"Windsock caught amidst a sandstorm" – Echocardiographic images of a patient with ruptured sinus of Valsalva aneurysm

Rüzgar yön ölçeri kum fırtınasına yakalandı: Sinüs Valsalva anevrizması rüptürlü bir hastanın ekokardiyografi görüntüleri

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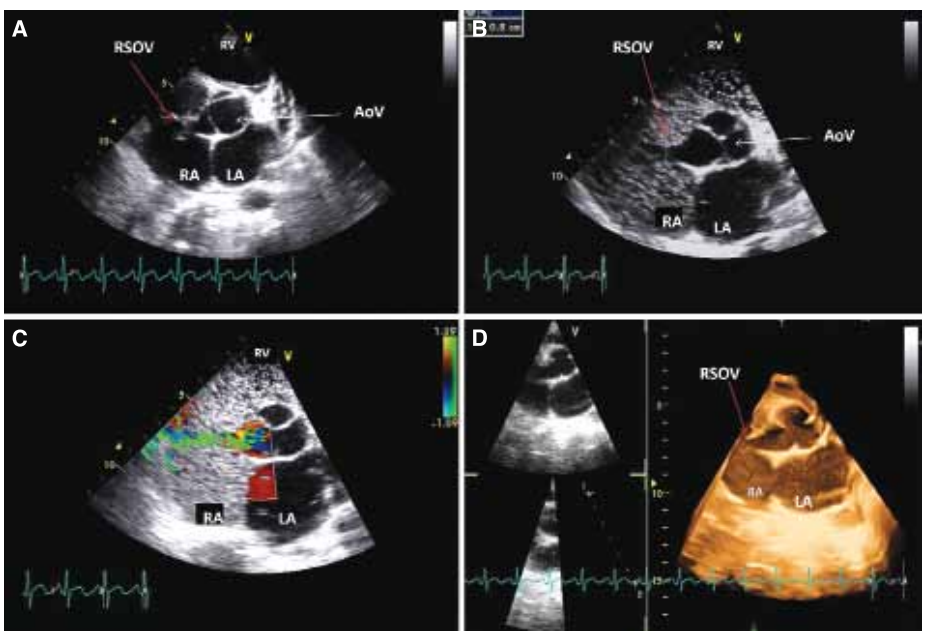
A 16-year-old boy was managed for a brief period at a district hospital and then referred to our institution. He presented to our emergency room with a history of sudden-onset retrosternal chest pain, progressively worsening breathlessness, profuse sweating, and restlessness, which all started when his brother hit him over the chest during a sibling tussle. His pulse rate was 128 beats per minute, blood pressure 138/72 mmHg and respiratory rate 40 per minute. On systemic examination, a grade IV/VI continuous murmur was heard over the left parasternal area, 3rd intercostal space, and coarse crackles over bilateral lung fields. He was stabilized, and two-dimensional (2D) echocardiogram (GE VIVID7 SYSTEM) done subsequently revealed a finger-like projection opening from the non-coronary cusp of the aortic valve (AoV) in to the right atrium (RA) with a very thin membrane and a windsock appearance, suggesting ruptured sinus of Valsalva (RSOV) aneurysm (Fig. A, Video 1*). The color Doppler study revealed the flow from the aorta in to the RA, with the jet striking the right atrial wall (Fig. C, Video 3*). Injection of agitated saline through the left antecubital vein filled the RA with saline bubbles, giving a negative contrast, which further delineated the "typical windsock appearance" as if caught in the middle of a sandstorm (Fig. B, Video 2*). Such a technique of using agitated saline may help in better defining the RSOV aneurysm and in measuring its size. The lesion was further profiled by 3D echocardiogram (Fig. D, Video 4*), and the patient was transferred for Dacron patch closure to the surgical facility, from which he was discharged 5 days after the successful procedure. Sinus of Valsalva aneurysms are rare congenital or acquired cardiac anomalies, involving commonly the right coronary sinus. Congenital aneurysms are more common and are due to weakness in the continuity between the aortic media and annulus. Rupture with sudden-onset symptoms and asymptomatic rupture with delayed congestive heart failure are the most common manifestations of sinus of Valsalva aneurysm. Its echocardiographic diagnosis can at times be a challenging task, mainly its differentiation from Gerbode defect and small perimembranous ventricular septal defects. Use of various echocardiographic modalities may enhance the success in profiling these lesions.



Figures– (A) 2D echocardiogram parasternal short-axis view demonstrating RSOV aneurysm from the non-coronary cusp of the AoV to RA. **(B)** Agitated saline contrast study showing the typical windsock appearance of the RSOV aneurysm. **(C)** Color Doppler showing blood flow from the aorta to the RA. **(D)** 3D echocardiogram showing the deficit in the non-coronary cusp opening in to the RA. **Supplementary video files associated with this presentation can be found in the online version of the journal.*