Large Unruptured Aneurysm in Sinus of Valsalva
An Unusual Cause of Right Ventricular Inflow and Outflow Tract Obstruction

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A 64-year-old man with a large cavitating squamous cell carcinoma (6×6 cm) in the right lower lobe of the lung was referred for prelobectomy cardiac assessment because of incidental finding of Q waves in leads II, III, and aVF on the ECG. Physical examination revealed an ejection systolic murmur at the left sternal edge. Cardiac size was normal on chest radiograph. A transthoracic echocardiogram revealed a large cavity at the aortic root, 5 cm in diameter, obscuring visualization of the right heart (Figs 1 and 2). Diagnostic cardiac catheterization was performed. An aortogram revealed a large (5×5 cm), unruptured aneurysm in the sinus of Valsalva arising from the right coronary sinus (Fig 3), and a coronary angiogram showed normal anatomy. A right ventricular angiogram demonstrated obstruction at the inflow and outflow tracts of the right ventricle due to compression from the aneurysm (Fig 4). There was a 20 mm Hg pressure gradient across the right ventricular outflow tract. Therefore, a large, unruptured aneurysm in the sinus of Valsalva may be an unusual cause of right ventricular inflow and outflow tract obstruction.

Figure 1. Transthoracic echocardiogram: parasternal long-axis view showing 5×5-cm aneurysm in sinus of Valsalva arising from anterior aspect of aorta (AO) above aortic valves (AV). LA indicates left atrium; LV, left ventricle; and MV, mitral valve.
Figure 2. Transthoracic echocardiogram: apical five-chamber view, with color-flow Doppler showing blood flow from left ventricular (LV) outflow tract into aortic (AO) root and aneurysm. RV indicates right ventricle; RA, right atrium; and LA, left atrium.

Figure 3. Contrast aortogram: right anterior oblique view, showing large, unruptured aneurysm in sinus of Valsalva arising from right coronary cusp of aorta.

Figure 4. Contrast right ventricular angiogram: anteroposterior view, showing negative shadow of aneurysm causing compression on right ventricular inflow and outflow areas.
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