

Figure 1: Contrast medium angiograph showing fistulae to the left atrium (white arrow) and pulmonary artery (black arrow) in a 47-year-old woman with a dissected ascending aortic aneurysm.

and subsequent fistula formation.⁴ This case report describes the successful surgical repair of a giant dissected ascending AA associated with double fistulae to the pulmonary artery and left atrium and the concomitant presence of a small paravalvular leak to the left ventricle.

Case Report

A 47-year-old woman who had undergone an aortic and mitral valve replacement 10 years previously was admitted to the emergency room of the Imam Ali Hospital, Kermanshah, Iran, in January 2015 with severe dyspnoea and cold perspiration. A physical examination showed pitting oedema on the lower extremities, pulmonary rales and elevated jugular venous pressure. In addition, the patient's skin was cold and damp. The patient history revealed two separate admissions to local hospitals two years earlier for incidences of high fever. She had been treated with appropriate antibiotics during these previous hospital admissions; however, no echocardiographic results were available. She had received oral warfarin and her international normalised ratio was 3–3.5 IU. The patient had had an uneventful postoperative course following her previous primary aortic and mitral valve replacement. At the time of her initial surgery, her native aortic valve was calcified and the diameter of the AA at the sinotubular junction was 4 cm.

At admission, the patient's chest radiography exhibited enlargement of the cardiac silhouette and pulmonary congestion. An electrocardiogram showed atrial fibrillation rhythm with rapid ventricular response. A physical examination revealed an irregular heart rhythm, low blood pressure (100/30 mmHg), tachycardia (120 beats per minute), tachypnoea, cyanosis, a prominent jugular vein and a diastolic 3/6 murmur along the left sternal border. The rales were heard diffusely in

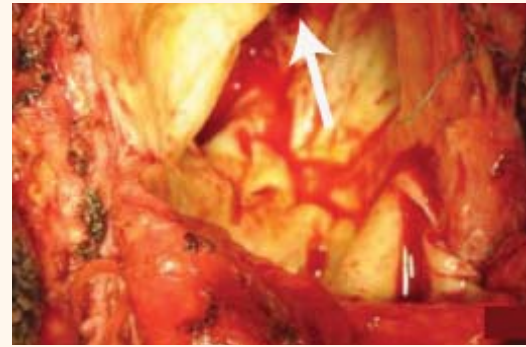


Figure 2: An image showing the fistula to the pulmonary artery (arrow) in a 47-year-old woman with a dissected ascending aortic aneurysm.

both lung fields. A transthoracic echocardiogram (TTE) revealed normal functioning of the prosthetic mitral and aortic valve and a giant ascending AA involving the sinuses of Valsalva. The dissection flap was not detected by TTE. The aneurysm's transverse diameter was measured as 7.5 cm with an aortic root contrast injection [Figure 1].

A transoesophageal echocardiogram (TOE) showed a high- and low-velocity continuous pulse conforming with fistulae from the right and left Valsalva sinuses to the left atrium and pulmonary artery, respectively. Pulmonary artery angiography documented a large left-to-right shunt with a pulmonary-systemic flow ratio of 2:5. Angiography revealed that the coronary arteries were normal. The aortic root angiogram detected the path of the fistulae. The patient was intubated due to severe respiratory dysfunction. She was prepared for urgent cardiac surgery and immediately taken to the operating room.

Due to abnormal preoperative coagulation tests, the patient received fresh frozen plasma. Before the sternotomy, the femoral artery was cannulated; a cardiopulmonary bypass was established after reopening the sternum and right atrial cannulation. A giant AA with severe inflammatory adhesion to the neighbouring organs was observed. The normal diameter of the AA was just below the innominate artery and it was encircled with a tape. After establishing the cardiopulmonary bypass by inducing systemic and local hyperthermia, the giant aorta was transected just above the sinotubular junction. Although a preoperative TTE did not reveal a dissection flap, intraoperative inspection revealed a flap in the posterior aortic wall. The prosthetic aortic valve was functionally normal but had a small paravalvular leak to the left ventricle [Figures 2 & 3]. The orifice of both fistulae tracts in the right and left sinuses of Valsalva and their entrance to the left atrium and pulmonary artery was defined intraoperatively. The fistula tract to the pulmonary artery ended at the main pulmonary artery. The aorto-left atrial fistula was located just over the left atrial roof and opened into the left atrial chamber via the fibrous trigone. Both fistulae were repaired with two interrupted 4–0 pledgeted polypropylene sutures. Intraoperative TOE confirmed that the suture lines of sewing rings on the native fibrous ring were intact. The previous prosthetic aortic valve was removed.