Unusual Cause of Acute Pulmonary Edema
Unruptured Aneurysm of Noncoronary Sinus Causing Severe Mitral Obstruction

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A 54-year-old man presented with a progressive increase in dyspnea for the past 3 years and 1 episode of hemoptysis. On examination, heart rate was 90 beats per minute, and blood pressure was 84/50 mm Hg. On auscultation of heart, a mid-diastolic murmur of grade 3/4 was heard at the mitral area. On auscultation of the pulmonary area, a loud pulmonary component of a second heart sound and an ejection systolic murmur of grade 3/6 were heard, indicating the presence of pulmonary hypertension. On auscultation of the chest, end inspiratory crepitations were heard at the bilateral basal lung fields. The patient had no history of rheumatic fever. He was treated with oxygen, 5 mg of intravenous morphine, and 20 mg of intravenous furosemide for acute pulmonary edema. Transthoracic echocardiography showed a large mass in the left atrium causing obstruction to the left ventricular inflow. The measured mean transmitral gradient was 13 mm Hg. Transesophageal echocardiography midesophageal long-axis view (109 degrees) showed left atrium occupied by a large mass (5.3×3.8 cm) with spontaneous echo contrast causing severe mitral obstruction (Figures 1 and 2; Movies 1 and 2). Transesophageal echocardiography midesophageal long-axis (139 degrees) and aortic valve short-axis views (45 degrees) showed an aneurysm communicating with the aorta through the noncoronary sinus (Figures 2 and 3; Movies 1 and 3). Transesophageal echocardiography showed that the patient had no aortic regurgitation. A computed tomographic scan

Figure 1. Transesophageal echocardiography, midesophageal long-axis view (109 degrees) with color Doppler showing turbulence in mitral inflow secondary to obstruction caused by noncoronary sinus aneurysm.
was done for detailed anatomy (Figures 4 and 5). The aneurysm was excised under cardiopulmonary bypass, and a Dacron patch was used to close the defect. The postoperative period was uneventful.

Aneurysms of the noncoronary sinus usually project or rupture into the right atrium. Unruptured sinus aneurysms usually do not produce hemodynamic abnormality. Rarely, sinus aneurysms may produce complete atrioventricular block, coronary artery compression, and right ventricular outflow obstruction.1 To our knowledge, a sinus aneurysm causing acute pulmonary edema secondary to mitral obstruction was not reported previously. Three cases of rupture of sinus aneurysm into the left atrium were reported; of the 3 cases, only 1 was from noncoronary sinus.2 Mitral regurgitation may occur secondary to deformity of mitral annulus by aneurysmal compression or secondary to myocardial ischemia by coronary compression.3,4

Disclosures

None.

Figure 2. Transesophageal echocardiography, midesophageal long-axis view (139 degrees) showing projection of noncoronary sinus aneurysm into the left atrium and communication with aorta.

Figure 3. Transesophageal echocardiography, midesophageal aortic valve short-axis view (45 degrees) showing projection of noncoronary sinus aneurysm into the left atrium.
References


Figure 4. Contrast-enhanced axial computed tomographic scan showing delayed filling of contrast in aneurysm. A indicates anterior; P, posterior; R, right; L, left.
Figure 5. Multiplanar reconstruction of contrast-enhanced computed tomographic scan coronal-oblique view showing mitral inflow obstruction by noncoronary sinus aneurysm. H indicates head end; F, foot end.
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SUPPLEMENTAL MATERIAL
Movie legends

1. Transesophageal echocardiography, midesophageal long axis view (139°) showing projection of non coronary sinus aneurysm into the left atrium and communication with aorta

2. Transesophageal echocardiography, midesophageal long axis view (109°) with color Doppler showing turbulence in mitral inflow secondary to obstruction caused by non coronary sinus aneurysm

3. Transesophageal echocardiography, midesophageal aortic valve short axis view (45°) showing projection of non coronary sinus aneurysm into the left atrium