Abstract

A right atrial (RA) mass was incidentally found by transthoracic echocardiography in a 79-year-old man with atrial fibrillation rhythms but without a history of anticoagulation. Transesophageal echocardiography revealed a pedunculated immobile mass in the RA appendage. In addition, some calcification was detected in computed tomography. The mass was excised, and pathological examinations revealed organized thrombosis. Accordingly, in the presence of predisposing factors, thrombi, which may mimic some imaging features of tumors, should be considered in the differential diagnosis of RA masses.

Keywords: Echocardiography, right atrial, thrombus

INTRODUCTION

While cardiac tumors are rare in the general population and most of them are detected incidentally, cardiac thrombi are almost always in the differential diagnosis of cardiac masses. Thrombi may simulate some features of myxomas such as the presence of a stalk and calcification. Herein, we describe an old man with a pedunculated thrombus and some calcification in his right atrial (RA) appendage.

CASE REPORT

A 79-year-old man who suffered from dyspnea of the New York Heart Association functional class II of 3 months’ duration referred to our hospital because of an RA mass. The patient was not on medication and had an unremarkable medical history. Physical examinations yielded no significant findings except for bradycardia (heart rate = 45 bpm) with irregular rhythms. Electrocardiography demonstrated atrial fibrillation rhythms. Laboratory tests were unremarkable except for the thyroid function test, which was suggestive of hypothyroidism. For further evaluation, transthoracic and transesophageal echocardiographic examinations were performed; they revealed a large and round heterogeneous mobile mass (58 mm × 30 mm) with some calcification attached to the RA appendage through a stalk. [Figure 1 & video 1] The left atrial appendage was free of thrombosis. The other findings included normal left ventricular size and function (ejection fraction ≈ 55%), moderate right ventricular enlargement with mild systolic dysfunction, biventricular enlargement, and moderate tricuspid regurgitation (peak pressure gradient = 30 mmHg). Three-dimensional echocardiography better delineated the RA mass. Coronary computed tomography angiography illustrated no significant stenosis; nonetheless, it showed the RA mass with small calcification as an ancillary finding. The patient underwent surgical RA appendage mass resection. Pathological examinations demonstrated organized thrombosis. He was discharged in good condition.

DISCUSSION

Atrial fibrillation undermines the function of the RA appendage, so the occurrence of thrombosis in the RA appendage can be anticipated. The incidence of thrombosis in patients with atrial fibrillation is <1%, and approximately 57% of the cases of thrombosis in the left atrial appendage are free of clots. RA thrombosis may be associated with pulmonary embolism or cerebrovascular events in the presence of a patent foramen ovale, although such possible associations are open to debate.

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RA thrombi that are highly mobile and serpiginous are associated with deep vein thrombosis in that their embolization and subsequent transit to the pulmonary artery could lead to their entrapment in the RA. Immobile RA thrombi are formed \textit{in situ}.\cite{8}

In our patient, atrial fibrillation was the most probable etiology for the formation of the thrombus in the RA appendage. It has been previously posited that these calcified masses are originally tumors that degenerate and create a nidus for thrombus formation and calcification.\cite{9}

In the case of our patient, the presence of calcification in the mass, together with its attachment via a stalk to the RA appendage, was in favor of an RA tumor (e.g., a myxoma).\cite{10} It is noteworthy that calcified RA thrombi have been previously reported.\cite{2,9,11} Our heart team’s first decision was to dissolve the thrombus with anticoagulants; nevertheless, the size of the thrombus prompted them to opt for surgery without further evaluation.

\section*{Conclusions}

It can, therefore, be concluded that in the setting of atrial fibrillation, cardiologists should investigate the presence of RA thrombi because such thrombi may exist in the absence of the left atrial thrombosis. Some imaging features of tumors such as the presence of calcification and stalk may exist in the presence of organized thrombi, and thrombi should be considered in the differential diagnosis of pedunculated RA masses with calcification.

\section*{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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\section*{Conflicts of interest}

There are no conflicts of interest.

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