

IMAGES IN EMERGENCY MEDICINE

Cardiovascular

Man with acute abdominal pain

Yue Zhou MD^{1,2,3} | Jiale Tong BA^{1,2,3} | Shuyun Xu PhD^{2,4}¹Department of Emergency Medicine, West China Hospital, Sichuan University/West China School of Nursing, Sichuan University, Chengdu, China²Disaster Medicine Center, Sichuan University, Chengdu, China³Nursing Key Laboratory of Sichuan Province, Chengdu, China⁴Department of Emergency Medicine, Laboratory of Emergency Medicine, West China Hospital, Sichuan University, Chengdu, China

Correspondence

Shuyun Xu, PhD, Department of Emergency Medicine, Laboratory of Emergency Medicine, West China Hospital, Sichuan University and Disaster Medicine Center, Sichuan University, Chengdu 610041, China.

Email: xshuyun2023@163.com

1 | PATIENT PRESENTATION

A 33-year-old man presented to the emergency department with severe acute abdominal pain of 2 hours duration. His blood pressure was 130/52 mmHg in the left arm and 131/67 mmHg in the right arm, and 132/53 mmHg in the left leg and 140/52 mmHg in the right leg. Computed tomography (CT) angiography showed enlargement of the left ventricle, aneurysmal dilatation of the ascending aorta with a maximum diameter of approximately 6.7 cm, thickening of the pulmonary



FIGURE 1 Computed tomography of the aorta.

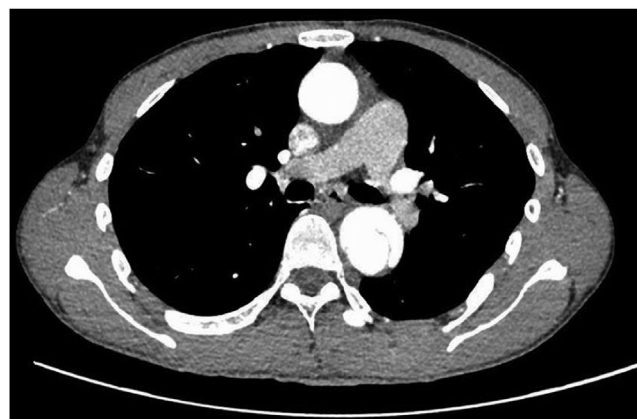


FIGURE 2 Computed tomography of the aorta.

trunk with a diameter of approximately 3.3 cm, aortic coarctation, mainly cumulative from the aortic arch to the abdominal aorta, with a small true lumen and a large false lumen, with the abdominal trunk, the superior mesenteric artery and the right renal artery originating in a mixed lumen, the left renal artery originating in the true lumen, and a linear hypodense shadow seen at the beginning of the right subclavian artery (Figures 1 and 2). A Button Bentall operation and total arch replacement combined with implantation of a stented elephant trunk into the descending aorta was performed 4 days after admission (Figures 3–5). Endovascular aortic repair was performed 1 month after the initial operation (Figures 6 and 7). The patient made a good recovery after surgery.

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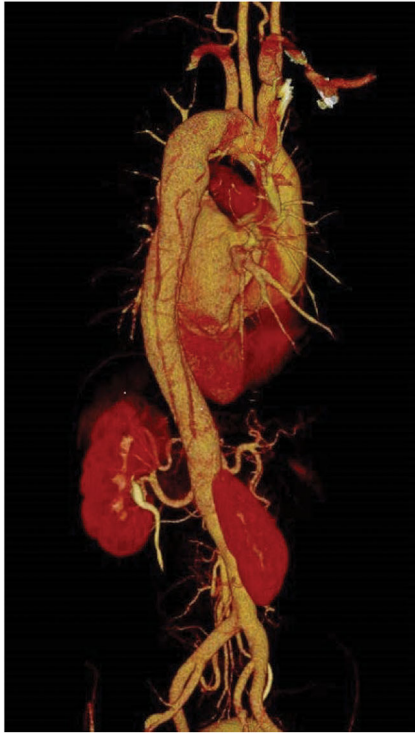


FIGURE 3 Three-dimensional reconstruction of the aorta.



FIGURE 4 Three-dimensional reconstruction after the first surgery.

2 | DIAGNOSIS: AORTIC DISSECTION

CT angiography showed a type A aortic dissection from the ascending aorta to the abdominal aorta. Aortic dissection is the most common aortic catastrophe; 2–3 times more common than abdominal aortic rupture. If left untreated, approximately 33% of patients die within the first 24 hours and 50% die within 48 hours. The 2-week mor-

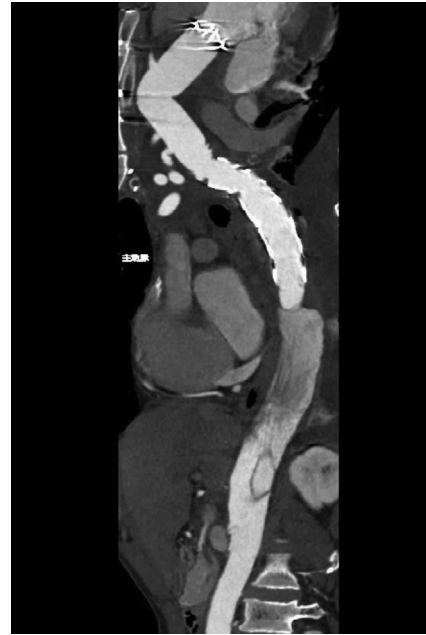


FIGURE 5 Computed tomography imaging after the first surgery.



FIGURE 6 Three-dimensional imaging after the second surgery.

tality rate approaches 75% in patients with undiagnosed ascending aortic dissection.¹ Stanford type A acute aortic dissections involving the ascending aorta, arch, and more distal aorta require urgent surgical repair and present a challenge to surgeons.² Up to one third of patients with acute aortic dissection may go undiagnosed.³ Factors that contribute to the initial missed diagnosis of aortic dissection include female gender, the absence of back pain, and/or the presence of extracardiac atherosclerosis.³

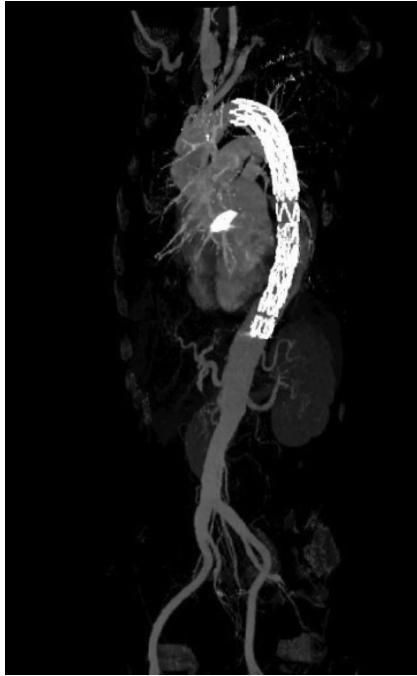


FIGURE 7 Computed tomography imaging after the second surgery.

REFERENCES

1. Wiesenfarth JM, Brenner BE. Acute Aortic Dissection [EB/OL]. 2014. <http://emedicine.medscape.com/article/756835-overview>
2. Hiratzka LF, Bakris GL, Beckman JA, et al. 2010 ACCF/AHA/AATS/ACR/ASA/SCA/SCAI/SIR/STS/SVM guidelines for the diagnosis and management of patients with thoracic aortic disease. A report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines, American Association for Thoracic Surgery, American College of Radiology, American Stroke Association, Society of Cardiovascular Anesthesiologists, Society for Cardiovascular Angiography and Interventions, Society of Interventional Radiology, Society of Thoracic Surgeons, and Society for Vascular Medicine. *J Am Coll Cardiol*. 2010;55:e27-e129.
3. Jansen Klomp WW, Brandon Bravo Bruinsma GJ, Peelen LM, et al. Clinical recognition of acute aortic dissections: insights from a large single-centre cohort study. *Neth Heart J*. 2017;25(3):200-206.

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