A 34-year-old woman was transferred to our hospital for further investigation of a 1-year history of shortness of breath, bilateral transudative pleural effusions, and marked peripheral edema. Previous extensive investigations had not revealed a cause. On examination, there were marked dependent edema and a large left-sided pleural effusion. A continuous murmur was heard along the left sternal edge. Trans-thoracic echocardiogram demonstrated a bicuspid aortic valve with mild stenosis and an aneurysm of the noncoronary sinus of Valsalva. The right ventricle and right atrium (RA) were markedly dilated (Figure 1). At cardiac catheterization, the RA pressure was elevated (mean, 37 mm Hg), as were the right ventricular and pulmonary artery pressures. There was a marked “step up” in oxygen saturation at the level of the RA. An aortogram confirmed the presence of a large sinus of Valsalva aneurysm, which had ruptured into the RA (Figure 2). Because of the patient’s critical hemodynamic state, percutaneous closure of the defect with an Amplatzer muscular ventricular septal defect occluder (AGA Medical Corp; Plymouth, Minn) was undertaken. Transesophageal echocardiogram and fluoroscopy aided positioning of the device over a guide-wire using an arteriovenous loop from the inferior vena cava to the aorta (Figures 3 and 4 and Movies 1 and 2). A postprocedural aortogram showed successful device closure with only trivial left-to-right flow. The patient was discharged home 18 days later with greatly improved symptoms and dramatically reduced edema.

Ruptured sinus of Valsalva aneurysm is rare, mostly affecting the right coronary cusp. Bicuspid aortic valve frequently is associated.1 Although patients often present with acute onset of symptoms, ruptured sinus of Valsalva aneurysm as the cause of chronic right-sided heart failure, as in our case, is most unusual. Although surgical closure is well established, percutaneous closure has more recently emerged as a less-invasive treatment option,2 especially in patients with prohibitive surgical risk due to comorbidities or hemodynamic instability.
Disclosures
None.

References

Figure 3. Aortogram confirming satisfactory device position (*) with only trivial flow before final deployment. Ao indicates aorta.

Figure 4. Intraprocedural transesophageal echocardiogram shows the Amplatzer muscular ventricular septal defect occluder (*) positioned in the aneurysm after deployment. Ao indicates aorta; LA, left atrium.

Key Words: angiography echocardiography heart failure heart ventricles sinus of Valsalva aneurysm
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