Abdominal Pain Resulting from Acute Thrombosis of A Superior Mesenteric Artery Mycotic Aneurysm — A Case Report

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A 35-year-old man was admitted complaining of periumbilical pain for 3 days. On physical examination, a pulsatile mass was palpable in the left upper abdomen. There were no significant peritoneal signs. Abdominal CT revealed an aneurysm containing a thrombus in the proximal superior mesenteric artery. At surgery, there was no intestinal perforation or gangrene. The aneurysm was replaced with a synthetic prosthesis. Pathology examination showed inflammation compatible with a mycotic aneurysm, although cultures of the resected aneurysm had no growth. We think the patient’s pain was most likely caused by bowel ischemia secondary to acute thrombosis of the superior mesentery artery mycotic aneurysm.

Key Words: Superior mesenteric artery • Mycotic aneurysm • Mesenteric ischemia

INTRODUCTION

Ischemia of the intestines is the end result of interruption or reduction of its blood supply.1 The major symptom of acute mesenteric ischemia is severe abdominal pain. The ischemia may be classified as occlusive or non-occlusive. Occlusion may result from an arterial thrombus or embolus in the celiac or superior mesenteric artery (SMA). Arterial thrombosis is usually associated with extensive atherosclerosis or low cardiac output. Resection of the affected bowel is generally required as such a thrombus is usually not amenable to surgical removal.2 Acute thrombosis of an SMA mycotic aneurysm has not been previously reported. We report such a case in a young man.

CASE REPORT

A 35-year-old man was admitted to our hospital because of severe abdominal pain for 3 days. The patient had been well until about 2 years before admission, when he was diagnosed with hypertension. His blood pressure was subsequently adequately controlled with medication. The patient was a non-smoker, and his blood sugar and lipid profile were normal.

One year and ten months before admission, he was seen in the gastroenterology clinic complaining of abdominal discomfort. Physical examination was unremarkable. An abdominal echo performed at that time showed only a hepatic cyst.

Fourteen months before admission, the patient experienced exertional chest tightness. A heart echo revealed aortic root dilatation and moderate aortic regurgitation.

Chest and abdominal computed tomography showed dilatation of the descending aorta and right subclavian artery and aneurysmal dilatation of the proximal SMA (Figure 1). There was no thrombus detectable within the aneurysm. He had no fever at that time, and serum anti-nuclear factor and anti-ds-DNA were negative, as was a rapid plasma reagin test. The patient had no travel history and denied exposure to sexually transmitted diseases. He had never undergone vascular catheterization or other invasive procedure. Marfan syndrome was initially suspected.

Three weeks before admission, the patient began to have intermittent, dull, periumbilical pain. There was no
associated nausea, vomiting or diarrhea. No fever was present. The patient stated this discomfort was similar to what he had had for many years. Then, three days before admission, the pain became more severe, although it remained intermittent. No other symptoms were present except for mild nausea.

On physical examination, a non-tender pulsating mass was palpable in the left upper quadrant. There was no rebound tenderness or muscle guarding. Enhanced abdominal computed tomography revealed thrombosis within the proximal SMA aneurysm (Figure 2). The aneurysm was about 4 cm in diameter and 5 to 6 cm long, and the segment just distal to it enhanced with contrast. The white blood cell count was 7,400 per $\mu$L. The patient was operated on, and the aneurysm was resected and replaced by a Hemashield graft. The color of the intestine appeared normal. Pathology of the resected aneurysmal segment revealed necrotizing inflammation and bacterial colonization of the arterial wall. There was a thrombus and evidence of acute inflammation within the arterial lumen (Figures 3A and 3B). These findings were compatible with a diagnosis of mycotic aneurysm, although culture of the resected segment had no growth. After surgery, the patient’s pain completely resolved. He was treated with a 4-week course of ciprofloxacin.

**DISCUSSION**

An aortic aneurysm is a pathological dilatation of the normal aortic lumen involving one or more segments, with atherosclerosis the commonest underlying etiology. Other etiologies include less common entities...
such as cystic medial degeneration and syphilitic aortitis. Mycotic aortic aneurysms are rare. Some are thought to result from a primary infection of the aortic wall which subsequently causes aortic dilatation. However, more commonly, a preexisting aneurysm becomes infected.

The pathogenesis of the SMA aneurysm in our patient remains obscure. Fourteen months before admission, we found multi-segment aortic dilatation, dilatation of the right subclavian artery, and aneurysmal dilatation of the proximal SMA. Because he was relatively young, atherosclerosis was not considered the likely etiology. We suspected syphilis, but the patient denied exposure to sexually transmitted diseases, and a rapid plasma reagin test was non-reactive. Takayasu's arteritis or other autoimmune diseases were also suspected, but the serum anti-nuclear factor was negative. Mycotic aneurysm was not considered initially because there was no fever or other signs of infection. Marfan syndrome was suspected as no other obvious causes appeared likely. The histopathology of the resected specimen seemed most consistent with infection as the primary etiology.

Mycotic aneurysms have a high mortality rate. The most frequent pathogens causing primary aortic infections are staphylococcus, salmonella, and pseudomonas. Many cases arise as complications of infective endocarditis or arterial catheterization. Salmonella may be responsible for one-third to one-half of such infections. Other organisms that have been implicated include Coxiella burnetii, Klebsiella pneumonia, Streptococcus constellatus subspecies constellatus have also been isolated from mycotic aneurysms. Both the source of the infection and the pathogen in our patient remain unknown.

The chief problem precipitating our patient’s admission was acute mesenteric ischemia resulting from thrombosis of the proximal SMA aneurysm. As a result of flow disturbance through an aneurysmal aortic segment, blood may stagnate along the walls and thus allow the formation of mural thrombus. It is usually a grave condition with high morbidity and mortality. Restoration of normal circulation may allow complete recovery before irreversible necrosis or gangrene has occurred.

Thrombolytic therapy, angioplasty or surgery may be used to restore circulation. Schoots et al. reviewed 20 case reports and 7 small series involving 48 patients with acute SMA thromboembolism. Thrombolytic therapy resulted in angiographic resolution of the thromboembolism in 43 patients, 30 of whom did not require any further procedure. Wakabayashi et al. reported two cases of acute occlusion of SMA managed by a combination of thrombolytic therapy and percutaneous transluminal angioplasty. No serious complications occurred. Lorelli et al. reported four cases of SMA aneurysms. One had a mycotic SMA aneurysm resulting from a septic mitral valve and one had spontaneous dissection distal to a small SMA aneurysm with thrombus partially occluding the distal vessel.

Our patient was treated surgically with an in situ graft replacement, followed by a prolonged course of antibiotics. Thrombolytic therapy could have been attempted initially, but percutaneous transluminal angioplasty with stenting might have been technically difficult. The aneurysm was greater than 4 cm in diameter, with a distal segment tapering to 1 cm. In any event, it is fortunate that total resection was performed, as bacterial colonization of the arterial wall was discovered by pathology examination. Had we stented the unsuspected mycotic aneurysm, the outcome would likely have been quite different.

To the best of our knowledge, this is the first reported case of acute mesenteric ischemia resulting from thrombosis of a superior mesentery artery mycotic aneurysm in a young adult. The bowel was preserved by prompt surgical treatment of the aneurysm.

REFERENCES


急性上腸系膜細菌性動脈瘤栓塞引發腹痛 — 病例報告

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一位三十五歲男性因為腹痛三天而住院，身體檢查上發現左上腹有一個會跳動的腫瘤，病患沒有腹膜炎的病症。腹部電腦斷層檢查發現上腸系膜動脈前端有動脈瘤形成，同時動脈瘤內有血栓。開刀中發現腸子完整並無穿孔或壞疽，動脈瘤以人工血管來取代。病理上發現動脈瘤有明顯發炎反應同時判斷為細菌性動脈瘤，動脈瘤培養沒有長菌。病患之腹痛應是由於上腸系膜細菌性動脈瘤栓塞引發腸子缺氧所造成的。

關鍵詞：上腸系膜動脈、細菌性動脈瘤、腸系膜缺氧。