Case Report

Staphylococcal thoracic aortitis complicated by aortic dissection

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BACKGROUND: The diagnosis of aortitis is often delayed as symptoms are largely non-specific. We report a case of Staphylococcal thoracic aortitis in a 73-year-old Chinese woman complicated by aortic dissection.

METHODS: The patient presented with pyrexia of unknown origin, and a contrast enhanced computed tomography aortogram revealed a large thrombus at the anterior aspect of the ascending aorta with two large ulcerations as a result of a chronic type A aortic dissection. A hemiarach replacement with a 28 mm Gleweave Vascutek graft was performed with resuspension of aortic valve commissures. Aortic thrombus cultures were positive for coagulase negative *Staphylococcus aureus*, and histology showed chronic dissection of the aorta.

RESULTS: The patient was treated with intravenous cefazolin for a 6-week duration and made good progress.

CONCLUSIONS: This case highlights Staphylococcal infective aortitis complicated by dissection presenting as fever of unknown origin. Timely diagnosis is essential as progression to catastrophic rupture may occur.

KEY WORDS: Aneurysm; Aortic diseases; Endovascular stent; Infected/microbiology; *Staphylococcus aureus*

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INTRODUCTION

Infectious thoracic aortitis can occur in a previously diseased aortic segment with: a) intimal injury, commonly from an atherosclerotic plaque; and b) existing aneurysm via mechanisms of bacterial seeding, hematogenous spread via vasa-vasorum (typically in infective endocarditis), and direct inoculation from trauma to the intima.^[1–4]

Organisms causing bacterial infective thoracic aortitis commonly include *Staphylococcus* and *Streptococcus* species. Gram negative organisms are more commonly seen in abdominal aortitis. Tuberculous and syphilitic aortitis are rare.^[2,4] We report a case of Staphylococcal thoracic aortitis in a 73-year-old

Chinese woman complicated by aortic dissection.

Case report

A 73-year-old Chinese woman with a history of hypertension presented with a one-month duration of fever and chills. There were no localizing symptoms to suggest a source for her fever. Physical examination was unremarkable.

In the past month before admission, she had received 3 courses of oral antibiotics with no resolution of fever. She was worked up extensively for pyrexia of unknown origin. Blood, urine, fungal, sputum AFB cultures, autoimmune and hepatitis viral screens were negative. Syphillic markers were negative. There was

no evidence of a malignancy. Computed tomography of the abdomen and pelvis were normal.

A transthoracic echocardiogram showed a severely dilated ascending aorta with an end diastolic diameter of 5.8 cm. There were no valvular vegetations. A contrast enhanced computed tomography aortogram revealed a large eccentric, crescentic thrombus at the anterior aspect of the ascending aorta with two large ulcerations in its anterolateral aspects as a result of a chronic type A aortic dissection (Figures 1 and 2).

Intra-operative findings showed a chronic Type A dissection with a large 3 cm tear involving the anterior

and anterolateral aspects of the ascending aorta. There were large amounts of intramural thrombus extending from the aortic root to the origin of the innominate artery. The aortic valve and coronary ostia were not involved. A hemiarch replacement with a 28 mm Gleeve Vascutek Graft was performed with resuspension of aortic valve commissures. Bacterial cultures from the aortic thrombus revealed coagulase negative *Staphylococcus aureus* and repeat blood cultures were negative. Histology of the ascending aorta showed chronic dissection of the aorta with a split occurring in the outer third of the aortic media. There were atheromatous changes throughout the resected segment, with marked destruction of the elastic tissue framework which was particularly extensive at the dissection site. There were previous episodes of hemorrhage with varying degrees of organization and fibrosis. No granulomas or signs of vasculitis were visible.

The patient was treated with intravenous cefazolin for a 6-week duration and made good progress.

DISCUSSION

Diagnosis of aortitis is often delayed as manifested symptoms are largely non specific.^[4] Fever, chest pain and back pain are common. Thrombus formation can lead to embolization to peripheral or cerebral vasculature. Coronary syndromes and aortic valve insufficiency can occur in proximal aortic root involvement.^[3,4] Large mycotic aneurysms compress surrounding structures with associated symptoms. Dissection of the aorta and rupture can precipitate cardiopulmonary collapse.^[2]

Contrast enhanced computed tomography of the aorta and magnetic resonance angiography are rapid non-invasive methods to assess the aorta.^[1,2] Echocardiography should be performed since aortitis is commonly associated with infective endocarditis and also to assess aortic valve involvement related to root dilatation.^[2]

Treatment involves combination of surgical excision and reconstruction of the affected segment and valve replacement if valve incompetence occurs. The high success rates of prosthetic graft reconstruction are associated with the low rates of graft infection.^[1] Antibiotic therapy should be extended 6 to 12 weeks after repair.^[2]

This case highlights that Staphylococcal infective aortitis complicated by dissection as a cause of fever of

Figure 1. The ascending aorta is dilated, with a large, eccentric, crescentic thrombus at its anterior aspect. The thrombus originates at the aortic root and ends just before the origin of the innominate artery. Two contrast filled ulcerated cavities are seen at the right and left anterolateral aspects of the thrombus.

Figure 2. A three-dimensional reconstruction showing ulcerated cavities from the right and left anterolateral aspects of the aorta. Calcifications are seen along the course of the aorta.

unknown origin requires a high index of suspicion in the circumstance of a dilated aortic root. Timely diagnosis is essential because progression to catastrophic rupture may occur.

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REFERENCES

- 1 Ramanath VS, Oh JK, Sundt TM 3rd, Eagle KA. Acute aortic syndromes and thoracic aortic aneurysm. *Mayo Clin Proc* 2009; 84: 465–481.
- 2 Lopes RJ, Almeida J, Dias PJ, Pinho P, Maciel MJ. Infectious thoracic aortitis: a literature review. *Clin Cardiol* 2009; 32: 488–490.
- 3 Gornik HL, Creager MA. Aortitis. *Circulation* 2008; 117: 3039–3051.
- 4 Khan IA, Nair CK. Clinical, diagnostic, and management perspectives of aortic dissection. *Chest* 2002; 122: 311–328.

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