SHORT REPORT

A Ruptured Mycotic Aneurysm of a Branch of the Superior Mesenteric Artery and Pulmonary Tuberculosis

R. Jindal,* R. Natt, V. Pandey and M. Jenkins

Department of Vascular Surgery, St Mary’s Hospital, Praed Street, Paddington, London W2 1NY, UK

Superior mesenteric artery aneurysms are the third most common visceral artery aneurysm and account for 5.5% of all visceral aneurysms. Aneurysms at these sites are more susceptible to rupture and death may occur due to delayed diagnosis.

A case of a ruptured mycotic aneurysm of a branch of a superior mesenteric artery in association with pulmonary tuberculosis, treated successfully with resection, is presented.

Keywords: SMA pseudoaneurysm; Rupture; Tuberculosis.

Introduction

Visceral artery aneurysms are unusual with an incidence of 0.1–2%. Superior mesenteric artery aneurysms are the third most common visceral artery aneurysm after splenic and hepatic and account for 5.5% of all visceral aneurysms. Aneurysms at these sites are more susceptible to rupture and death may occur due to delayed diagnosis.

A case of a ruptured mycotic aneurysm of a branch of a superior mesenteric artery in association with pulmonary tuberculosis is presented.

Report

A 38-year-old man was referred to our emergency department with sudden onset severe abdominal pain. He had been experiencing mild upper abdominal pain with night sweats for the last 5 weeks. He gave a history of travelling to Middle East to his uncle who was on treatment for pulmonary tuberculosis a year prior to presentation.

Patient was hypotensive with a high-grade fever. Abdominal examination showed generalised tenderness with palpable pulsatile mass in the periumbilical region. Chest examination was normal with normal heart sounds. Laboratory tests showed a leukocytosis at 13,000/cm³ and haemoglobin level of 11 g/dl. His chest X-ray on admission was normal. Contrast enhanced computed tomography showed a ruptured SMA pseudoaneurysm with free fluid in abdomen (Fig. 1). Echocardiography done to exclude infective endocarditis was normal.

Patient underwent an emergency laparotomy. There was a pulsating mass 8 × 6 cm² in size present along a branch of SMA along with free peritoneal blood. After mobilisation of duodenojejunal flexure, SMA was controlled near its origin. The aneurysm sac was opened and a 0.5 cm rent was found in the artery. The artery was ligated proximally and distally to the aneurysm. The cavity contained pus and chronic granulation tissue. There was no evidence of intraabdominal tuberculosis. Biopsies from the thrombus and artery were sent for histology and culture. All cultures were negative and histology showed chronic inflammation with no evidence of tuberculosis.

Postoperative recovery was marked by high-grade fever. Multiple blood cultures, tests for syphilis and HIV were negative. Repeat abdominal CT scan did not show any evidence of collection. Heaf test was positive and a thoracic CT scan revealed multiple small carinal lymph nodes. Thoracoscopic lymph node biopsies showed numerous epithelioid granulomas with areas...
of caseous necrosis. Several acid-fast bacilli were seen. Sputum staining was negative though culture was positive for mycobacterium species. Patient responded well to antitubercular treatment and was discharged home 2 weeks later.

**Discussion**

The first case of a ruptured aneurysm of the SMA was in 1947—an autopsy finding in an 87-year-old patient. Numerous etiological factors for SMA aneurysm include infection, atherosclerosis, arterial dysplasia, collagen vascular disorders, arterial dissection, pancreatitis, trauma and others.

Infection was historically most common cause for SMA aneurysms but more recent series show infection to be uncommon.

This may also account for wide range of reported rupture risks due to changing pattern of aetiology. Streptococcus has been the most common isolate and the most common cause is infective endocarditis.

Atherosclerosis occurs in 20% of SMA aneurysms and mainly effects in later life. Differential diagnosis of Behcet’s disease should be kept in young patients as this presents with recurrent aneurysms and has high mortality if vascular system is involved. This diagnosis was considered in our patient, but excluded due to lack of classical clinical features of Behcet’s disease (orogenital ulceration, skin lesions and positive pathergy test—hypersensitivity of the skin to trauma). Likewise, SLE (systemic Lupus erythematosus) and other inflammatory causes of aneurysms were excluded, as diagnostic markers of these diseases were absent.

Systematic infection with *Mycobacterium tuberculosis* (TB) rarely affects the vascular system. It occurs in the setting of disseminated tuberculosis and has a high fatality rate. Mostly it affects the atherosclerotic vessels and people of all age groups. It can present with single or multiple pseudoaneurysms. It mainly effects aorta but can affect innominate or visceral arteries. It requires prompt diagnosis and should be managed with both medical and surgical therapy.

Pathogenesis of infected aneurysm involves haematogenous spread of organisms, which then infest the thrombus lining an existing aneurysm, primary infection of the artery, or direct involvement by infected lymph nodes or other tissues. In this case, cultures were negative and we could not find any other source of infection except presence of concomitant tuberculosis, it raises a high suspicion of tubercular SMA pseudoaneurysm. Cultures have been reported to be negative in approximately 25% of patients of visceral mycotic pseudoaneurysms mainly due to use of preoperative antibiotics.

SMA aneurysms may be asymptomatic or present with abdominal pain or mass. They may also present with rupture as in this case. Varying reports of rupture of SMA have been published with incidence of rupture in a recent series from the Mayo clinic to be 38%.

Management options include ligation, excision, aneurysmorraphy and excision and graft placement depending upon the location of the aneurysm. Most of the elective series did not include bowel resection and in the Mayo series, 38% of patients presenting with a rupture needed a bowel resection. In our patient vascular reconstruction was not necessary as collateral blood flow was maintained by the mesentery arterial arcade.

This report underlines the importance that mycotic aneurysm of the visceral artery should be considered in differential diagnosis in young patients with fever and acute abdomen. Diagnosis depends on a high index of suspicion. We should be aware of this potentially life threatening condition, especially, at a time when the incidence of tuberculosis is rising. Early treatment is essential and once the diagnosis is established, surgery should not be delayed. Tissue should be sent for bacteriology and systemic therapy continued thereafter.

**References**


3. Lorelli DR, Cambria RA, Seabrook GR, Towne JB. Diagnosis and management of aneurysms involving the superior mesenteric artery and its branches—a report of four cases. *Vasc Endovasc Surg* 2003;37(1):59–66.


*Accepted 2 February 2005*