

Rupture of noncoronary sinus aneurysm into the mitral anterior leaflet and the left ventricle

A 44-year-old man presented with a shortness of breath on exertion for 2 months. His medical history was unremarkable, with no history of previous infection, trauma, or connective tissue diseases. Transthoracic echocardiography revealed a noncoronary sinus of Valsalva aneurysm (SVA) extending downward, entering the anterior mitral valve, traversing the outflow tract of the left ventricle, and compressing the mouth of the aortic valve (Fig. 1). A subsequent CT angiography confirmed a ruptured noncoronary sinus aneurysm mimicking windsock-like protrusion, which communicated with the left ventricle (Fig. 2a, 2b). The patient was scheduled for the surgical repair of the ruptured aneurysm including the ascending aorta, aortic valve and mitral replacement, and closure of fistula towards the left ventricle. A repeat CT angiography after surgery showed satisfactory outcome (Fig. 2c), and the patient was discharged home in good condition with the complete resolution of his symptoms. SVA is a rare cardiac anomaly, which may be congenital in origin or may be associated with trauma, endocarditis, syphilis, or connective tissue diseases. Aneurysms arising from the right coronary sinus are the most common and usually extend and rupture into the right heart chambers, whereas those arising from the noncoronary sinus are less frequent and mostly rupture into the right atrium. Unruptured aneurysms can be incidentally detected using imaging methods, but SVA is generally diagnosed after a rupture, resulting in clinical symptoms, which thereby necessitate an early surgical intervention. The treatment of choice is mainly a surgical approach, although there are also reports about the successful percutaneous closure of ruptured sinus aneurysms using occluder devices.

Informed consent: Informed consent was obtained from all individual participants included in the study.

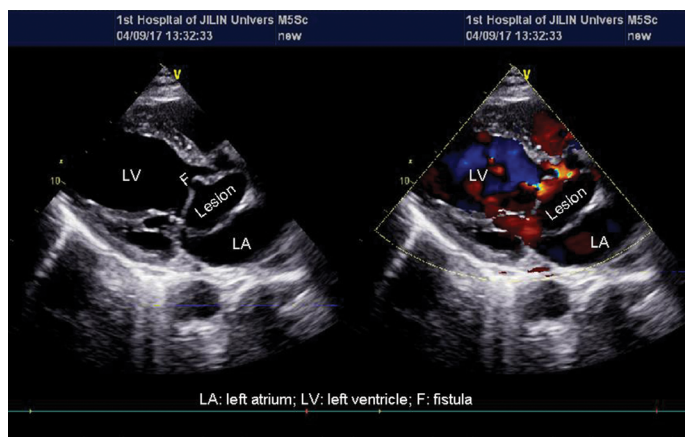


Figure 1. Left ventricular long-axis view showing the classic windsock appearance of a ruptured sinus of Valsalva arising from the non-coronary sinus communicating with the left ventricle and the mitral valve

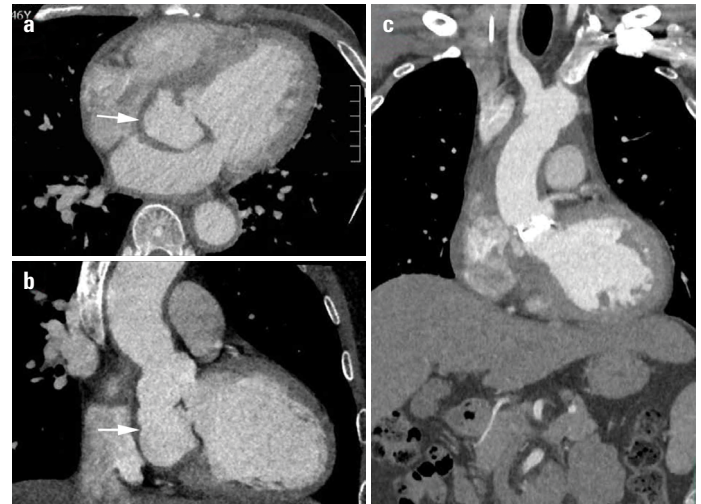


Figure 2. Electrocardiogram-gated contrast-enhanced cardiac computed tomography (CT) reformatted images in the (a) axial and (b) coronal plane illustrating the ruptured aneurysm arising from the non-coronary sinus of Valsalva shunting into the left ventricle. Follow-up CT after surgery demonstrating artificial aortic valve and absence of aneurysm

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Chronic aortic pseudoaneurysm of aortic root with occluded right coronary artery after trauma: A case report

A 65-year-old man was hit by a piece of wood on the middle of the chest while doing woodwork 20 years ago, and he was comatose. After 3 days of intensive care and treatment, he was discharged. He lived a normal life until he began to feel chest pain after exercise 2 years ago. Chest X-ray revealed a slightly enlarged heart (Fig. 1a). Computed tomography showed that the root of the ascending aorta had ruptured into a low-density mass (9.8×9.0 cm) and clarified that the mass was a chronic aortic pseudoaneurysm (Fig. 1b and 1c, arrow). The right atrium and right ventricle were visibly deformed because of the pseudoaneurysm (Fig. 1d and 1e, arrow). Coronary angiography revealed

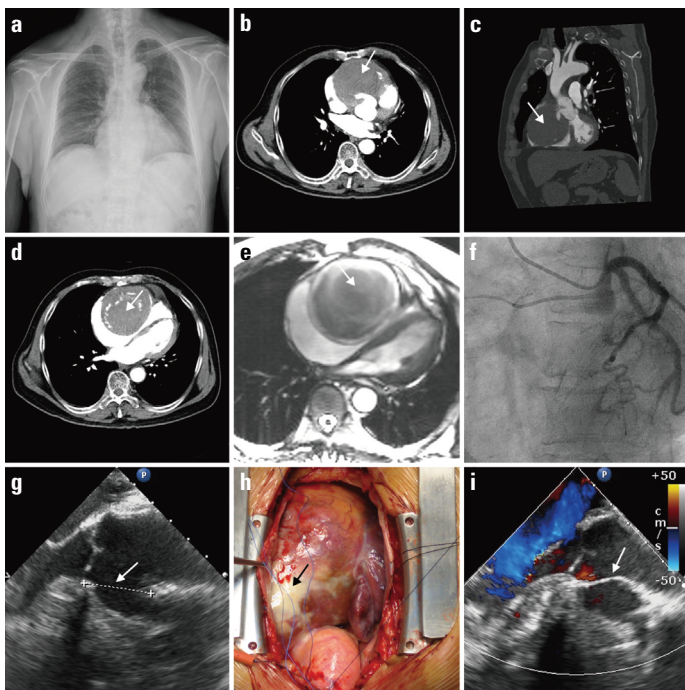


Figure 1. (a) Chest X-ray showed a slightly enlarged heart. (b-c) CT showed that the mass located in the root of the ascending aorta was a chronic aortic pseudoaneurysm. (d-e) The right atrium and right ventricle were visibly deformed. (f) Coronary angiography revealed an occluded right coronary artery. (g) Intraoperative transesophageal echo-cardiography showed that the pseudoaneurysm was located in the right coronary sinus. (h) Pseudoaneurysm was fused together with the heart. (i) Postoperative color Doppler didn't show any blood flow from the aorta into the pseudoaneurysm

a normal left coronary artery and an occluded right coronary artery (Fig. 1f). The patient received surgical intervention under cardiopulmonary bypass. Intraoperative transesophageal echocardiography showed that the pseudoaneurysm was located in the right coronary sinus and its diameter was 26.5 mm (Fig. 1g, arrow). We found that the pseudoaneurysm was fused together with the heart (Fig. 1h, arrow). The border of the pseudoaneurysm was difficult to distinguish, and it felt hard, with some calcified plaques on its surface (Fig. 1h, arrow); thus, neither pseudoaneurysm resection nor right coronary artery bypass grafting was possible. Therefore, we closed the right coronary sinus with a bovine pericardial patch through an aortic incision. Postoperative color Doppler ultrasonography did not reveal any blood flow from the aorta into the pseudoaneurysm (Fig. 1i, arrow). The patient recovered well and was discharged 7 days after admission.

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