

Incidentally-Discovered, Contained Ruptured Mycotic Thoracic Aortic Aneurysm Following a Mechanical Fall

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Introduction

- Mycotic aortic aneurysm (MAA) is a rare phenomenon that is difficult to diagnose
- Incidence of <3% among all types of aortic aneurysm
- These infectious entities can spontaneously rupture, resulting in life-threatening hemorrhage

Case Description

Initial Presentation

- A 45 year-old male with untreated hepatitis C and recent intravenous drug presented complaining of fever and back pain two days after slipping on milk and falling into a shelf
- On exam, he was febrile up to 38 °C, and had significant point tenderness along the mid-thoracic spine
- Labs showed leukocytosis of 13 with neutrophilic predominance, elevated ESR and CRP. Urine drug screen was positive for cocaine. Blood Cultures were drawn
- Magnetic Resonance Imaging (MRI) of thoracic spine initially read as negative for epidural abscess, discitis
- Patient was admitted for endocarditis and he was started on broad spectrum antibiotics

Progression

- After admission, MRI was added indicating phlegmon extending from T6-T11 and soft tissue thickening around aorta from T7-T10 levels
- A CT-guided aspiration of the phlegmon yielded Methicillin-Resistant Staph Aureus (MRSA) in culture, yet repeat blood cultures were negative

- While undergoing a transesophageal echocardiogram (TEE), it was noted that the patient had a contained rupture of the descending thoracic aorta into the phlegmon

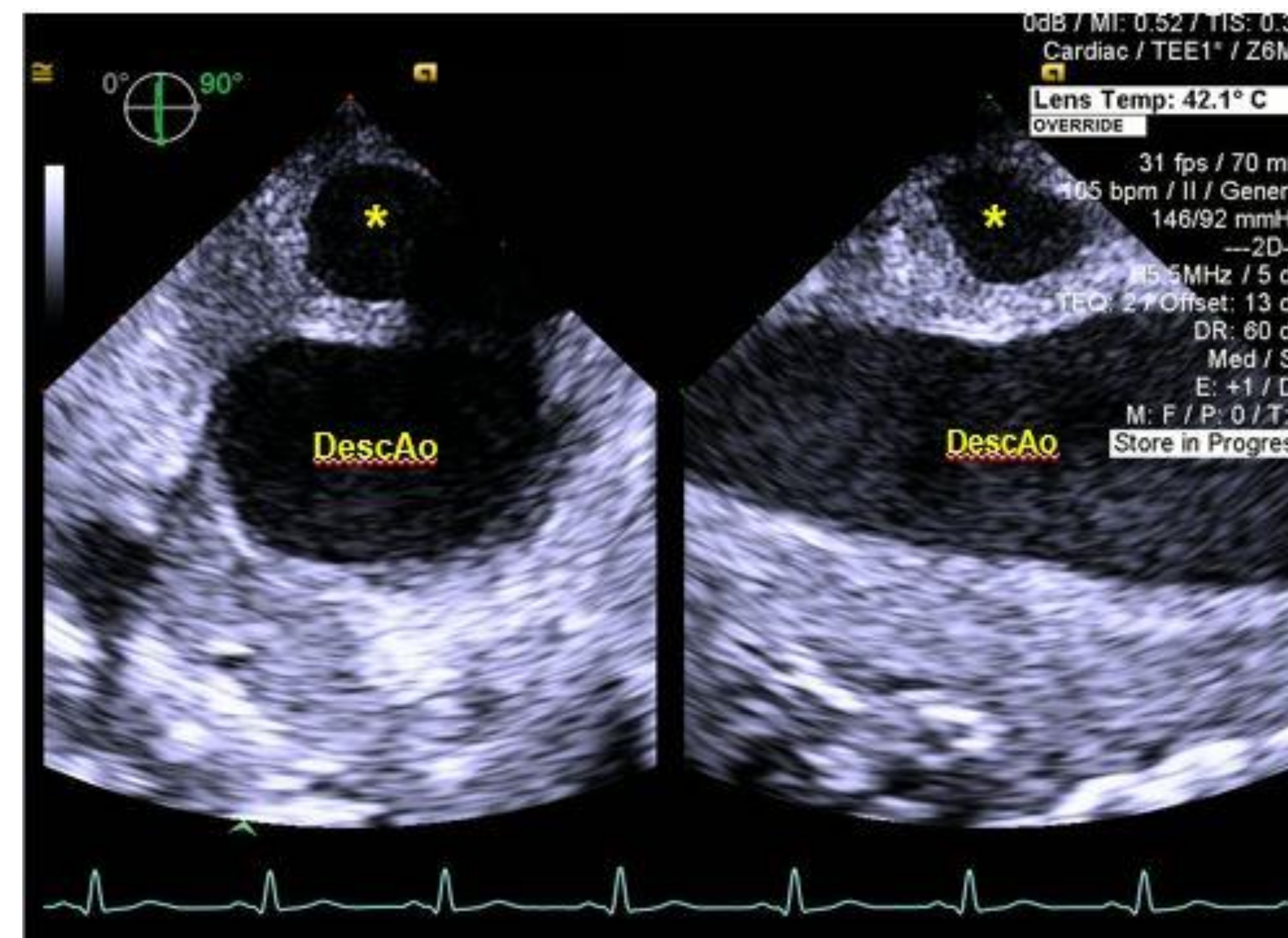


Figure 1: Biplane TEE showing short-axis and corresponding long-axis images of the contained ruptured MAA. On the left is a short axis view demonstrating the descending aorta (DescAo) with an outpouching (*) bleeding into the phlegmon. On the right is the long-axis image.

- Subsequently, an emergent CT Angiography (CTA) confirmed the ruptured aortic aneurysm

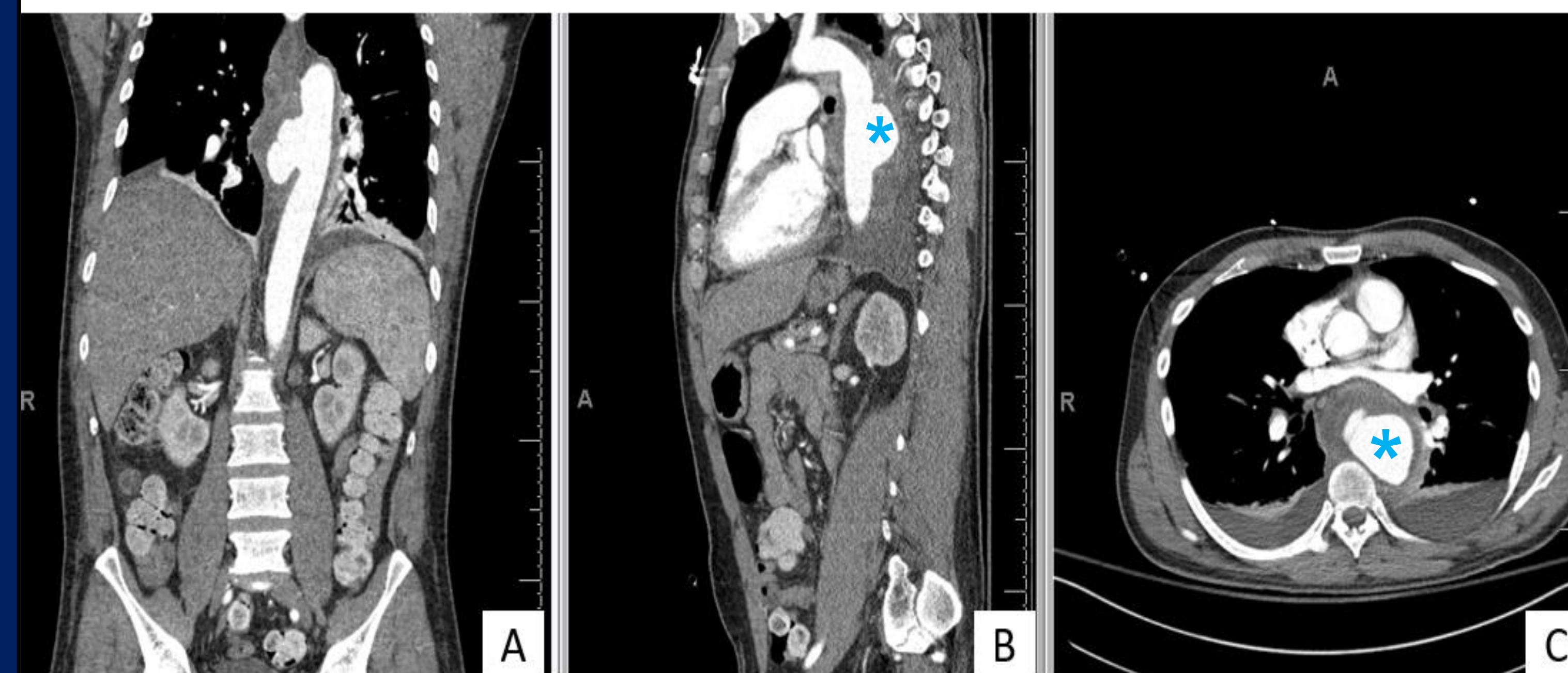


Figure 2: CTA of the contained ruptured MAA. From left to right, is the coronal (A), sagittal (B), and transverse (C) planes. The contained ruptured MAA (*) can be visualized the best in the sagittal and transverse planes.

- Emergent Thoracic Endovascular Aortic Repair (TEVAR) was performed

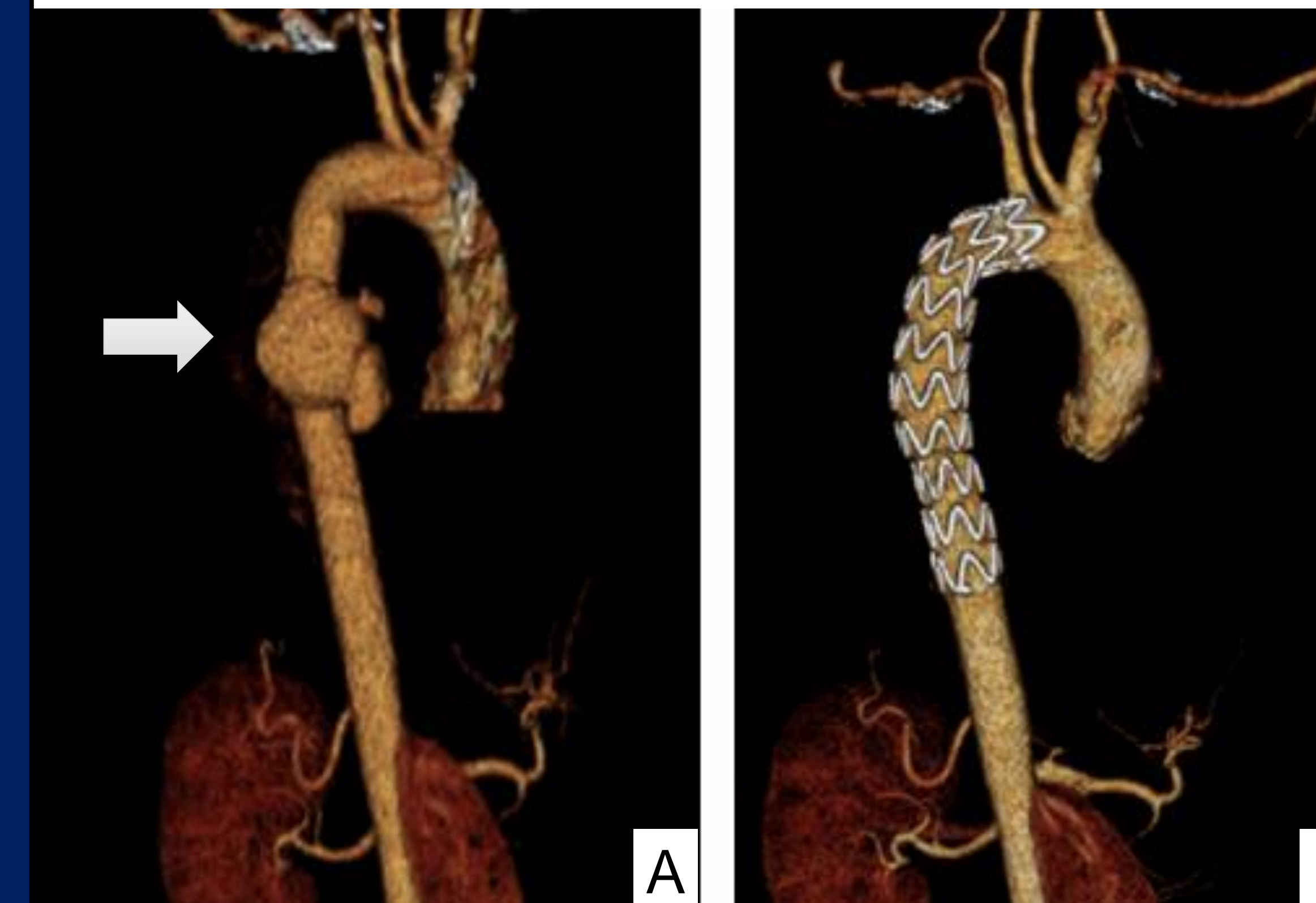


Figure 3: 3D reconstruction of the aorta from CTA; images from before and after TEVAR. These are posterolateral views of the ascending aorta, aortic arch, and the descending aorta. Panel A shows the MAA (arrow) prior to TEVAR. Panel B shows the descending thoracic aorta repaired after TEVAR.

Outcome

- Postoperatively, management focused on continuation of intravenous daptomycin, pain control, and controlling his underlying substance use disorder
- He was able to be discharged from the hospital
- Following discharge, he required multiple readmissions for a graft infection and the development of an aorto-esophageal fistula

Discussion

- MAA is a rare manifestation of a systemic infection which can result in vessel rupture and fatal hemorrhage
- The most common organisms that cause MAA are *S. aureus* and non-typhoid *Salmonella*. Therefore, blood cultures should be ordered, as these are positive in 50-75% of patients
- Interestingly, in our patient, blood cultures were negative despite being drawn prior to antibiotic initiation
- With a sensitivity of 92-96% and a specificity of 93-100%, CTA is the modality of choice to diagnose a MAA
- Definitive management of MAA is primarily surgical. Even if initial surgical treatment is successful, peri-operative mortality is as high as 63% in patients with an aneurysm rupture

Conclusion

- This case illustrates the need for rapid diagnosis and treatment of MAA
- Fortunately, our patient's ruptured MAA was diagnosed immediately on TEE, which led to immediate surgical intervention
- Early consideration of MAA should be given to patients with similar clinical presentations