

Ruptured sinus of Valsalva aneurysm with bicuspid aortic valve in adult patient

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Sinus of Valsalva aneurysms (SVA) is rare cardiac anomalies and rupture of these aneurysms is most feared complication. Rupture of SVA can be caused by different etiologies such as direct trauma or infective endocarditis.

A 37-year-old male patient was admitted to cardiology outpatient clinic with dyspnea. The patient did not have any history of chest trauma, prolonged fever, connective tissue disorders, and aortic disease. The patient's vitals were obtained and they were normal with the exception of wide pulse pressure of >70 mm/Hg and patient's temperature was 36.2° C. During the physical examination, auscultation of the heart revealed continuous murmur along the left sternal border. Troponin levels of the patient were normal. Two-dimensional transthoracic echocardiography (TTE) showed continuous systolic-diastolic turbulent flow toward right ventricle from ascending aorta. There was no dilation of the right chambers. The aortic valve was bicuspid with moderate aortic regurgitation (Fig. 1A, Videos 1, 2). Transesophageal echocardiography (TEE) showed the rupture of the right coronary sinus to right ventricle clearly (Fig. 1B–D, Video 3). We showed contrast transition from the right coronary cusp to right ventricle by aortography (Fig. 2, Video 4). There was not any history of trauma and infective endocarditis in the patient. Rupture of sinus of Valsalva most probably occurred spontaneously in our case. Aortic valve replacement and pericardial patch graft repair were chosen as the best treatment strategy. The patient was discharged from the hospital 1 week after surgery.

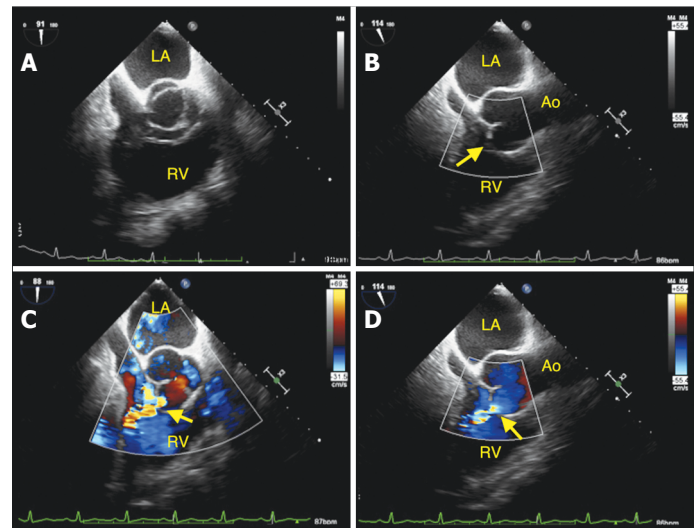


FIGURE 1. (A) Transesophageal echocardiography (TEE) mid-esophageal short-axis view of the bicuspid aortic valve. (B) TEE mid-esophageal long-axis view of the rupture of the right sinus of Valsalva aneurysm (arrow). (C) TEE mid-esophageal short-axis view with color Doppler showing turbulent (arrow) flow from ascending aorta to the right ventricle. (D) TEE mid-esophageal 114° view with color Doppler showing turbulent (arrow) flow from ascending aorta to the right ventricle.

Imaging is the most important part in diagnostic process of rupture of SVA. We well demonstrated rupture of SVA in a patient with bicuspid aortic valve using TTE, TEE, and conventional aortography.



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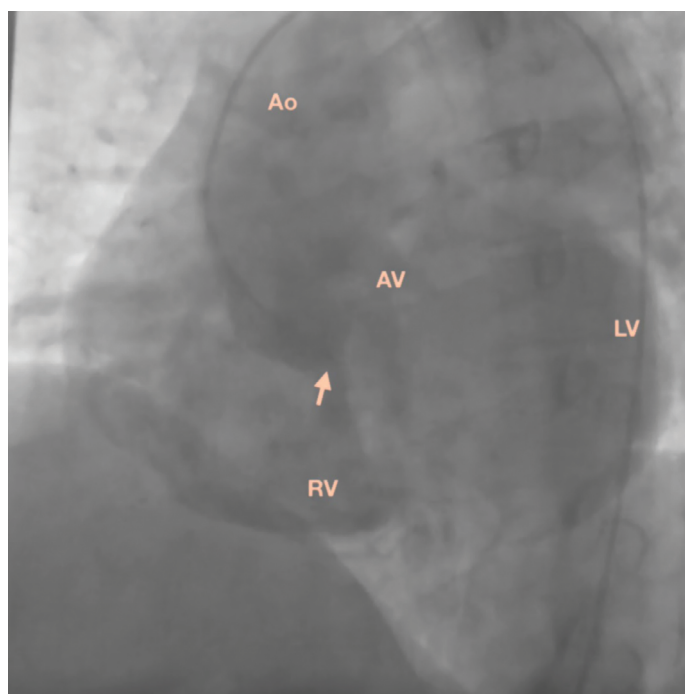


FIGURE 2. Contrast transition from coronary cusp to the right ventricle by aortography (arrow).

Video 1: Transesophageal echocardiography mid-esophageal short-axis view of bicuspid aortic valve.

Video 2: Transesophageal echocardiography mid-esophageal short-axis view with color Doppler showing moderate aortic regurgitation (arrow) with bicuspid aortic valve.

Video 3: Transesophageal echocardiography mid-esophageal long-axis view with color Doppler showing turbulent (arrow) flow from ascending aorta to the right ventricle.

Video 4: Contrast transition from coronary cusp to right ventricle by aortography (arrow).

Informed Consent: Written informed consent was obtained from the patient for the publication of the case report and the accompanying images.