Right Atrial Myxoma with Coexistent Coronary Artery Disease – A Rare Combination

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Abstract

Atrial myxomas are the most common primary heart tumors. Two-dimensional echocardiography is the diagnostic procedure of choice. The majority of myxomas are located in the left atrium. Myxoma in the right atrium is an uncommon location. The co-occurrence of right atrial myxoma with atherosclerotic coronary artery disease (CAD) is uncommon. In our case, right atrial myxoma was associated with CAD, which makes it a unique case because very few cases of right atrial myxoma coexistent with CAD are described in literature.

Keywords: Coronary angiography, coronary artery disease, echocardiography, mass, right atrial myxoma

INTRODUCTION

Atrial myxomas are the most common primary heart tumors. Two-dimensional (2D) echocardiography is the diagnostic procedure of choice. The majority of myxomas are located in the left atrium. Myxoma in the right atrium is an uncommon location.

Most atrial myxomas are benign and can be removed by surgical resection. The age at presentation and the symptoms of atrial myxomas and coronary artery disease (CAD) can be similar. Therefore, CAD should be ruled out before surgical excision of myxoma so that surgical correction of both ailments could be done at same sitting.

CASE REPORT

A 50-year-old male presented with a 1-month history of low-grade fever, myalgia, and breathlessness on exertion. On physical examination, his blood pressure was 136/80 mmHg and pulse rate was 108/min and regular. Electrocardiography showed normal sinus rhythm with mild ST-T changes. The patient was planned for echocardiography followed by coronary angiography (CAG) if needed.

2D transthoracic echocardiogram was done using a 3.0 MHz transducer and a Vivid S5 cardiac ultrasound system (GE Healthcare, Milwaukee, WI, USA). Parasternal long-axis view was taken, which showed normal motion of the left ventricle with no abnormality in the left atrium and the right ventricle [Video 1]. Then, apical four-chamber view was taken, which revealed a large atrial myxoma in the right atrium occupying most of the right atrium and moving toward the tricuspid valve [Figure 1 and Video 2]. It was a heterogeneous mobile pedunculated mass. For further confirmation, transesophageal echocardiography was done, which confirmed the presence of a large (21 mm × 43 mm) myxoma in the right atrium [Figure 2 and Video 3].

Management was planned for surgical excision of the myxoma. Before surgery, CAG was done to find any concomitant CAD. CAG was done by right radial artery approach, and multiple views (right anterior oblique caudal, left anterior oblique caudal, and anteroposterior cranial) were taken for both left and right coronary systems. CAG showed single-vessel disease comprising 100% occlusion of the left anterior descending coronary artery with mild plaquing in the left circumflex coronary artery [Figures 3 and 4 and Videos 4-6].

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Cardiac surgery opinion was taken for further management, and the patient was planned for coronary artery bypass grafting (CABG) with myxoma removal. During surgery, CABG was done and right atrial myxoma measuring 5 cm × 3 cm × 2 cm was excised [Figures 5 and 6].

**DISCUSSION**

Seventy-five percent of cardiac myxomas originate in the left atrium and 18% in the right atrium. Patients with cardiac myxomas may have additional cardiac disease, with the most common being mitral valve disease. Left atrial myxomas may embolize to the coronary artery, resulting in acute myocardial infarction. Atrial myxoma and CAD or acute coronary syndrome may coexist. In previous observational studies, the incidence of CAD in patients with atrial myxoma was up to 67%, and some believe that this is strikingly higher than the general population. In 2003, Erdil et al. published an article about the frequency of left atrial myxoma with concomitant CAD, in which they found 4 out of 11 patients having atrial myxoma with concomitant CAD. However, the combination of right atrial myxoma and atherosclerotic CAD is uncommon.

Patients with myxomas might present with chest pain and syncope. These symptoms can also be present in patients with significant CAD. The mean age of patients with myxoma is 56 years, an age when CAD is also common. Because the age and the symptoms of both the conditions can be similar, a high index of suspicion is required for diagnosing both at the same time.

The actual indication for CAG to rule out CAD before myxoma excision is based mainly on the patient’s age and gender, risk stratification of CAD, or the presence of angina, and is generally performed on those older than 40 years. In 2015, Omar showed the value of CAG in the workup of atrial myxomas. He presented a case of an incidentally discovered right atrial mass receiving vascular supply from the right coronary artery. The mass was successfully excised, and the diagnosis of cardiac myxoma was confirmed through histopathology. Van Cleemput et al. reviewed coronary
angiographic (CAG) findings of 19 patients with a cardiac myxoma. Seven had angiographically visible tumor vascularity emerging from the coronary arteries. Two patients had concomitant single-vessel CAD. A high index of suspicion, nevertheless, remains the key element in making a combined diagnosis.

In our case, the patient was of 50 years of age, therefore CAG was indicated. CAG showed single-vessel disease and accordingly, combined surgical treatment was done for both ailments successfully. Kejriwal et al. reported two cases of atrial myxomas coexistent with CAD in 2003, one of which was right atrial myxoma. Siraj et al. similarly published a case report of CAD and right atrial myxoma in 2008.

Combined surgical treatment of CAD and myxoma was first reported by Ciraulo in 1979. The triad of right atrial myxoma, CAD, and a patent foramen ovale (PFO) has only previously been reported in Japan. Shiiku et al. advised CABG prior to resection of the myxoma to ensure adequate myocardial protection during the period of aortic cross clamping. However, Sugimoto et al. used retrograde coronary perfusion for myocardial protection and excised the myxoma before CABG. If tumor embolization is suspected, inspection of the pulmonary artery, right ventricle, left ventricle, or aorta, depending on the site of the myxoma and the presence or absence of a PFO, is mandatory.

Conclusions

The co-occurrence of myxoma with atherosclerotic CAD is uncommon. Echocardiography on clinical suspicion should avoid misdiagnosis. CAD should always be ruled out before the excision of myxoma. With careful surgical planning, a satisfactory outcome can be expected.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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