

A continuous murmur following a nonpenetrating chest trauma

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We reported a rare case of non-penetrating chest trauma-induced fistula from the right sinus of Valsalva to the right heart chambers. The ruptured sinus of Valsalva aneurysm was diagnosed preoperatively and operated on successfully. The rarity of this case highlights the need for a precise preoperative diagnosis, the role of transthoracic echocardiography, and the importance of a prompt surgical management.

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Introduction

Fistulas from a ruptured congenital aneurysm of the sinus of Valsalva (SV) to the heart chamber are not unusual, but a SV fistula caused by a chest trauma is extremely rare [1]. In this paper, we present a nonpenetrating traumatic SV to the right ventricular fistula.

Case report

A previously healthy, 36-year-old man, with no history of connective tissue disease or Marfan

syndrome, had voluntarily jumped into a deep well. A severe chest contusion and a mandibular fracture were diagnosed. The patient was hospitalized for surgical repair of the mandibular fracture. At admission, the heart was auscultated and was found to be normal. The patient was successfully operated without incidents. Two days later, he presented an acute congestive heart failure. His blood pressure was 125/45 mmHg. He had bilateral carotid bruits and a hyperdynamic left ventricular impulse with a thrill over the left sternal border. A continuous grade 5/6 murmur, loudest in systole, was best heard near the left lower sternal border. There were rales at

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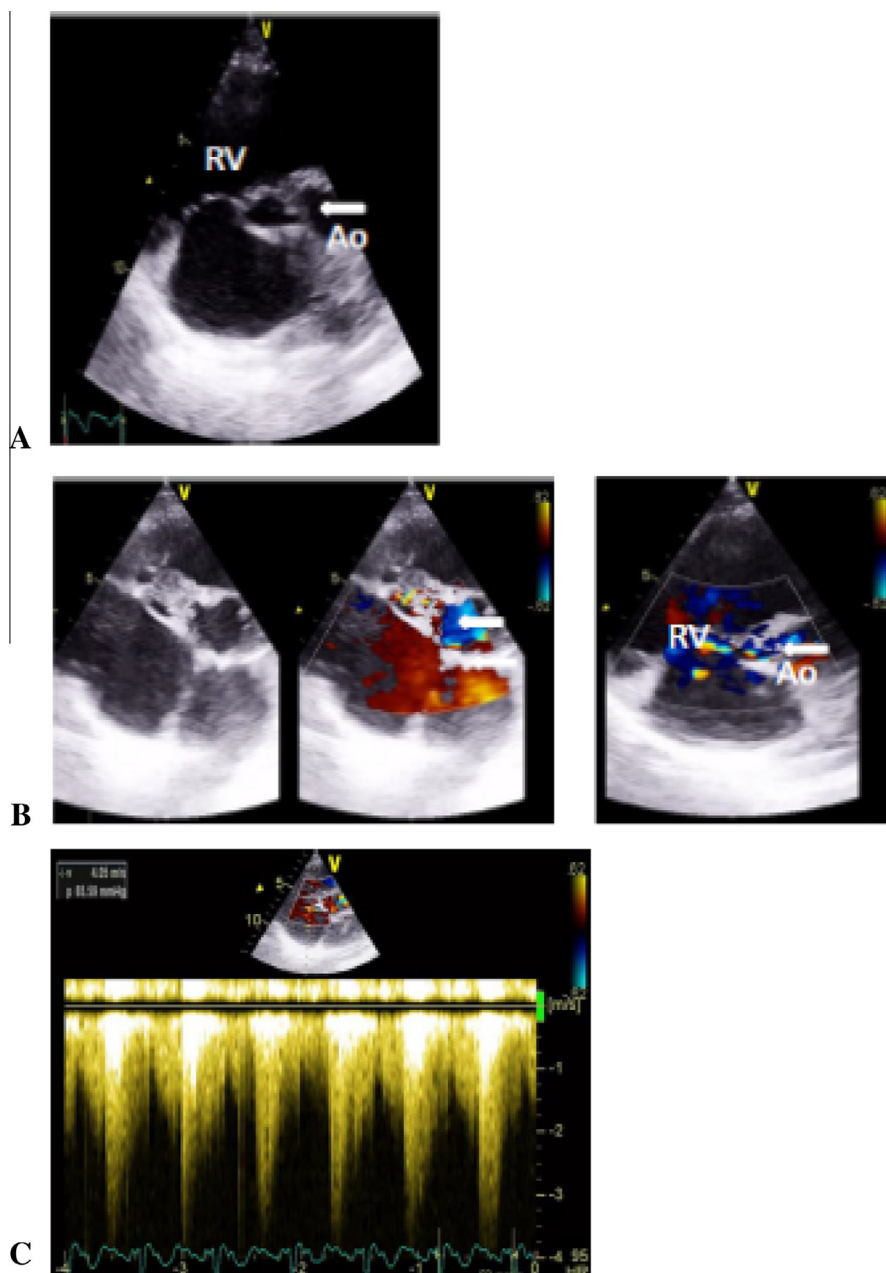


Figure 1. Two-dimensional transthoracic echocardiography showing rupture of the right sinus of Valsalva aneurysm and flow of blood into the right ventricle. (A) Shows the right sinus of Valsalva aneurysm (arrow). (B) Color Doppler interrogation shows the flow between the ruptured right sinus of Valsalva aneurysm and the right ventricle (arrow). (C) Doppler interrogation shows the presence of a ruptured right coronary sinus of Valsalva aneurysm with high-velocity flow (4 m/s) into the right ventricular cavity during both systole and diastole. Ao = aorta; RV = right ventricle.

both lung bases. Two-dimensional transthoracic echocardiography (2D-TTE) revealed a fistula between the aorta and the right ventricle (RV) through a ruptured right coronary SV. The color-Doppler technique showed shunting from the SV into the RV and passing through the tricuspid leaflets (Fig. 1). The RV and the pulmonary artery were moderately dilated. The left ventricular ejection fraction was normal. The aortic and

pulmonary valves were tricuspid with no valvular disease. There were no other cardiac defects. The suprasternal view showed a red color flow in the aortic arch and the descending aorta. The end-diastolic flow velocity in the descending aorta just beneath the aortic isthmus was 39 cm/s (Fig. 2).

The patient underwent surgical repair via a median sternotomy and under cardiopulmonary bypass between the ascending aorta and the two

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