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Giant Aneurysmal Fistula of the Left Main Coronary Artery to the Right Atrium

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ABSTRACT

A 42-year-old woman presented to our outpatient department with complaints of atypical chest pain and palpitation. On physical examination, the patient's blood pressure was 140/95 mm Hg, and there was a systolic cardiac murmur on the left sternal border. A transthoracic echocardiography examination was performed, and a left-to-right shunt ratio (Qp/Qs) of approximately 1.5 was detected. Computed tomography angiography and coronary angiography examinations confirmed the presence of a large fistula between the left main coronary artery and the right atrium, with giant aneurysm formation and an intact right coronary artery. Surgical closure of the shunt was performed with a good final result.

CASE REPORT

A 42-year-old woman presented to our outpatient department with complaints of atypical chest pain and palpitation. She had previously been treated with βblockers and calcium blockers. On physical examination, the patient's blood pressure was 140/95 mm Hg, and there was a systolic cardiac murmur on the left sternal border. A transthoracic echocardiography examination was performed, and a left-to-right shunt ratio (Qp/Qs) of approximately 1.5 was detected. The right atrium and right ventricle were mildly enlarged. A continuous flow was detected in the right atrium. Computed tomography angiography and coronary angiography examinations confirmed the presence of a large fistula between the left main coronary artery (LM) and the right atrium (RA), with giant aneurysm formation and an intact right coronary artery (Figures 1 and 2). Surgical closure of the shunt was performed. Because of the size of the shunt, the insertion of the LM to the RA was closed, but the left main was not excised. In addition, left internal mammary artery and saphenous vein

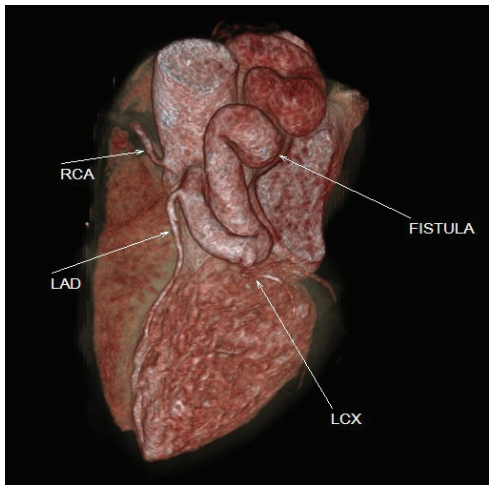

Figure 1. Computed tomography angiography image of a giant fistula between the left main coronary artery and the right atrium. RCA indicates right coronary artery; LAD, left anterior descending coronary artery; LCX, left circumflex artery.

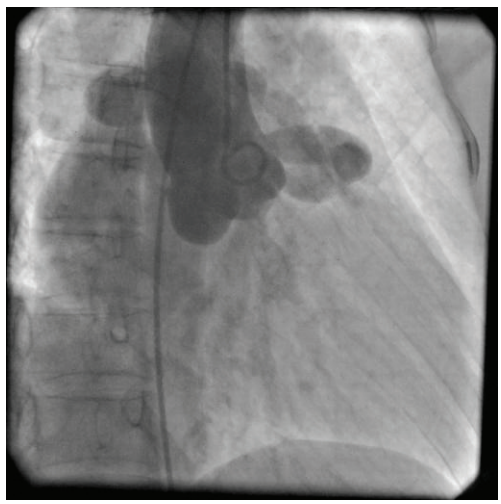

Figure 2. Coronary angiography image showing filling of the right atrium after aortic root injection and visualization of the aneurysmal left main coronary artery.

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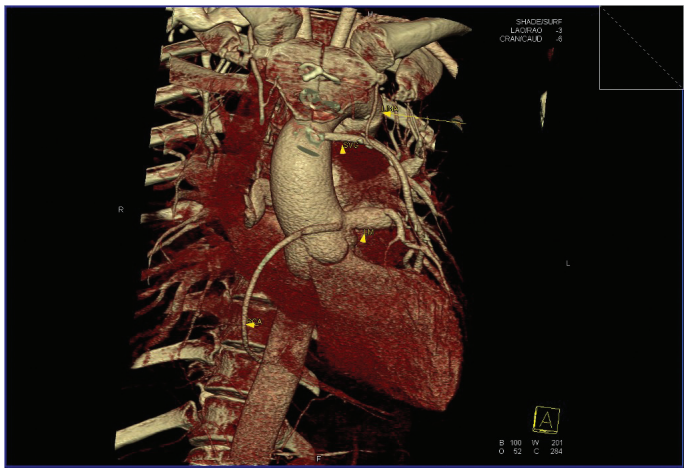

Figure 3. Postsurgery image showing patent grafts and shunt closure.

grafts were made to the left anterior descending artery (LAD) and the left circumflex artery (LCX), respectively, and the origins of the LAD and LCX were closed to prevent distal embolization. A follow-up computed tomography angiography examination of the patient showed no residual shunt (Figure 3). She was discharged in good condition and experienced no complications by the 6-month follow-up.

DISCUSSION

Coronary artery fistulae are rare cardiac malformations. Their prevalence has been reported at 0.1% to 0.2% of patients who undergo coronary angiography [Said 1995]. Although aneurysm formation is common in patients with coronary artery fistulae, giant aneurysms have rarely been reported. They are often asymptomatic and small, however, but rupture of an aneurysmal fistula can be fatal. Moreover, a coronary steal phenomenon can occur owing to blood shunting and perfusion away from the myocardium. This phenomenon can be manifested in the patient as angina pectoris. Treatment is recommended in the presence of symptoms, a giant aneurysm, or progressive enlargement of fistulae. In cases of small and easily accessible fistulae, transcatheter closure could be considered [Białkowski 2011].

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