

CASE REPORT

Multiple feeding vessels from left circumflex artery and right coronary artery to myxoma in left atrium

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ABSTRACT

A 62-year-old woman with six months history of dizziness was admitted to our hospital. A large mass in the left atrium was detected by transthoracic echocardiography. Coronary angiography showed two feeding arteries from the right coronary artery and left circumflex artery to the left atrium. Chest computed tomography, coronary computed tomographic angiography and contrast echocardiography were performed. Those showed multiple intratumoral neovascularities from surface of the mass. After those examinations, the mass was completely resected. Histopathologic examination confirmed the diagnosis of cardiac myxoma. There was no abnormal remnant mass, based on a follow-up transthoracic echocardiography.

KEYWORDS

Myxoma; coronary angiography; multiple neovascularity

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Introduction

Primary cardiac tumors of the heart are rare with a frequency of 0.0017-0.019% (1). They are diagnosed by the use of transthoracic echocardiography (TTE), transoesophageal echocardiography (TEE), cardiac magnetic resonance imaging (MRI), and computed tomography (CT) (2). Cardiac tumor neovascularization at the angiographically detectable level is thought to be not rare. Multiple feeding arteries for cardiac myxoma detected by current diagnostic tool were rare. We reported a cardiac myxoma and its two feeding arteries, based on TTE, TEE, chest CT, coronary CT angiography, coronary angiography (CAG) and contrast-enhanced echocardiography. The following is a detailed report of the case accompanied by a review of previous studies.

Case presentation

A-62-year old female patient with six months history of

dizziness was admitted to our hospital. Her past medical history and family history was unremarkable. Physical examination, electrocardiogram, chest X-ray and laboratory data were within normal range.

TTE showed a large mass containing focal calcification in a normal-sized left atrium. The mass was 3.3 cm × 3.5 cm sized oval shaped, movable and well circumscribed (Figure 1A). TEE also showed a mobile and heterogeneous mass with regular contours (Figure 1B). Chest CT showed a left atrial solid mass attached to the interatrial septum, measuring 4.2 cm × 3.0 cm sized. The mass was enhanced by the contrast material with calcification (Figure 2). Coronary CT angiography revealed two feeding arteries from the distal portion of the left circumflex artery (LCX) and distal portion of the right coronary artery (RCA) (Figure 3). CAG revealed there were not coronary lesions. However, we found neovascularizations arising from branch of the proximal and distal LCX and the distal RCA (Figure 4A,B). We also performed contrast-enhanced echocardiography. The study also confirmed that the mass was enhanced by contrast material (Figure 5A,B).

The patient was referred to the department of thoracic surgery. During surgery, we can observe that the mass was attached to interatrial septum being about 3.8 cm × 3.7 cm × 2.9 cm in size. Complete tumor excision with the interatrial septum was achieved. The septal defect was closed with Dacron patch. The histological examination revealed the tumor to be a myxoma. The patient had an uneventful postoperative course

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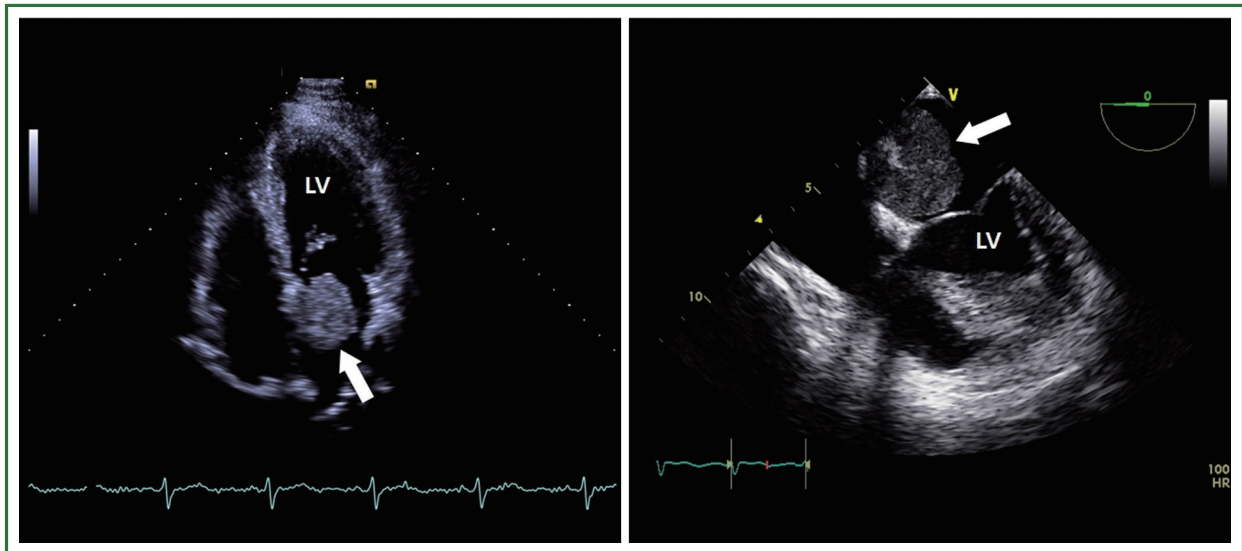


Figure 1. Echocardiographic image showed left atrial mass (arrows). Abbreviation: LV, left ventricle.



Figure 2. Chest computed tomography showed heterogeneous enhanced and central calcified mass (arrow). Abbreviation: LV, left ventricle.

and was discharged in good general condition.

Discussion

Cardiac myxomas are the most common primary cardiac neoplasm in adults. Their incidence is highest among women aged 40 to 60. Usually, a myxoma is a left atrial intracavitary mass (75%), originating from the interatrial septum (1). More rarely, myxoma will grow in the right atrium or in the ventricles than in the left atrium (1). An atrial myxoma sometimes obstructs the pulmonary or systemic venous drainage and interferes

with valve function. Dyspnea and orthopnea from pulmonary venous hypertension or pulmonary edema are common cardiac symptoms. Presyncope or frank syncope are also common because of transient left ventricular inflow obstruction (2). Cardiac myxomas can cause recurrent strokes, peripheral or pulmonary embolization, and occasionally, constitutional symptoms, such as long-term fever, weight loss, high sedimentation rate, anemia, and leucocytosis, thrombocytopenia, cyanosis, clubbing, and Raynaud's phenomenon (1).

Although the involvement of coronary artery is extremely rare and atrial myxoma is an unusual cause of myocardial infarction (3), there are some authors who recommend that CAG be performed only in patients with ischemic symptoms. In patients 40 years of age or older, preoperative evaluation usually includes CAG to rule out concomitant coronary artery disease (1). Some atrial myxomas are highly vascular tumors (2). In addition, CAG may show that tumor vessels are supplied from branches of the left or right coronary artery (1).

In some case, precise diagnosis of myxoma is difficult because the thrombus had features similar to those of a myxoma on echocardiography (4,5). Some studies suggested that neovascularity and fistula formation from coronary arteries to the left atrium were usually associated with organized atrial thrombosis in patients with mitral valve disease (6).

There are some reports of an acquired coronary artery to the left atrial fistula after excision of a left atrial myxoma (7,8). The mechanism by this acquired coronary artery fistula could be related to unperformed ligation of the coronary arteries involved in neovascularization (8).

From this point of view, additional diagnosis methods, such as CAG and coronary CT angiography, are not only helpful to evaluate the patient for unknown coronary artery disease, but also to determine the characteristics of cardiac tumoral vascular

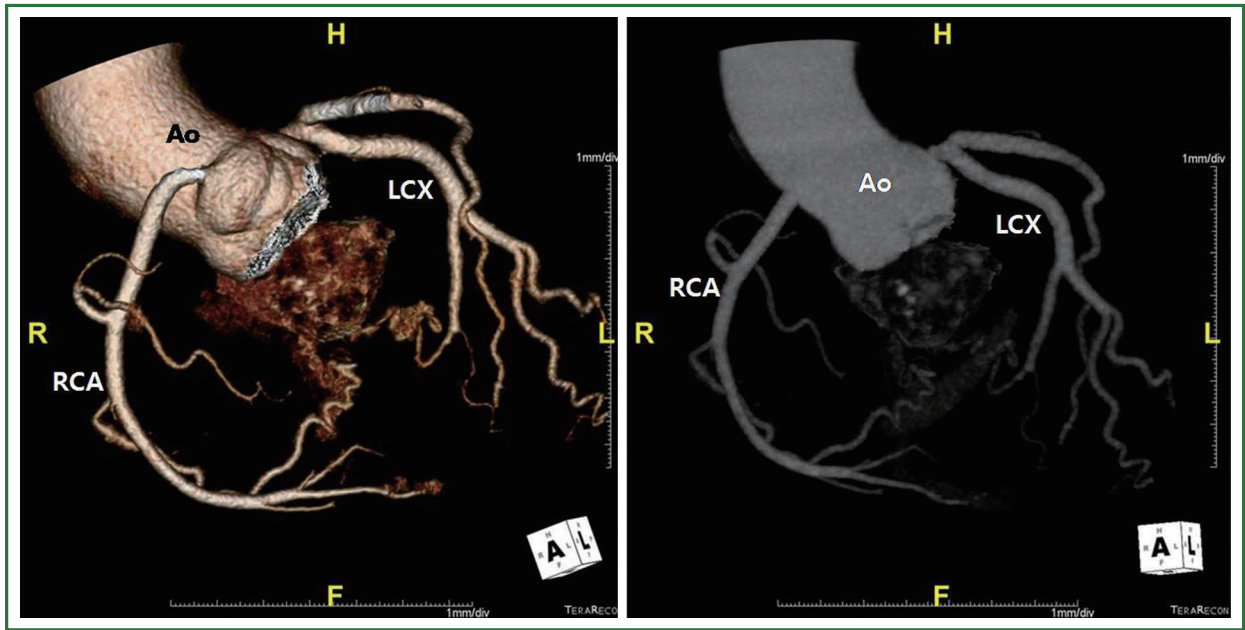


Figure 3. Coronary CT angiogram showed heterogeneous enhanced mass. Abbreviations: Ao, aorta; LCX, left circumflex artery; RCA, right coronary artery.

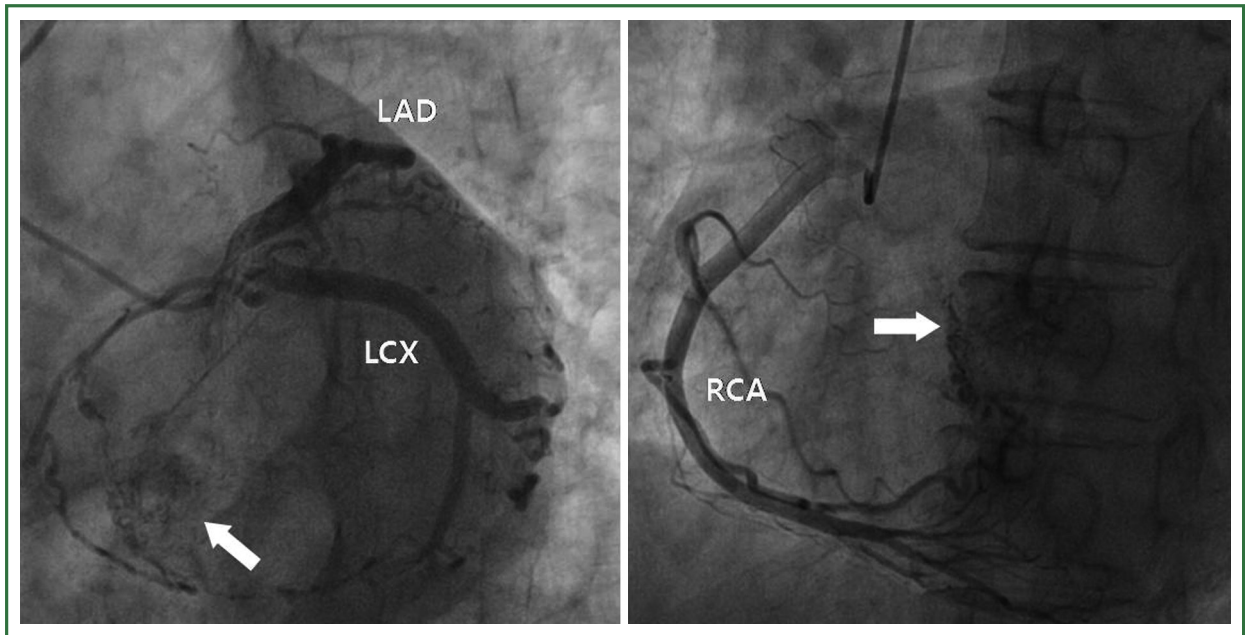


Figure 4. Coronary angiogram showed heterogeneous enhanced mass (arrows) supplied by LCX and RCA. Abbreviations: LAD, left anterior descending artery; LCX, left circumflex artery; RCA, right coronary artery.

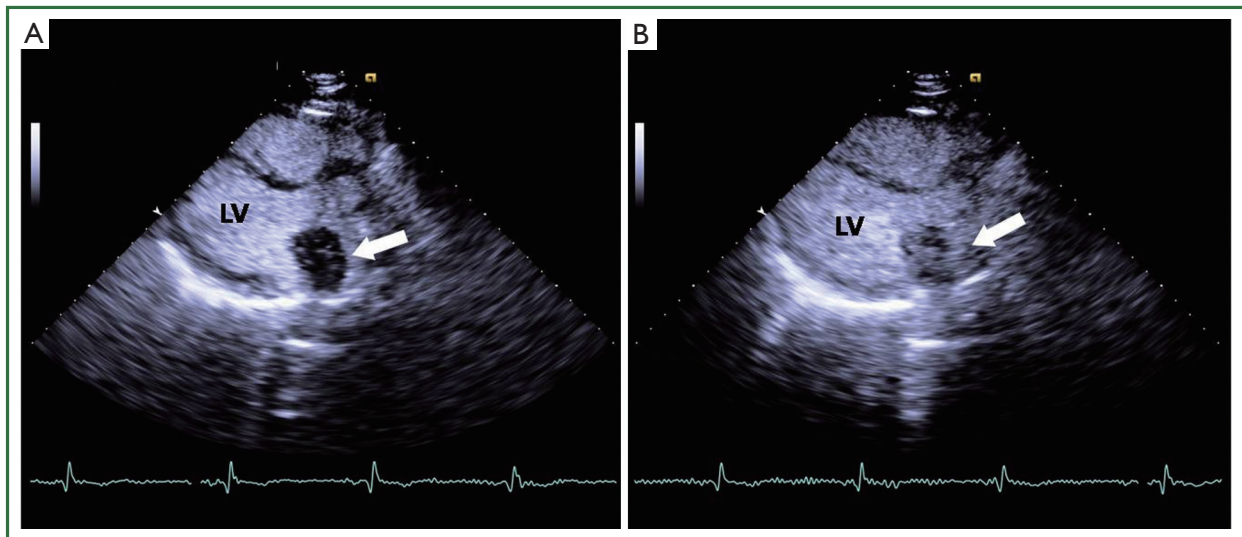


Figure 5. Contrast-enhanced echocardiographic image. (A) In the early phase, the mass was not enhanced; (B) In the late phase, the mass was enhanced. Abbreviation: LV, left ventricle.

structure. Therefore, these are important diagnostic tools to help surgical removal of the mass without complications, such as fistula formation.

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