

# Emergency valve-sparing aortic root replacement and coronary artery bypass grafting for giant left sinus of Valsalva aneurysm presenting as acute coronary syndrome

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 Video clip is available online.

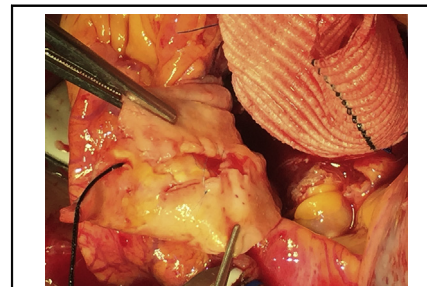
Sinus of Valsalva aneurysm (SVA) is a rare condition that in a small fraction of cases appears as acute coronary syndrome.<sup>1</sup> We present the case of a patient with SVA who sought treatment for coronary symptoms and underwent successful valve-sparing aortic root replacement with concomitant coronary artery bypass grafting.

## CLINICAL SUMMARY

A 52-year-old woman with hypertension came to a local emergency department with acute chest pain after 1 week of subacute chest discomfort and dyspnea. An electrocardiogram demonstrated lateral T-wave inversions, and her serum troponin was elevated, prompting urgent coronary catheterization. Coronary angiography revealed a giant left SVA compressing her left main coronary artery (Figure 1, A-B, and Videos 1 and 2). There was moderate to severe aortic insufficiency. Accordingly, the patient was transferred to a tertiary referral center for consideration of urgent surgical intervention.

On arrival at our institution, the patient continued to have dull chest pressure. She underwent chest computed tomographic angiography, which demonstrated a large isolated aneurysm of the left sinus of Valsalva measuring  $5.1 \times 5.3 \times 3.8$  cm and associated with severe proximal stenosis of the left main coronary artery (Figure 1, C). The remainder of the thoracic aorta was unremarkable, other than a 4-vessel aortic arch.

The patient was brought to the operating room and placed under general anesthesia. Transesophageal echocardiography



Left coronary ostium elongated by SoV aneurysm, shown after unroofing and repair.

## Central Message

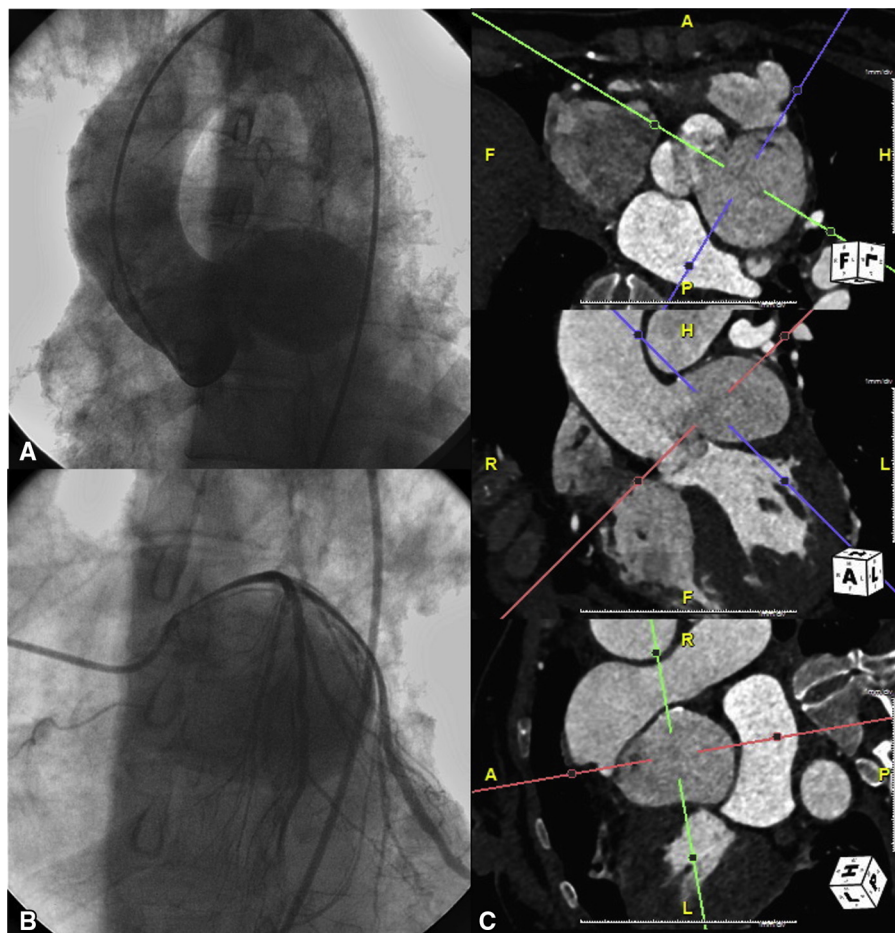
Isolated left sinus of Valsalva aneurysm presenting as acute coronary syndrome is exceedingly rare. Clinical efficacy supports the expanded use of valve-sparing aortic root operations.

See Editorial Commentary page XXX.

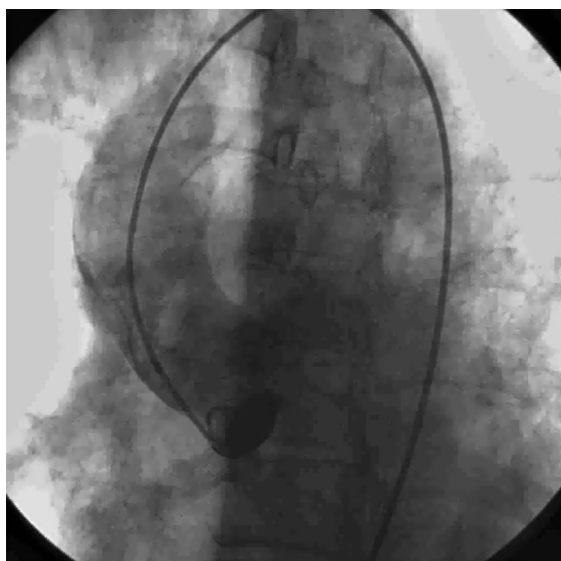
revealed moderate to severe eccentric aortic insufficiency, preserved left ventricular function, and the known aneurysm (Video 3). After median sternotomy, the left internal thoracic artery was harvested in anticipation of the need for coronary revascularization. After cardiopulmonary bypass initiation and cardioplegia administration, the aorta was transected, and the right coronary and noncoronary sinuses were excised. The right coronary artery was prepared for reimplantation. Inspection of the left sinus revealed a large, 2-cm opening into the aneurysm, with a small, slitlike coronary ostium originating from the aneurysm. The left main coronary artery was essentially intramural; this was unroofed with Potts scissors, and the cut edges were oversewn with 6-0 Prolene (Ethicon Inc, Somerville, NJ) suture (Figure 2, A). The revised ostium was prepared for reimplantation and trimmed to minimize the residual aortic tissue and risk of coronary button aneurysm.

The aneurysmal left sinus was then excised entirely, and the decision was made to proceed with a valve-sparing aortic root replacement. The valve was resuspended into a 28-mm woven Dacron polyester fabric graft. On aortic valve competency testing, the left cusp was noted to have an elongated free edge and significant prolapse. The free edge was plicated with a pledgeted 6-0 GORE-TEX

## Case Report



**FIGURE 1.** A, Aortogram revealing a large, unruptured left sinus of Valsalva aneurysm with a wide mouth. B, Selective catheterization of left main coronary artery with ostial stenosis and elongated, compressed left main segment. C, Multiplanar orthogonal slices of preoperative computed tomographic angiography showing giant aneurysm isolated to left sinus of Valsalva and distortion of aortic valve leaflets. A, Anterior; F, foot; H, head; P, posterior; L, left; R, right.



**VIDEO 1.** Aortogram with large left sinus of Valsalva aneurysm with wide mouth and nonlaminar flow. Video available at: <http://www.jtcvsonline.org>.



**VIDEO 2.** Left coronary angiography with ostial stenosis and extrinsic compression by large aneurysm sac. Video available at: <http://www.jtcvsonline.org>.

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