Rupture of a Left Sinus of Valsalva Aneurysm Into the Pericardial Cavity

To the Editor,

The sinus of Valsalva aneurysm is an uncommon cardiac anomaly that can be congenital or acquired. It generally affects the right sinus of Valsalva (94% of the cases) and noncoronary sinus (5%); it rarely affects the left coronary sinus (1%).1,2

The sinus of Valsalva aneurysm usually ruptures (in order of frequency) into right ventricle (60%), into right atrium (29%) or, less frequently, into left atrium (6%) or left ventricle (4%). The rupture into the pericardial cavity is exceptional (1%).

We report a complex and uncommon case of aneurysm of the aortic root, of the left sinus of Valsalva and of the proximal ascending aorta, complicated by rupture in left sinus of Valsalva into the pericardial cavity.

The patient was a 54-year-old woman with a personal history of hypercholesterolemia who came to the emergency room complaining of intermittent tightness in the center of her chest that had begun four days earlier. It was not associated with exertion, increased when she breathed deeply and radiated toward her jaw and left arm.

She had developed an upper airway cold over the preceding week that she was treating with amoxicillin and ibuprofen.

Upon her arrival in the emergency room, she was afebrile, her arterial blood pressure was 148/60 mmHg and her heart rate was 104 beats/minute. She was conscious and oriented, and was in generally atrial, and without any signs of acute coronary insufficiency.

She was transferred to the cardiac intensive care unit where she underwent cardiac catheterization. There were no signs of acute coronary insufficiency. The sinus of Valsalva aneurysm was evident on the computed tomographic angiograph performed in the immediate postoperative period. Therefore, the diagnosis of ruptured sinus of Valsalva aneurysm with pericardial effusion was confirmed.

The patient underwent urgent surgery, and the left sinus of Valsalva was successfully treated by surgical resection of the aneurysm with reanastomosis of the sinuses of Valsalva. The patient was discharged from the hospital in good condition five days postoperatively.

We believe that this is the first report of a ruptured left sinus of Valsalva aneurysm into the pericardial cavity treated surgically. The outcome was excellent and the patient is doing well at the time of this report.

Figure 1. Computed tomographic angiography of the aorta showing the large aneurysm of the aortic root, left sinus of Valsalva and proximal ascending aorta, together with pericardial effusion.
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poor condition. Auscultation revealed a normal cardiac rhythm, with a II/IV systolic and a diastolic murmur and normal second heart sound. There was good bilateral pulmonary ventilation. There were no findings of interest in abdomen or extremities.

Chest radiography showed cardiomegaly and an electrocardiogram revealed the presence of sinus tachycardia, with no significant abnormalities in the tracing. In the analyses, which included differential blood cell count, hemostasis and basic biochemical parameters, as well as biomarkers of myocardial injury, there were no abnormal findings.

Computed tomographic angiography of the aorta was requested (Figure 1) and showed a large saccular aneurysm involving aortic root, the sinus of Valsalva and proximal ascending aorta (6.5 cm), that reached a maximal transverse diameter at the aortic root in the sinuses of approximately 9.6 cm and a craniocaudal diameter of 5.5 cm. The left coronary artery orifice could be seen beneath the aneurysm sac. This saccular aneurysm led to a marked compression of the uppermost portion of left atrium. Moderate pericardial effusion was also observed.

Given these findings, a transesophageal echocardiographic study was carried out (Figure 2). It revealed a tri-leaflet aortic valve, with aneurysmal dilatation of the aortic root, left sinus of Valsalva (maximum, 6.7 cm) and proximal ascending aorta (6.5 cm), with no evidence of intimal flap in the study of the aorta by segments; the sinotubular junction was dilated (4.9 cm). Moderate aortic regurgitation due to the lack of coaptation of the aortic leaflets and the associated pericardial effusion.

Given the possibility of a contained rupture of left sinus of Valsalva, it was decided to perform emergency surgery. Resection of the aortic wall and implantation of a valved tube were performed. During the procedure, the large aneurysm of the left sinus of Valsalva was assessed. The left coronary artery arose from its usual site in left coronary ostium, which was not affected by the aneurysm. The aortic valves were thickened. A small defect was observed at the level of the enormous left coronary sinus, with the remains of fibrin. Serous hemorrhagic pericardial effusion and a pericardial inflammatory response were detected.

Four months after the intervention, the patient was asymptomatic and a follow-up echocardiogram showed a normally functioning aortic prosthesis, with no signs of periaortic complication.

The rupture of a sinus of Valsalva aneurysm often produces hemodynamic instability; thus, it requires immediate diagnosis and emergency treatment. Transesophageal echocardiography is the diagnostic tool of choice. The early diagnosis of this condition is important because surgical treatment is easier and offers better long-term results when performed early.
Surgery consists of direct excision of the aneurysm and closure of the base with a Gore-Tex or pericardial patch. Recurrence following surgery is exceptional. Aortic valve replacement may be necessary in the case of concomitant severe regurgitation or the impossibility of closing the base of the aneurysm.

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REFERENCES


Tako-tsubo Cardiomyopathy

To the Editor,

Tako-tsubo cardiomyopathy is a condition mimicking ST segment elevation myocardial infarction without evidence of significant coronary artery stenosis or spasm. It is characterized by transient regional wall motion abnormalities involving the left ventricular mid and apical segments that extend beyond a single epicardial vascular distribution. It occurs mainly in post-menopausal women after exposure to a sudden emotional or physical stress. The pathophysiology is still debated and may involve catecholamine-induced myocardial stunning triggered by a stressful event.1

We report the first case of a 50-year-old female with Tako-tsubo cardiomyopathy triggered by severe achalasia.

A 50-year-old post menopausal woman was admitted to the hospital because of vomiting and acute dyspnea. Her medical history included achalasia treated by pneumatic balloon dilatation, 10 years earlier. For about 6 months, she had complained of worsening dysphagia. She did not feel any chest pain. Systematic EKG recorded a transient ST segment elevation in the inferolateral leads (Figure, A), with troponin elevation (troponin I = 1.22 ng/mL; normal range <0.06 ng/mL). Transthoracic echocardiography (TTE) showed akinesis and ballooning of the left ventricular apex with reduced left ventricular ejection fraction (35%). Cardiac catheterization confirmed the diagnosis of Tako-tsubo cardiomyopathy: absence of coronary artery disease, no evidence of plaque rupture or epicardial coronary spasm and presence of a ballooning of the left ventricular apex (Figure, B).

The chest x-ray revealed a global mediastinum widening with two air-fluid levels (Figure, C) and chest CT showed a severe distension of the whole esophagus (maximal diameter, 74 mm), with air-fluid level and compression of the trachea (white arrow on Figure, D). The upper gastrointestinal endoscopy performed a few days later revealed distended esophagus with retained undigested food and lack of peristaltis and concluded to a recurrence of achalasia. Thirteen days after her arrival, our patient was treated with a successful pneumatic balloon dilatation; another was required 2 weeks later. Three months follow-up was uneventful, with...