



Case Report

Successful Resection of a Mycotic Aneurysm of the Superior Mesenteric Artery

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Abstract

Aneurysm of the superior mesenteric artery is rare. More than 50% are mycotic. An aneurysm at this site ruptures easily and is difficult to manage. Here, we report a 49-year-old man with a mycotic aneurysm of the superior mesenteric artery, which was successfully resected, with revascularization from the infrarenal aorta using a retrograde vein graft. (*Tzu Chi Med J* 2007;19(4):257–258)

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1. Introduction

Visceral aneurysms are relatively uncommon. Aneurysm of the superior mesenteric artery (SMA) accounts for 5.5% of all visceral aneurysms. More than 50% are mycotic [1,2]. Aneurysms at this site are difficult to manage even in elective situations.

2. Case report

A 49-year-old man with a history of drug addiction presented with fever and severe epigastric pain for 1 week. In the emergency department, a blood pressure of 110/70 mmHg with a body temperature of 38.0°C were recorded. Abdominal examination revealed muscle guarding, but no rebound tenderness. No masses were palpated.

A peripheral blood smear revealed leukocytosis with neutrophils predominant. The initial blood culture grew Gram-positive cocci. Abdominal computed

tomography (CT) showed an abnormal cystic lesion around the SMA trunk with rim enhancement and a perianeurysmal inflammatory reaction (Fig. 1). An angiogram showed an SMA aneurysm with poor perfusion of the right and middle colic arteries. According to the clinical symptoms and signs and imaging studies, an SMA mycotic aneurysm with thrombosis of the right and middle colic arteries was suspected.

Two-dimensional cardiac ultrasonography revealed mild mitral and aortic regurgitation. Left ventricle systolic function was preserved. No vegetation was noted.

Because of the patient's intractable pain, bacteremia and SMA mycotic aneurysm with thrombosis of the right and middle colic arteries, surgery was performed. Under general anesthesia, the patient was placed in a supine position. A 20-cm portion of the right great saphenous vein was harvested by endoscopy. An upper midline laparotomy was performed. Liver cirrhosis and splenomegaly were noted. Dissection of the aneurysm was very difficult because of severe inflammatory changes. The supreliac abdominal aorta was

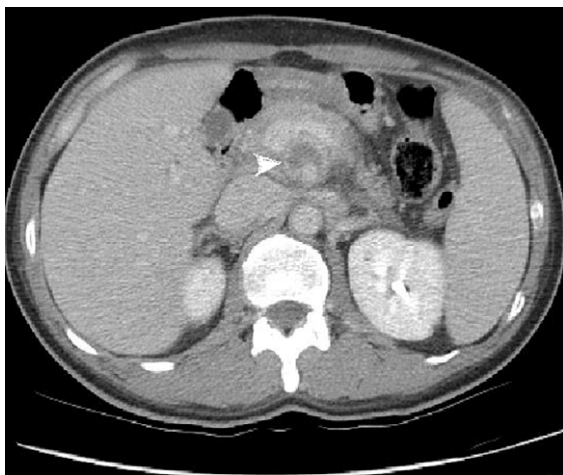


Fig. 1 — Abdominal computed tomography shows an abnormal cystic lesion around the superior mesenteric artery trunk with rim enhancement (arrow).

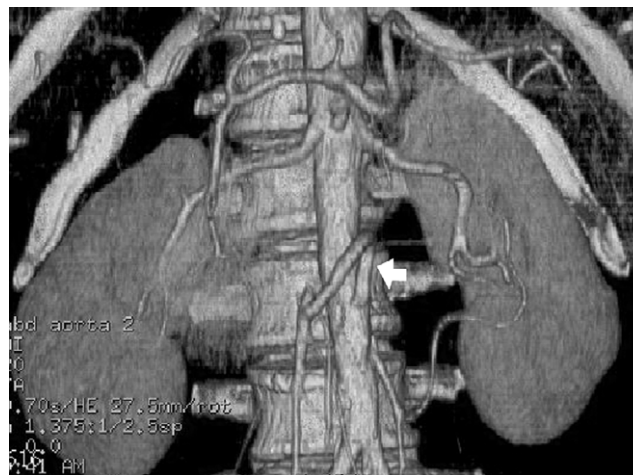


Fig. 2 — Abdominal computed tomography shows patency of the saphenous vein graft (arrow) and good perfusion of the area supplied by the superior mesenteric artery 1 week after surgery.

exposed first. The aneurysm and the distal part of the SMA were dissected from the surrounding tissue and isolated. After systemic intravenous administration of heparin (5 KU), the distal SMA was controlled and divided. Distal reconstruction of the SMA was performed first, using a retrograde aorto-SMA bypass with the saphenous vein graft. The distal thoracic aorta was then controlled, and the aneurysm was resected. The stump of the proximal SMA was ligated using a 3-0 polypropylene running suture.

The postoperative course was uneventful. The patient received a complete course of antibiotic therapy with teicoplanin for 6 weeks due to both SMA aneurysm and blood culture growth of methicillin-resistant *Staphylococcus aureus*. A follow-up abdominal CT 1 week postoperatively showed patency of the saphenous vein graft and good perfusion of the area supplied by the SMA (Fig. 2).

Pathological examination of the specimen confirmed that it was a mycotic aneurysm with Gram-positive cocci.

3. Discussion

Visceral aneurysm is rare. SMA aneurysm accounts for only 5.5% of all visceral aneurysms. About 60% of SMA aneurysms are mycotic (1,2). CT is the most useful diagnostic tool (3). Angiography helps to delineate the characteristics of the aneurysm. Cardiac ultrasonography helps to identify endocarditis.

De Bakey and Cooley were the first to report successful excision of an SMA aneurysm (4). Direct reconstruction of the SMA and the aorta after aneurysmectomy has been reported. Revascularization can be performed with a vein graft or a Dacron graft (5).

Direct arterial re-anastomosis of the SMA after aneurysmectomy in this patient was not suitable because of the distance between the root of the SMA and the distal SMA and the fragile root of the SMA. Due to an infectious process, an artificial graft was inappropriate, so an autologous graft was chosen. In this case, revascularization of the distal SMA with a retrograde arterial bypass from the infrarenal aorta was done before resection of the aneurysm. This method allows for early revascularization of the area supplied by the distal SMA. In addition, we could deal with the infected aneurysm free from the risk of ischemic bowel.

In conclusion, we present a case of successful treatment of mycotic SMA aneurysm without complications such as rupture and bowel ischemia. Retrograde arterial bypass from the infrarenal aorta to the SMA is a good option for the surgical treatment of a mycotic SMA aneurysm.

References

1. Upchurch GR Jr, Stanley JC, Zelenock GB. *Vascular Surgery*, 6th edition. Denver: Elsevier Saunders, 2005:1565–81.
2. Stanley JC, Wakefield TW, Graham LM, Whitehouse WM Jr, Zelenock GB, Lindenauer SM. Clinical importance and management of splanchnic artery aneurysms. *J Vasc Surg* 1986;3:836–40.
3. Chu PH, She HC, Lim KE, Chu JJ. Mycotic aneurysm of the superior mesenteric artery in a young woman. *Int J Clin Pract* 2005;59:614–6.
4. De Bakey ME, Cooley DA. Successful resection of mycotic aneurysm of superior mesenteric artery; case report and review of literature. *Am J Surg* 1953;19:202–12.
5. Zimmerman-Klima PM, Wixon CL, Bogey WM Jr, Lalikos JF, Powell CS. Consideration in the management of aneurysm of the superior mesenteric artery. *Ann Vasc Surg* 2000; 14:410–4.