

# Antibiotic Therapy Did Not Prevent the Rupture of Mycotic Aneurysm of the Superior Mesenteric Artery

Ye-tao Li, MMSc,<sup>1</sup> Xiao-bin Liu, MD,<sup>2</sup> Tao Wang, MMSc<sup>3</sup>

<sup>1</sup>Cardiovascular Surgery Department and <sup>3</sup>Radiology Department, People's Hospital of Guizhou Province, Guiyang, China;  
<sup>2</sup>Cardiovascular Surgery Department, Union Hospital, Huazhong University of Science and Technology, Wuhan, China

## ABSTRACT

Mycotic aneurysm of the superior mesenteric artery (SMA) is a rare complication of infective endocarditis. We report a case with infective endocarditis involving the aortic valve complicated by multiple septic embolisms. The patient was treated with antibiotics for 6 weeks. During preparation for surgical treatment, the patient developed acute abdominal pain and was diagnosed with a ruptured SMA aneurysm, which was successfully treated with an emergency operation of aneurysm ligation. The aortic valve was replaced 17 days later and the patient recovered uneventfully. In conclusion, we present a rare case with infective endocarditis (IE) complicated by SMA aneurysm. Antibiotic treatment did not prevent the rupture of SMA aneurysm. Abdominal pain in a patient with a recent history of IE should be excluded with ruptured aneurysm.

## INTRODUCTION

Mycotic aneurysms are an important cause of morbidity and mortality in infective endocarditis (IE) despite advanced antibiotic therapy. Aneurysms of the superior mesenteric artery (SMA) are uncommon and usually remain clinically silent until rupture [Sachdev-Ost 2010]. In the present case, we report a man with IE. Antibiotic treatment did not prevent the occurrence of the rupture of the SMA mycotic aneurysm. The patient was treated with emergency operation of aneurysm ligation, followed by successful aortic valve replacement (AVR).

## CASE REPORT

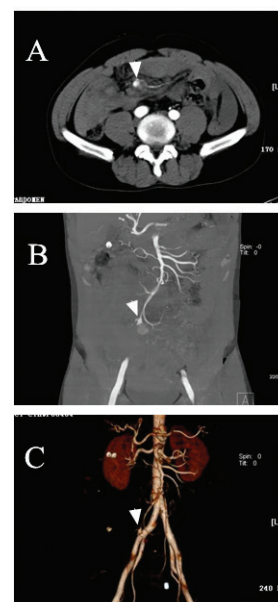
A 39-year-old man presented at a rural clinic with intermittent fever and headache for 3 months. He did not receive standardized therapy except irregular antibiotic treatment. On initial admission, his temperature was 38.8°C. Gingival pyorrhea and dental decay at the right side were detected. The cardiac examination showed a grade 3/6 diastolic pouring murmur at the aortic valve area. The abdomen examination was normal and no neurological deficits were found.

Received February 5, 2015; accepted April 17, 2015.

Correspondence: Ye-tao Li, Cardiovascular Surgery Department, People's Hospital of Guizhou, Guiyang City, Guizhou Province, 550002 China; +86 18096181156; fax: +86 85185623507 (e-mail: [taw77@163.com](mailto:taw77@163.com)).

Initial laboratory studies disclosed the following: white blood cell count was  $11.52 \times 10^9/L$  (neutrophils 85.9%) and the hemoglobin level 110.1 g/L. The erythrocyte sedimentation rate was 53 mm/h and C-reactive protein level was 96.69 mg/L. Transthoracic echocardiography revealed severe aortic regurgitation with a 5.9 mm  $\times$  3.1 mm vegetation. Magnetic resonance imaging (MRI) indicated hemorrhage in the right cerebellum. Blood specimens for culture were obtained (3 times, with a 2-hour interval) and no pathogenic microorganism was detected. Ophthalmologic examination revealed a visual field defect of the right eye, and branch retinal artery occlusion was suspected.

The patient was treated empirically with amoxicillin-clavulanate and gentamicin and recovered normal temperature 3 days later. After appropriate dental treatment and 6 weeks of antibiotic therapy, the patient was afebrile and hemodynamically stable and AVR was considered. One night, the patient developed acute abdominal pain. Abdominal contrast computerized tomography (CT) demonstrated a 1 cm  $\times$



Computerized tomography (CT) angiography findings. A, Transverse section; B, sagittal reformatted; C, three-dimensional reconstruction image. CT revealed an aneurysm in a distal branch of the superior mesenteric artery (white arrow).

0.8 cm aneurysm at a distal branch of the SMA with suspicious extravasation of contrast medium from the lesion (Figure). At emergent laparotomy, hemoperitoneum of approximately 3 liters of fresh blood along with blood clots was encountered, as well as an aneurysm at the distal branch of SMA. The aneurysm was treated by simple ligation. The intestine was monitored and it continued to maintain perfusion, and no bowel resection was performed. There were no complications after the abdominal operation. AVR was performed 17 days later. Perforation of valve cusp and a 4 mm × 4 mm vegetation was detected. The aortic valve was replaced with a mechanical prosthetic valve.

The postoperative course was uneventful. The patient was discharged 2 weeks after AVR and remained well after 12 months of follow-up except for visual field defect of the right eye.

## DISCUSSION

Visceral artery aneurysms (VAA) are uncommon entities and SMA aneurysms are the third most common type of VAA [Sachdev-Ost 2010]. The etiology of SMA aneurysms varied in different reports. In a series of 21 cases, only 1 patient had evidence of infection [Stone 2002]. In another series of 5 cases, 3 of the SMA aneurysms (60%) had concurrent infective endocarditis [Huang 2007]. To our knowledge, SMA aneurysm with concurrent infective endocarditis was rarely reported in the English literature.

SMA aneurysms have a high mortality rate because of their early or late potential for rupture. They are usually asymptomatic and difficult to detect until rupture. In the present case, we report a man with IE complicated by SMA mycotic aneurysm. The SMA aneurysm ruptured during hospitalization even though the patient received 6-week

antibiotic therapy. To our knowledge, there are four similar cases in which SMA aneurysm was a complication of IE, with it rupturing after 2 weeks [Zhao 2008; Chu 2005], 4 weeks [Silver 1999], or 6 weeks [Buchs 2013] of antibiotic treatment. It seems that antibiotic treatment could not prevent the rupture of SMA mycotic aneurysm. Abdominal pain in a patient with a recent history of IE should be evaluated closely.

In conclusion, we present a rare case with IE complicated by SMA aneurysm. Antibiotic treatment did not prevent the rupture of the SMA aneurysm. Abdominal pain in a patient with a recent history of IE should be excluded with ruptured aneurysm.

## REFERENCES

- Buchs NC, Skala K, Sierra J, Huber O, Morel P. 2013. Mycotic aneurysm of the superior mesenteric artery. *Surgery* 153:133-4.
- Chu PH, She HC, Lim KE, Chu JJ. 2005. Mycotic aneurysm of the superior mesenteric artery in a young woman. *Int J Clin Pract* 59:614-6.
- Huang YK, Hsieh HC, Tsai FC, Chang SH, Lu MS, Ko PJ. 2007. Visceral artery aneurysm: risk factor analysis and therapeutic opinion. *Eur J Vasc Endovasc Surg* 33:293-301.
- Sachdev-Ost U. 2010. Visceral artery aneurysms: review of current management options. *Mt Sinai J Med* 77:296-303.
- Silver SE. 1999. Ruptured mycotic aneurysm of the superior mesenteric artery that was due to cardiobacterium endocarditis. *Clin Infect Dis* 29:1573-4.
- Stone WM, Abbas M, Cherry KJ, Fowl RJ, Głowiczki P. 2002. Superior mesenteric artery aneurysms: is presence an indication for intervention. *J Vasc Surg* 36:234-7.
- Zhao J. 2008. Massive upper gastrointestinal bleeding due to a ruptured superior mesenteric artery aneurysm duodenum fistula. *J Vasc Surg* 48:735-7.