



## Life-Threatening Infectious Aortitis with Methicillin-Resistant *Staphylococcus aureus* (MRSA) Bacteremia in a Woman with Type 2 Diabetes Mellitus

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### Abstract

Infectious aortitis can cause life-threatening complications in clinical practice. Here in, we present an educational case of Infectious aortitis with Methicillin-Resistant *Staphylococcus aureus* (MRSA) bacteremia in a Woman. The 83-year-old woman presented intermittent fever for 1 week. Her temperature was 38.5°C, and chest X-ray demonstrated tortuosity of aorta with calcification of aortic arch. Her blood cultures subsequently all grew Methicillin-Resistant *Staphylococcus aureus* (MRSA). Echocardiography revealed no vegetation. The symptoms of chest tightness and shortness of breath were noted. A follow-up chest X-ray showed progressive mediastinal widening. Contrast enhanced Computed Tomography (CT) scan demonstrated thickening of the wall of descending aorta that measured 0.7 cm, suggestive of aortitis with intramural hematoma.

**Keywords:** Infectious aortitis; Bacteremia; CT; *Staphylococcus aureus*

### Introduction

Under normal situations the aorta is resistant to infections; infectious aortitis is uncommon but potentially be life-threatening. Including trauma, atherosclerotic ulcers, and cystic necrosis of the intima can cause infection of the aorta. The infectious state can occur and pass to the aorta from blood or surrounding tissues. Including diabetes mellitus, vascular malformations, and other invasive catheterization are clinical risk factors [1]. Such as mycotic aneurysm, infectious pseudoaneurysms, infected preexisting aneurysms, and infectious aortitis, all these cases are usually serious and require further surgical intervention.

### Case Presentation

An 83-year-old woman was admitted to our hospital due to intermittent fever for 1 week. She had history of type 2 diabetes mellitus, hypertensive cardiovascular disease, and old cerebrovascular accident. She had no history of trauma. On physical examination, her temperature was 38.5°C, and the cardiovascular hemodynamics was stable initially. The white cell count was 17,540/μL, C-reactive protein level was 15.39 mg/dl, and other blood tests were unremarkable. Chest X-ray demonstrated tortuosity of aorta with calcification of aortic arch (Figure 1a). Her blood cultures subsequently all grew Methicillin-Resistant *Staphylococcus aureus* (MRSA). Intravenous antibiotic of vancomycin was administered. Echocardiography revealed no vegetation. On the 7<sup>th</sup> day after admission, the symptoms of chest tightness with shortness of breath and high blood pressure were noted. The electrocardiograms demonstrated sinus tachycardia, a follow-up chest X-ray showed progressive mediastinal widening (Figure 1b). Contrast enhanced Computed Tomography (CT) scan demonstrated thickening of the wall of descending aorta that measured 0.7 cm, indicative of aortitis with intramural hematoma (Figure 1c). The clinical diagnosis of infectious aortitis complicated by type B intramural hematoma was made finally. Unfortunately, she expired without further surgical management due to Do No Resuscitation (DNR) from this patient and her family.

### Discussion

Infectious aortitis can be caused by several mechanisms:

1. Direct bacteremia seeding of an intimal injury,
2. Septic emboli of the aortic vasa vasorum,

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Received Date: 29 Jun 2020

Accepted Date: 22 Jul 2020

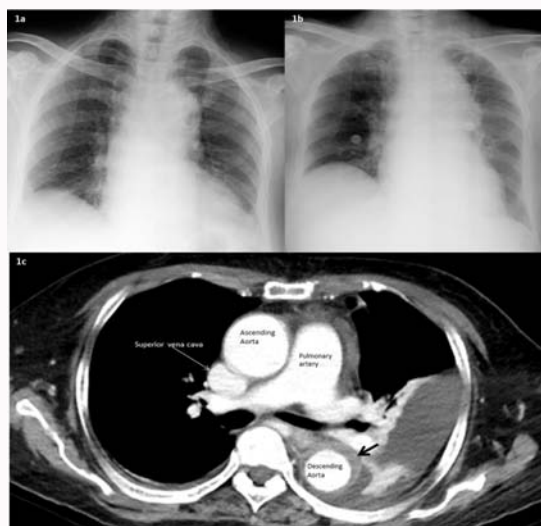
Published Date: 27 Jul 2020

#### Citation:

Wang Y-H, Wang R-L, Wu K-L, Yang C-C, Hsiao P-J. Life-Threatening Infectious Aortitis with Methicillin-Resistant *Staphylococcus aureus* (MRSA) Bacteremia in a Woman with Type 2 Diabetes Mellitus. *Ann Clin Case Rep.* 2020; 5: 1868.

ISSN: 2474-1655

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**Figure 1:** Chest X-ray (a) demonstrated tortuosity of aorta with calcification of aortic arch at admission and (b) showed progressive mediastinal widening during hospitalization. Contrast enhanced CT (c) revealed aortitis with intramural hematoma.

3. Continuous focus of infection extending to the aorta wall with intramural hematoma.
4. Trauma, such as a penetrating injury [1-3].

The diagnosis of infectious aortitis is usually suspected on imaging studies and on symptoms of infection (fever, associated with chest, abdominal or back pain), which may be delayed and is

confirmed by the culturing organisms from the blood or surgical specimens. Surgical intervention should be considered when the patients with impending aortic rupture or uncontrolled sepsis. CT scan is a helpful diagnostic tool and may demonstrate rapid aneurysm development, peri-aortic soft-tissue mass and peri-aortic gas (in advanced cases) [1-4]. To date, the management of infectious aortitis may still be challenging in clinical scenario [ex: The concerning type of reconstruction (in situ/extra-anatomic), the type of the graft and endovascular methods, or duration of antibiotic administration]. Early diagnosis and timely treatment can improve clinical outcomes.

### Acknowledgement

We thank the patient's consenting to publish the clinical information. This work is supported by grants from the Research Fund of the Taoyuan Armed Forces General Hospital (AFTYGH-109-009).

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