

Contained Rupture of a Left Coronary Sinus of Valsalva Aneurysm: A Case Report

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Introduction

- Sinus of Valsalva Aneurysm (SOVA) is an anomalous aortic root enlargement that occurs between the aortic valve annulus and the sinotubular junction. [1]
- SOVA rupture is a rare life-threatening cardiac anomaly that requires immediate intervention.
- Etiology of SOVA can be either acquired or congenital. Herein, we present a case of a patient who presented with a contained rupture of SOVA that precipitated from non-infective endocarditis. [2]
- We provide a review of SOVA rupture epidemiology, diagnosis, and management.

Case Presentation

- A 62-year-old Caucasian male with a medical history of essential hypertension, deep venous thrombosis, on oral anticoagulant, and obesity presented to our facility due to sudden onset moderate substernal chest pain exacerbated upon exertion and associated with severe dyspnea, requiring supplemental oxygen.
- Initial troponin was 0.679 ng/mL and N-terminal prohormone of brain natriuretic peptide (NT-proBNP) 14,058 pg/mL. CTA of the chest was negative for pulmonary embolism (PE) but revealed findings suggestive of mild congestive heart failure with moderate bilateral pleural effusions (figure 1).
- The transesophageal echocardiogram (TEE) further revealed dilatation of the left sinus of Valsalva, severe aortic insufficiency, mild mitral, and tricuspid regurgitation. Additionally, the TEE demonstrated a tri-leaflet aortic valve with thick echodensities strongly suggestive of vegetations (figure 2).
- The imaging findings were consistent with a SOVA that appeared to arise from the left coronary sinus (figure 3).
- The patient was promptly and successfully managed with surgical aortic root and proximal ascending aorta replacements without complications.

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Figures

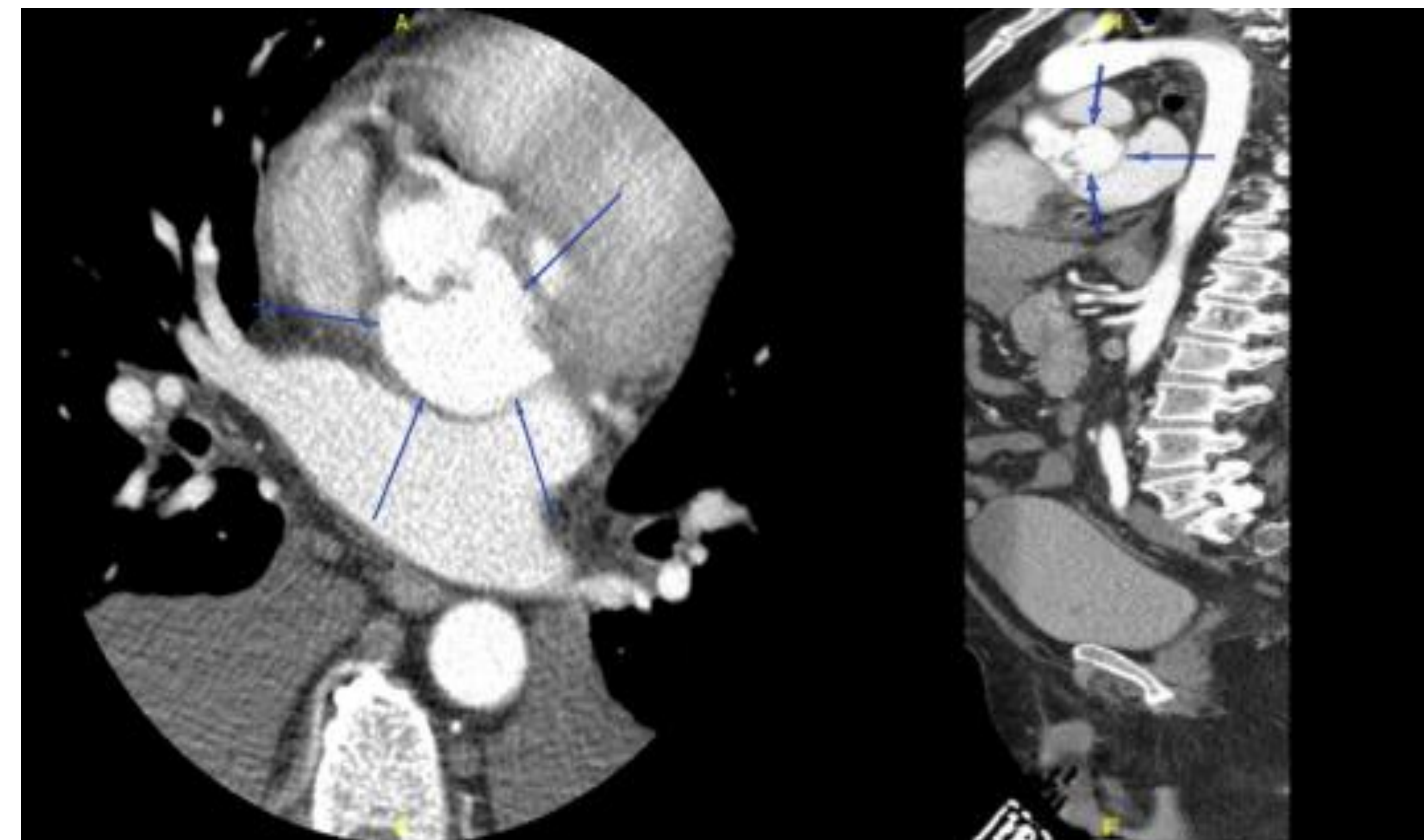


Figure 1. Cross-sectional view (A) and coronal view (B) of a CTA of the aorta demonstrating a 4.6 cm x 3.5 cm saccular outpouching along the posterior aspect of the aortic root and sinuses of Valsalva (thin arrows)

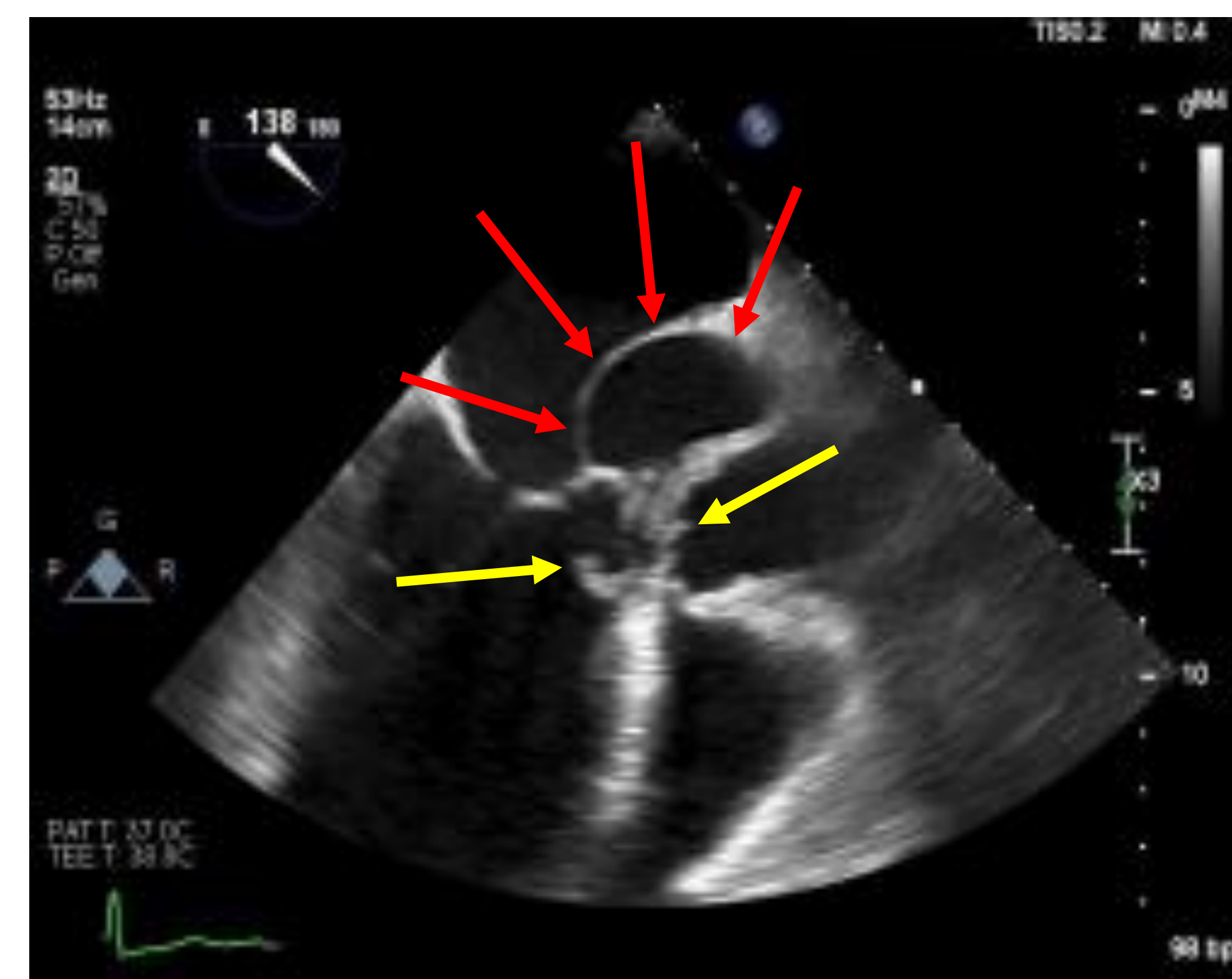


Figure 2. Parasternal long axis view of bedside TEE, demonstrating thick aortic valve echo-densities, suggestive of vegetations (yellow arrows), and left coronary sinus of Valsalva aneurysm (red arrows)

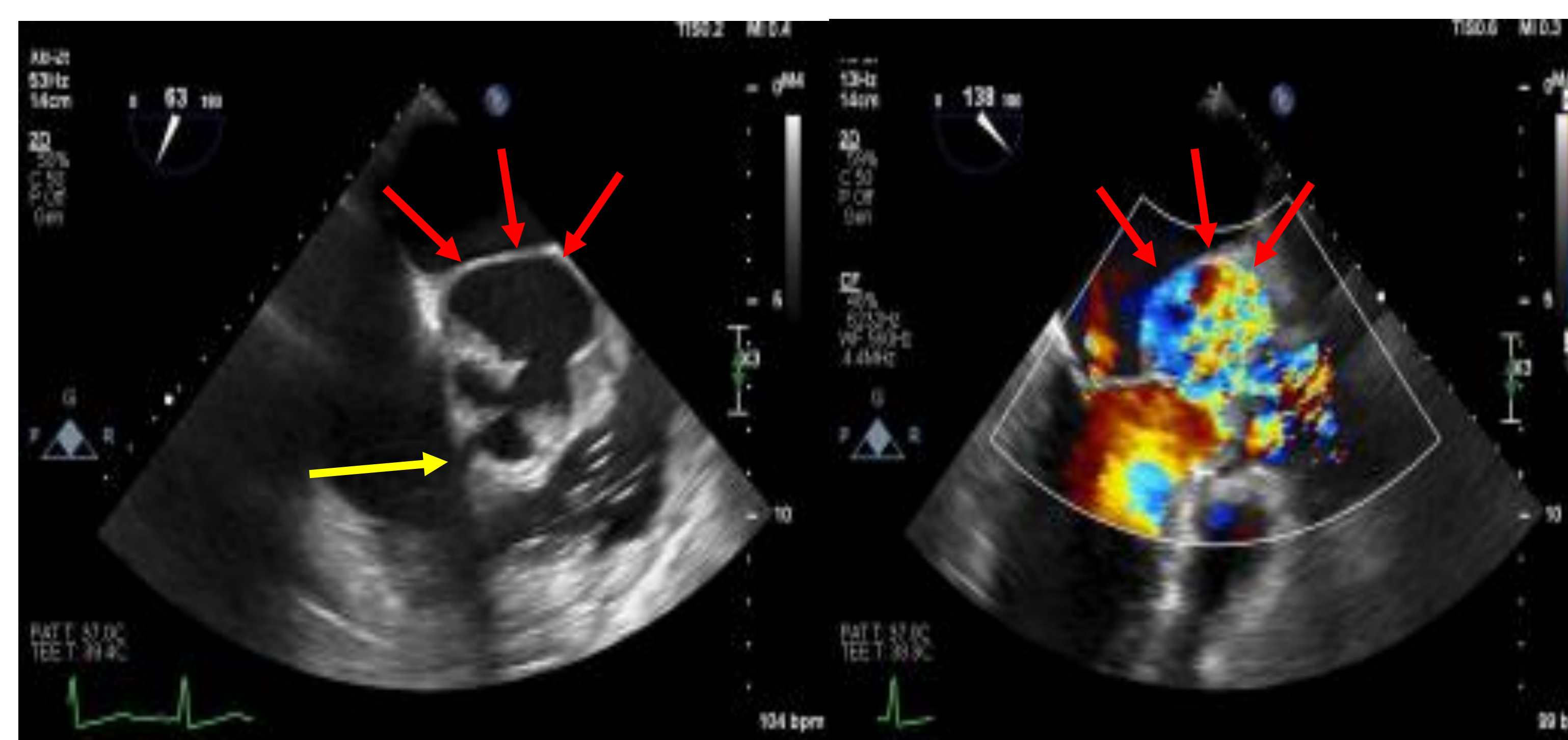


Figure 3. TEE demonstrating left coronary sinus of Valsalva aneurysm returning to the left ventricle (red arrows). The yellow arrow points to the ruptured aortic root at the level of the left sinus of Valsalva

Discussion

- SOVA rupture is a rare and potentially fatal cardiac anomaly that requires prompt attention.
- Less than 0.5% of the general population is estimated to have SOVA. [1]
- SOVA is 3-4 times more commonly found in males, with a higher incidence in men or Asian descent [3].
- Left coronary sinus involvement in SOVA is very rare due to external support from the right ventricle and the pulmonary trunk. [1]
- SOVA is usually asymptomatic, but can sometimes present with chest pain, dyspnea, palpitations, shortness of breath, or syncope. [3-5]
- A high index of clinical suspicion along with appropriate imaging modalities must be employed to arrive at the right diagnosis in a timely manner.
- A timely diagnosis and appropriate management are necessary for a favorable prognosis.

Conclusion

- SOVA rupture is a life-threatening condition that requires immediate attention. Left coronary sinus involvement in SOVA is rare, but prompt diagnosis and management can lead to a favorable outcome. This case emphasizes the importance of clinical suspicion and early recognition to ensure optimal patient care.

References

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