This revealed a 10 mm pedunculated polyp in the descending colon, which was excised and retrieved. Histological examination of the polyp showed it to be a villous adenoma with severe dysplasia.

**Discussion**

Mycotic aortic aneurysms are uncommon.\cite{2} They are most often associated with \textit{Salmonella} sp. and \textit{Staphylococcus aureus}. Other organisms that have been found in infected aneurysms include anaerobes and streptococci from groups A and C but, to our knowledge, there are no previous reports of \textit{S. bovis} (a group D \textit{Streptococcus}) infecting an aortic aneurysm.

True mycotic aneurysms result from infection of the arterial wall following a bacteraemia, with secondary degeneration and dilatation, but secondary infection of a pre-existing aneurysm may also occur. In our patient, there was no evidence of an aneurysm at the time of gastrectomy or on CT scanning 9 months post-operatively. It is, therefore, likely that this patient developed a \textit{de novo} mycotic aneurysm and that the calcification seen in the aneurysm wall was present in the aorta prior to the onset of infection. It may be that chemotherapy rendered the patient susceptible to a bacteraemia.\cite{1} \textit{S. bovis} is reported to cause endocarditis but in the above case there were no stigmata of endocarditis and no vegetations were seen on echocardiogram.

\textit{S. bovis} bacteraemia is usually associated with gastro-intestinal disease especially disease of the colon (inflammatory bowel disease, diverticula, polyps and adenocarcinomas).\cite{3,4} An association with upper gastro-intestinal pathology (adenoma, lymphoma and gastric cancer) has also been reported.\cite{5}

The 18-month interval between curative resection of a gastric cancer and presentation of the aortic aneurysm, combined with a normal abdominal CT scan 9 months following the gastrectomy, make it unlikely that the \textit{S. bovis} bacteraemia arose at the time of gastric surgery. It seems much more likely that a bacteraemia occurred later, perhaps during, or following, chemotherapy.

The management of mycotic aneurysms consists of timely surgical intervention and prolonged antibiotic treatment.\cite{6} Various surgical grafts—silver-coated or antibiotic-impregnated—have been developed with the aim to reduce recurrence of infection in the grafted site. These newer grafts are not in routine use and were not available in our unit at the time of surgery. Studies to date investigating their use generally have involved small patient numbers but show encouraging results: One study reported that management with InterGard Silver (IGS) collagen and silver acetate-coated polyester grafts demonstrated favourable outcome.\cite{7} There is also evidence to support use of rifampicin-impregnated grafts\cite{8} and another study using a mouse model has suggested that rifampicin-impregnated grafts are superior to silver-coated grafts.\cite{9}

Antibiotic treatment is imperative for a successful outcome, and it is generally agreed that a prolonged course of parenteral antibiotics post-operatively is fundamental.\cite{6} Lifelong antibiotic prophylaxis remains controversial,\cite{10,11} however, with no clear evidence to support such management. The prevalence of many case reports endorsing long-term prophylaxis is persuasive, when considering the significant morbidity in the event of re-infection but relatively little morbidity associated with long-term use. In terms of follow-up, it is important to assess clinically the patient at regular intervals. Frequent measurement of inflammatory markers is less useful, being non-specific. Further surgical intervention is not usually contemplated unless the patient develops significant complications.

In conclusion, treatment of mycotic aneurysms is difficult, and larger studies to evaluate newer technology and avenues for post-operative management need to be performed. We report an unusual case of mycotic aneurysm caused by \textit{S. bovis}, which indicates that, should a patient develop endocarditis or a mycotic

---

**Fig. 1.** CT scan with contrast showing large abdominal aortic aneurysm containing mural thrombus and oedema of the retroperitoneal tissues.
aneurysm due to this organism, a thorough search for gastro-intestinal pathology should be undertaken.5

References


Accepted 24 June 2005