Images in Cardiovascular Medicine

Ascending Aortic Pseudoaneurysm:

Sleeping Giant Arises in 3rd Decade after Surgery

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Twenty-eight years earlier, a 68-year-old woman had undergone chordal shortening to correct rheumatic anterior mitral leaflet prolapse and severe mitral regurgitation. At a much more recent presentation, a routine transthoracic echocardiogram incidentally revealed a 5.8-cm echolucent mass arising from the ascending aorta (Fig. 1). The patient was scheduled for urgent follow-up computed tomography (CT) of the chest, which she refused. A month later, she presented at the hospital with severe, sharp precordial chest pain. An emergency chest CT scan showed a giant (14 × 11-cm) ascending aortic pseudoaneurysm arising from the anterior aortic wall just distal to the sinotubular junction—at the aortic cannulation site of the previous cardiac surgery (Figs. 2 and 3).

The patient underwent an emergency repeat sternotomy for the purpose of vascular graft repair. Perioperative coagulopathy resulted in severe, uncontrollable bleeding and in her death.

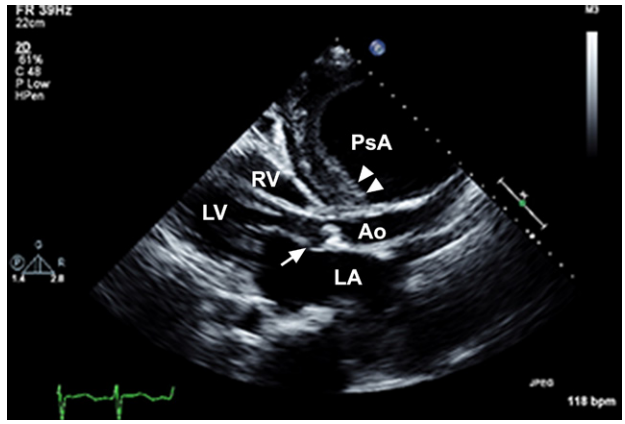

Fig. 1 *Transthoracic echocardiogram (parasternal long-axis view) shows a large pseudoaneurysm (PsA) arising from the aorta and lined by intramural thrombus (arrowheads). The pseudoaneurysm compresses both ventricular cavities. The arrow points to the mitral valve.*

Ao = aorta; LA = left atrium; LV = left ventricle; RV = right ventricle

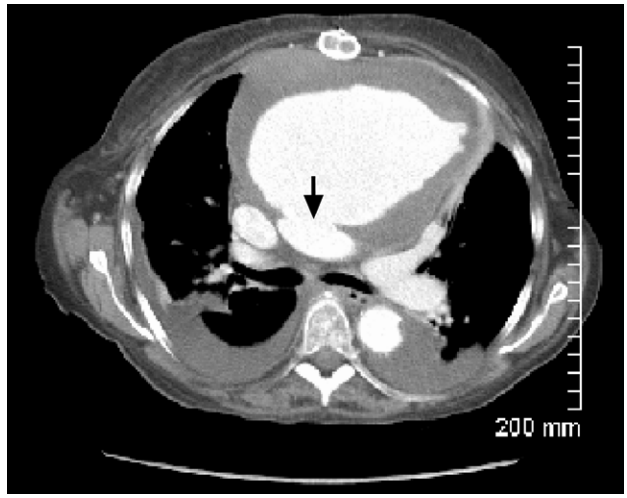

Fig. 2 *Computed tomogram of the chest (cross-sectional view) shows a large, narrow-necked pseudoaneurysm (arrow) arising from the ascending aorta and lined circumferentially by intramural thrombus.*

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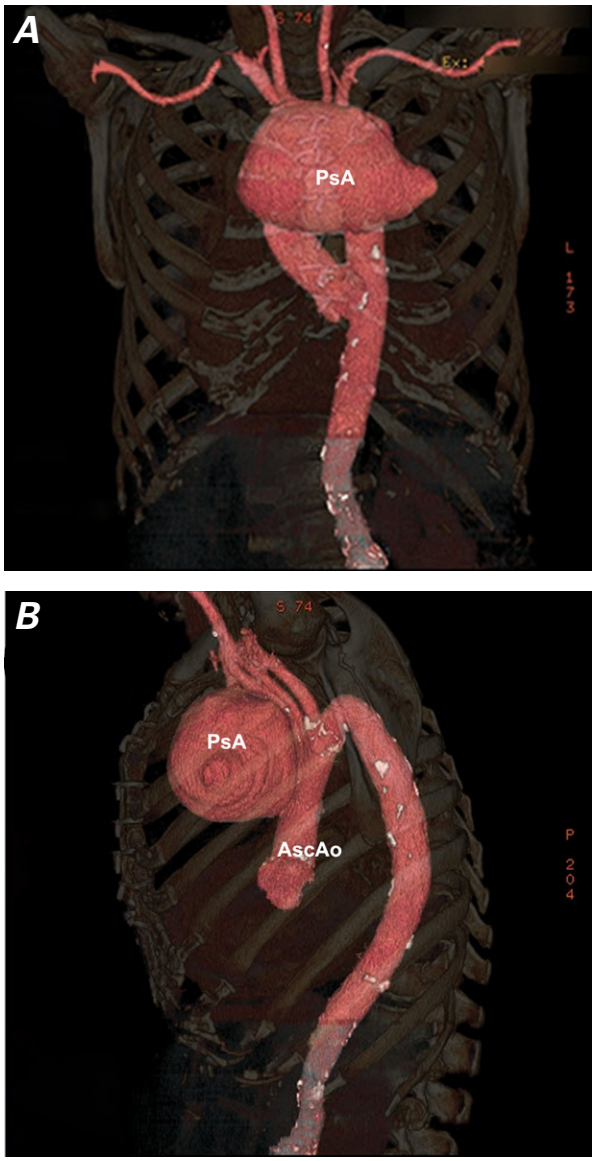

Fig. 3 *Contrast-enhanced computed tomograms (3-dimensional reconstruction) show a large pseudoaneurysm of the ascending aorta in* ***A****) coronal and* ***B****) sagittal views.*

AscAo = ascending aorta; PsA = pseudoaneurysm

Comment

Pseudoaneurysms of the ascending aorta complicate less than 1% of cardiac operations.[1] These lesions arise at the site of aortic wall manipulation during such procedures as aortotomy, proximal anastomosis of venous grafts in coronary artery bypass grafting, needle puncture for pressure measurement or administration of cardioplegic solutions, or aortic cannulation to institute cardiopulmonary bypass,[2] as in the case of our patient. Clinical presentation varies from asymptomatic (in a substantial number of patients) to symptoms of compression by adjacent structures. These last include chest pain, dyspnea, superior vena cava or acute coronary syndrome, or a low-cardiac-output state that resembles tamponade. Pseudoaneurym of the ascending aorta can also manifest itself as a pulsatile mass, a peripheral embolism, aortic regurgitation, mediastinitis, or sepsis.[3] Pseudoaneurysms larger than 55 mm in diameter, those needing emergency intervention, and those associated with sepsis carry a poor prognosis.[4,5] The operative management of large ascending aortic pseudoaneurysm remains technically challenging and is associated with high morbidity and mortality rates.

This case highlights the importance, after pump cases, of routine perioperative transesophageal echocardiographic re-evaluation of the visible ascending aorta's integrity (from the arch through the descending segment), even though the presentation of these sequelae can be very much delayed.

References

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