

Images in Congenital Heart Disease

Ruptured aneurysm of the sinus of valsalva

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A 4½-year-old-boy was admitted to hospital with a 1 week history of central abdominal pain, diarrhoea, and mild dehydration. He became acutely tachypnoeic the day following admission. Physical examination demonstrated a heart rate of 110 beats per minute, normal sinus rhythm, respiratory rate at 24 breaths per minute, and blood pressure of 103/48 mmHg. The apex beat was palpable in the 5th intercostal space in the midaxillary line, and the left ventricular impulse was dyskinetic. On auscultation, there was a normal first and a split second heart sound. A III/VI long-diastolic decrescendo murmur was heard loudest at the left lower sternal edge, and a III/VI systolic ejection murmur was loudest at the left upper sternal border. No abnormal sounds emanated from the chest and the liver was 2cm below the right costal margin. The electrocardiogram demonstrated normal sinus rhythm, and biventricular hypertrophy with strain. Chest radiography demonstrated mild cardiomegaly. A cross-sectional transthoracic echocardiogram revealed a rupture of the right coronary sinus of Valsalva, which was aneurysmal, producing a tunnel round the hinge of the leaflet which extended into the left ventricle. In addition, there

was perforation of the left coronary leaflet of the aortic valve. These changes produced severe aortic regurgitation with marked left ventricular dilation. He underwent surgical repair as an emergency with replacement of the aortic valve and root. Blood cultures were negative, and there was no evidence of vegetations at surgery. Six months after surgery, the patient is asymptomatic.

The first description of an aneurysm of the sinus of Valsalva dates back to 1839. These may involve any of the aortic sinuses, and may occur in isolation, or in association with Marfan's syndrome, bacterial endocarditis, or congenital lesions such as ventricular septal defect or bifoliate aortic valve. The association with aorto-left ventricular tunnel is of interest, since it has been suggested that these two lesions are interrelated. Our case is, therefore, of particular interest, since the acquired rupture has produced an anatomic situation remarkably similar to the typical aorto-left ventricular tunnel.¹

Rupture of an aneurysmal sinus may also occur into the right atrium or right ventricle. Surgical repair has significantly reduced the mortality associated with this lesion.²

References

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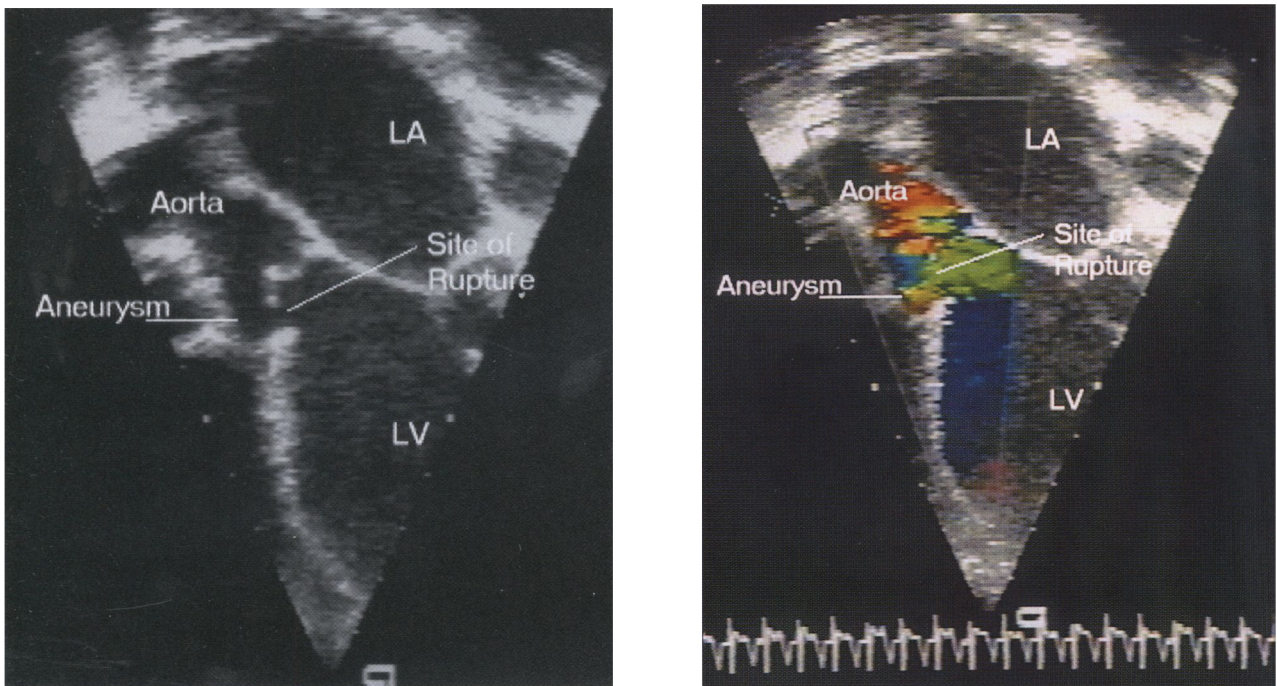


Figure 1. a). Apical four-chamber view; b). apical four-chamber view (colour Doppler). LA: left atrium; LV: left ventricle.

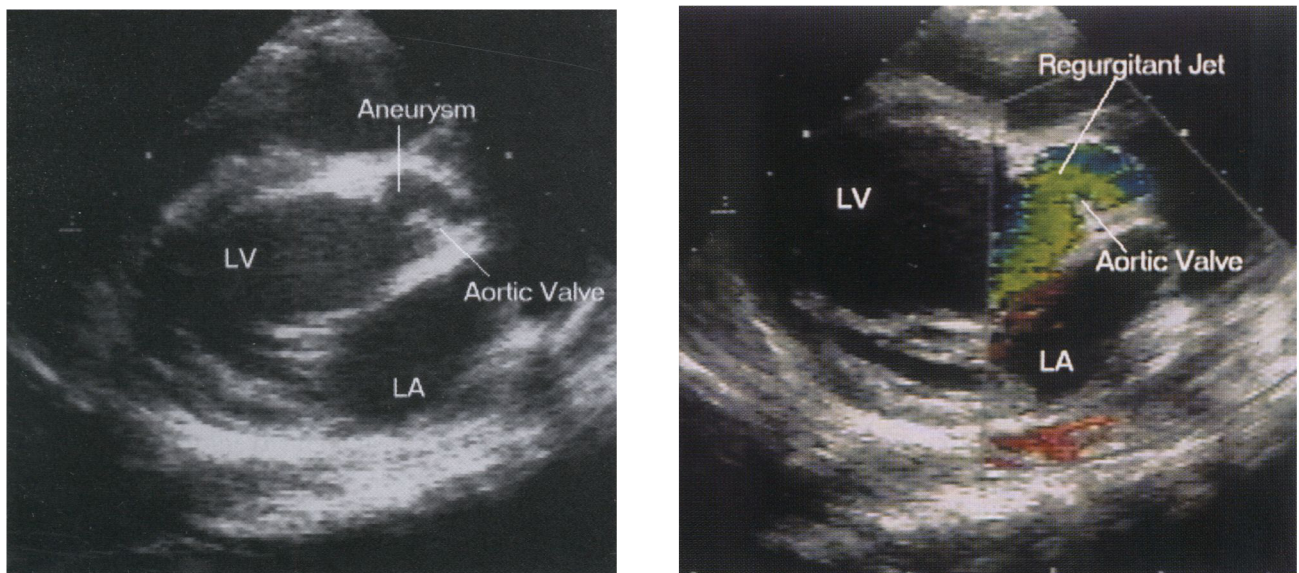


Figure 2. a). Parasternal long-axis; b). parasternal long-axis (colour Doppler). LA: left atrium; LV: left ventricle.

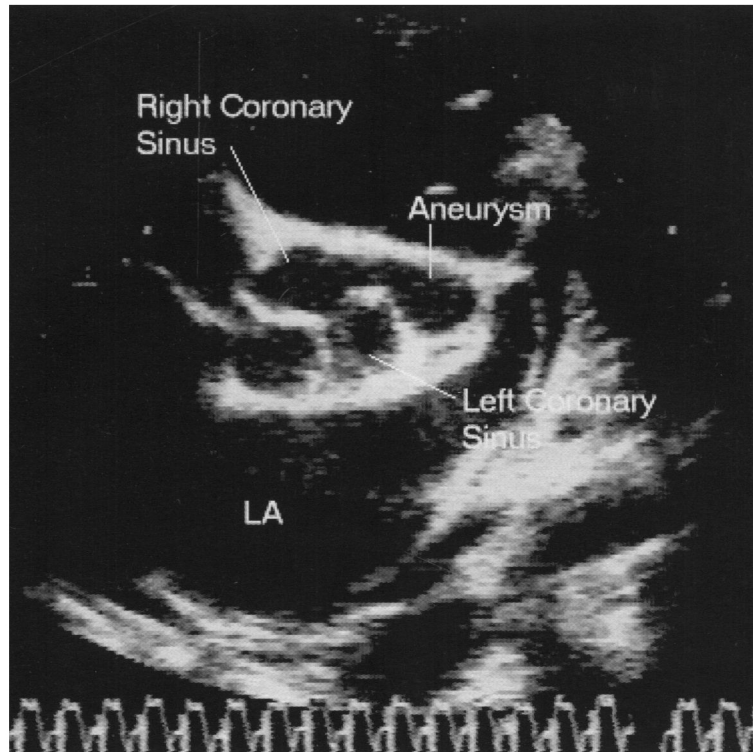


Figure 3.
Parasternal short-axis. LA: left atrium.