

Left main coronary artery aneurysm with a fistula draining into the right atrium

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Coronary artery aneurysms may develop fistulas which drain into the pulmonary artery and the left ventricle.¹⁻³ We present images of a patient with a left main coronary artery aneurysm which fistulized into the right atrium (RA).

A 38-year-old Asian female presented with a cough and fatigue. A chest X-ray revealed a mass abutting the right heart border (Figure 1). A transesophageal echocardiogram (TEE) demonstrated a large coronary artery aneurysm communicating with the RA (Figure 2). A

computed tomography angiogram revealed a left main coronary artery aneurysm, 9.6 × 9.7 × 9.2 cm, extending into the left circumflex artery compressing the right main pulmonary artery, with a 1.5-cm fistulous vessel overlying the dome of the left atrium (Figures 3 and 4). A cardiac catheterization revealed a left main coronary artery aneurysm with a fistulous vessel overlying the right ventricle (RV) (Figure 5). The pulmonary artery pressures were 48/23 mmHg and there was evidence of mild left-to-right shunting (QP/QS = 1.3:1).

At the time of surgery, a median sternotomy revealed dense pericardial adhesions to the RA and RV. A large left coronary artery aneurysm was found to be encasing the RA free wall and extending toward the superior vena cava. Cardiopulmonary bypass (CPB) was

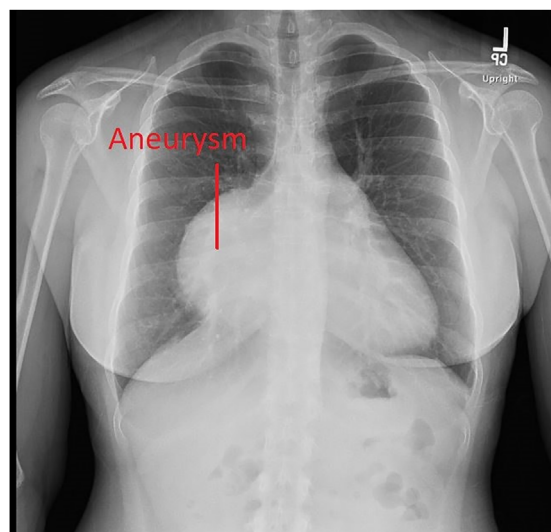


FIGURE 1 Preoperative chest radiograph demonstrating a large mass silhouetting the right border of the heart

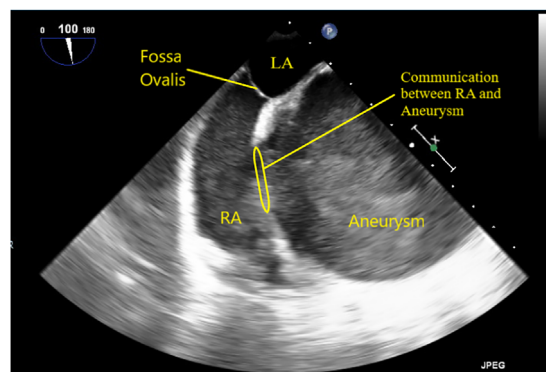


FIGURE 2 Preoperative transesophageal echocardiogram demonstrating large coronary artery aneurysm with communication into the RA. LA, left atrium; RA, right atrium

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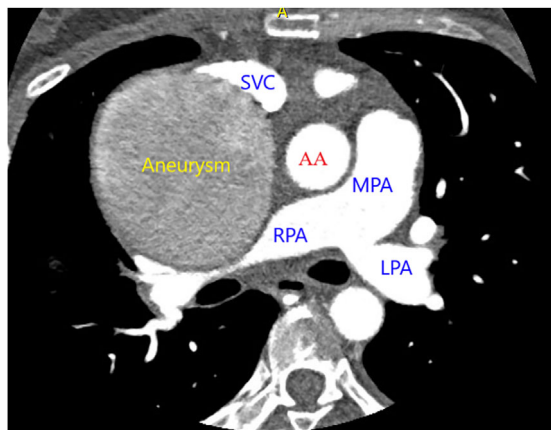


FIGURE 3 Computed tomographic chest scan showing large coronary artery aneurysm with extrinsic compression of RPA. AA, ascending aorta; LPA, left pulmonary artery; MPA, main pulmonary artery; RPA, right pulmonary artery; SVC, superior vena cava

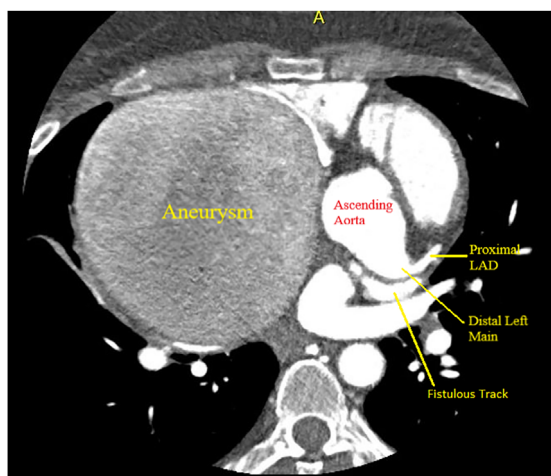


FIGURE 4 Computed tomographic chest scan demonstrating aneurysmal dilatation of left main coronary artery with a fistulous tract overlying the dome of the left atrium. LAD, left anterior descending

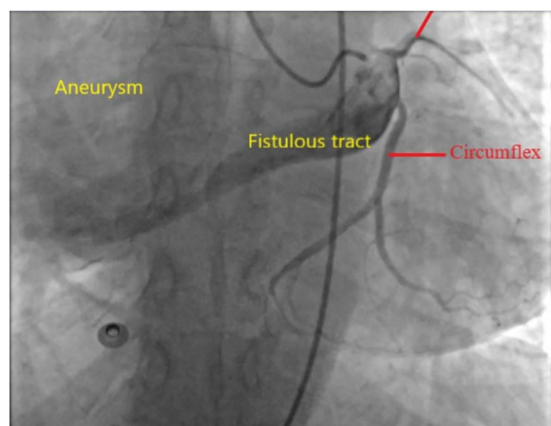


FIGURE 5 Coronary angiography showing a left main coronary artery aneurysm extending into the proximal circumflex artery. Likely a sinoatrial node branch extended to a giant coronary aneurysm overlying the right heart structures

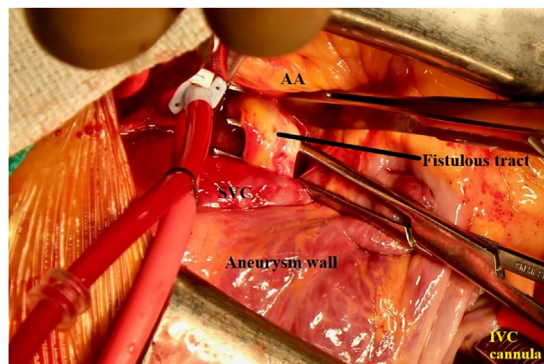


FIGURE 6 Surgical image. The coronary artery fistulous tract was freed from the roof of the left atrium with a partially decompressed aneurysm. AA, ascending aorta; IVC, inferior vena cava; SVC, superior vena cava

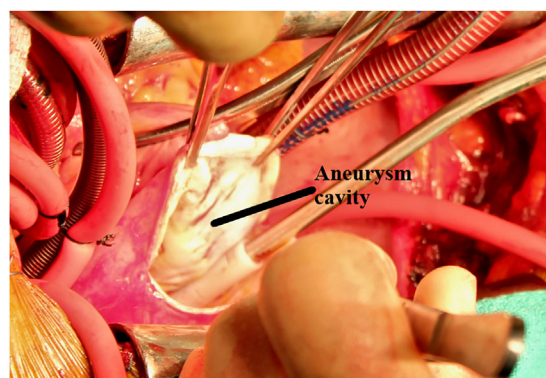


FIGURE 7 Surgical image. Opened aneurysm cavity

instituted with aortic and bicaval cannulation. The aorta was cross-clamped, and the heart was arrested with antegrade, cold blood cardioplegia. The fistulous vessel was mobilized from the dome of the left atrium (Figure 6), transected from the coronary artery which was closed with a running 7-0 prolene suture. The aneurysm sac was opened (Figure 7) and the fistulous orifice to the RA was closed with

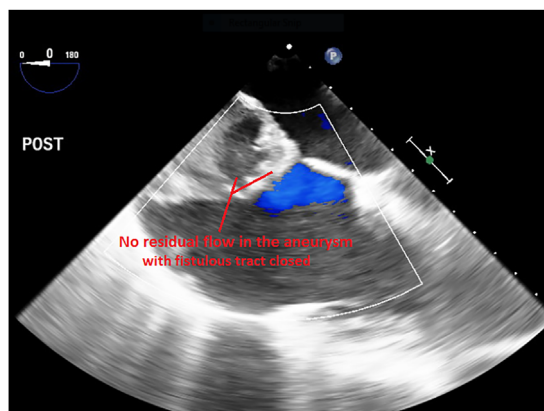


FIGURE 8 Postoperative transesophageal echocardiogram demonstrating no residual flow into the giant coronary artery aneurysm and no fistulous communication into the right atrium

interrupted 4-0 prolene sutures. The remainder of the fistulous vessel was excised along with a portion of the aneurysmal wall which was reapproximated with a running 4-0 prolene suture. The patient was weaned off bypass following CPB and arrest times of 69 and 55 min, respectfully.

The patient had an uneventful postoperative course. The histology of the fistulous vessel showed fibrointimal proliferation with no acute inflammation. A postoperative TEE revealed no left-to-right shunting or any flow in the residual aneurysmal sac (Figure 8). The patient continues to do well and is currently asymptomatic in New York Heart Association Class 1.

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How to cite this article: Jacobsen K, Khouzam N. Left main coronary artery aneurysm with a fistula draining into the right atrium. *J Card Surg.* 2018;33:803-805.
<https://doi.org/10.1111/jocs.13960>