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Case Reports

Right Atrial Thrombus Mimicking a Myxoma: Synergism of Hormonal Contraceptives and Antiphospholipid Antibodies

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Cardiac thrombus, the most common intracardiac mass, is typically seen in the left side of the heart in the presence of atrial fibrillation, mitral stenosis, or impaired global wall motion. Right atrial thrombus, which is rarer, is usually associated with central venous catheter placement or pulmonary embolism. We present the case of a 24-year-old woman with a history of mitral valve prolapse who presented with fatigue and palpitations. Echocardiograms and cardiac magnetic resonance images revealed a right atrial mass compatible with a myxoma. However, after surgical excision of this and a second mass discovered intraoperatively, pathologic evaluation confirmed organized thrombus rather than myxoma.

The patient's only risk factor was her use of oral contraceptive pills. Test results for hypercoagulable disorders revealed the presence of antiphosphatidylserine, an uncommon antiphospholipid antibody. The patient stopped taking the contraceptive. This case suggests the need to examine further the role of antiphosphatidylserine antibodies in the diagnosis of antiphospholipid syndrome. ***(Tex Heart Inst J 2022;49(4):e207455)***

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Right atrial (RA) thrombi, which occur infrequently, are usually a complication of central venous catheter placement or pulmonary embolism; they are rarely caused by long-term atrial fibrillation. Antiphospholipid antibody syndrome (APS) is a primary autoimmune condition in young women with thrombotic events, or secondary to an underlying disease such as systemic lupus erythematosus. Typical cardiac manifestations of APS involve thickening of the valves[1,2] and increased risk of coronary artery disease that presents as myocardial infarction. However, atrial thrombi due to APS are extremely rare and are seen chiefly in catastrophic APS.[3,4] We present the case of a young woman whose RA thrombus mimicked myxoma but was instead consequent to APS.

Case Report

A 24-year-old woman with a history of asthma presented as a cardiology outpatient, reporting fatigue, lightheadedness, and palpitations. Since her youth, she had experienced syncopal episodes precipitated by exertion and preceded by dizziness. Four years before the current presentation, her father had been diagnosed with idiopathic nonischemic cardiomyopathy, the only notable cardiac factor in her family medical history. Consequently, she had seen a cardiologist to rule out familial heart disease. One-day Holter monitoring had revealed no arrhythmias. A transthoracic echocardiogram (TTE) had shown normal left ventricular systolic function with mild mitral valve regurgitation and prolapse. Her social history included occasional marijuana use but no alcohol or tobacco. Her only home medication was a hormonal oral contraceptive (OCP), desogestrel-ethinyl estradiol, which she had been taking for 4 years.

At the current presentation, the patient reported no chest pain, dyspnea, or correlation between her palpitations and dizziness. She stated that her symptoms were

improving as she aged. An electrocardiogram showed nothing notable. Given the lack of documented arrhythmias, her symptoms were thought to be vagally mediated consequent to dehydration and baseline low blood pressure. She was advised to stay hydrated, with liberal salt intake if symptomatic. She declined placement of an event monitor to evaluate her palpitations, so a TTE was obtained. It showed a mobile, 1.2-cm-long mass in the right atrium (Fig. 1). Cardiac magnetic resonance images showed a 1.2-cm-long mass of low signal intensity with a thin fibrous stalk attached to the interatrial septum, compatible with an atrial myxoma (Fig. 2). Cardiac surgeons suggested watchful waiting, given the small size of the mass. Neither an electroencephalogram nor a sleep study revealed evidence of seizure activity or underlying sleep apnea that might explain the patient's syncope and fatigue.

Nine months after the patient's initial visit, a TTE showed a mass now 2.1 cm long (Fig. 3), and the patient was referred for cardiac surgery. During surgery, 2 masses, dusky in color with thin fibrous attachments to the posterior RA wall, were seen and excised (Fig. 4). The patient recovered uneventfully and was discharged from the hospital on postoperative day 2 with no dizziness or palpitations.

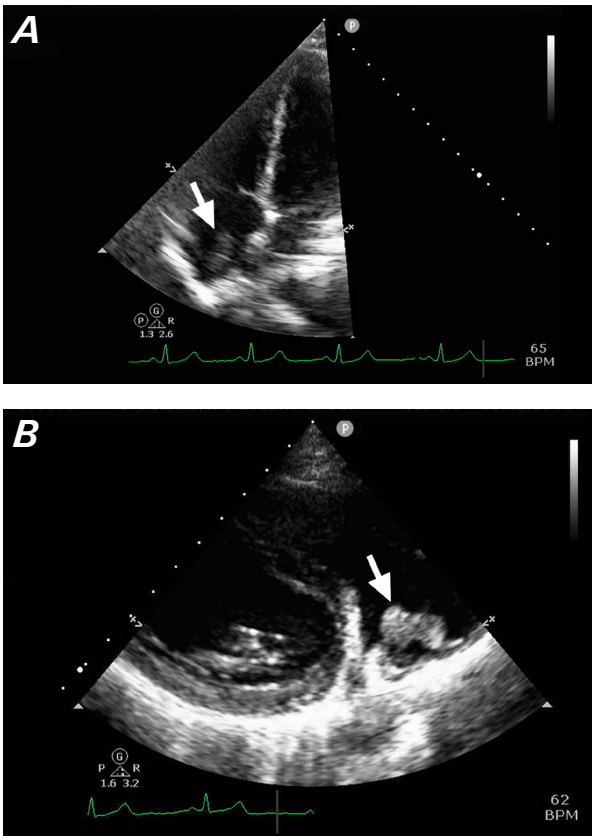

Fig. 1 *Transthoracic echocardiograms in* ***A****) apical 4-chamber and* ***B****) parasternal short-axis views show a 1.2-cm-long right atrial mass (arrows).*

Postoperative pathologic evaluation of the masses unexpectedly revealed organizing thrombus, not myxoma (Fig. 5). On this basis, we evaluated the patient for hypercoagulable disorders such as APS, protein C and protein S deficiency, antithrombin deficiency, factor V mutation, homocysteinemia, and prothrombin gene mutation. Immunoassay results were positive for immunoglobulin M (IgM) antiphosphatidylserine antibody; results were negative for the remainder of the APS panel, including lupus anticoagulant (LAC), anticardiolipin (aCL) antibody, and anti-β2-glycoprotein I (aβ2GPI) antibody. The patient agreed to discontinue the OCP but hesitated to start systemic anticoagulation therapy; hematologic oncologists talked with her and agreed that this therapy was not necessary. Thereafter, annual TTEs showed no recurrence of masses.

Discussion

Primary cardiac tumors have a reported incidence of less than 0.1%, whereas metastatic involvement of the heart is far more frequent.[5] Thrombus, the most typical intracardiac mass, is usually seen in the presence of atrial fibrillation, mitral stenosis, or impaired global wall motion,[6] and usually in the left atrial appendage or left ventricle. Rarer RA thrombi are usually associated with central venous catheter placement or pulmonary embolism. Our patient's presentation is unique because of 2 possible contributors to an underlying hypercoagulable state: an uncommon antiphospholipid antibody, and use of OCPs. Although we found in the literature no reports of cardiac thrombi associated with hormonal contraceptives, thrombi have been associated with APS. Furthermore, our patient had a cardiac thrombus in the absence of arterial or venous thrombosis, and without

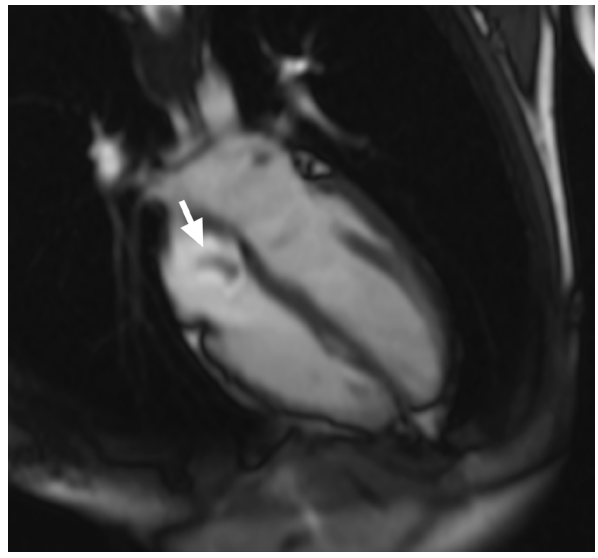

Fig. 2 *Cardiac magnetic resonance image (4-chamber long-axis view) shows a right atrial mass of low signal intensity (arrow).*

the classic pattern of LAC, aCL, or aβ2GPI antibody positivity. Patients with APS and intracardiac thrombi have presented with thrombocytopenia and positivity for one or more of those antibodies.[7-9] The clinical significance of the antiphosphatidylserine antibody is unclear. In a prospective observational study,[10] an independent association was found between this antibody and primary APS.

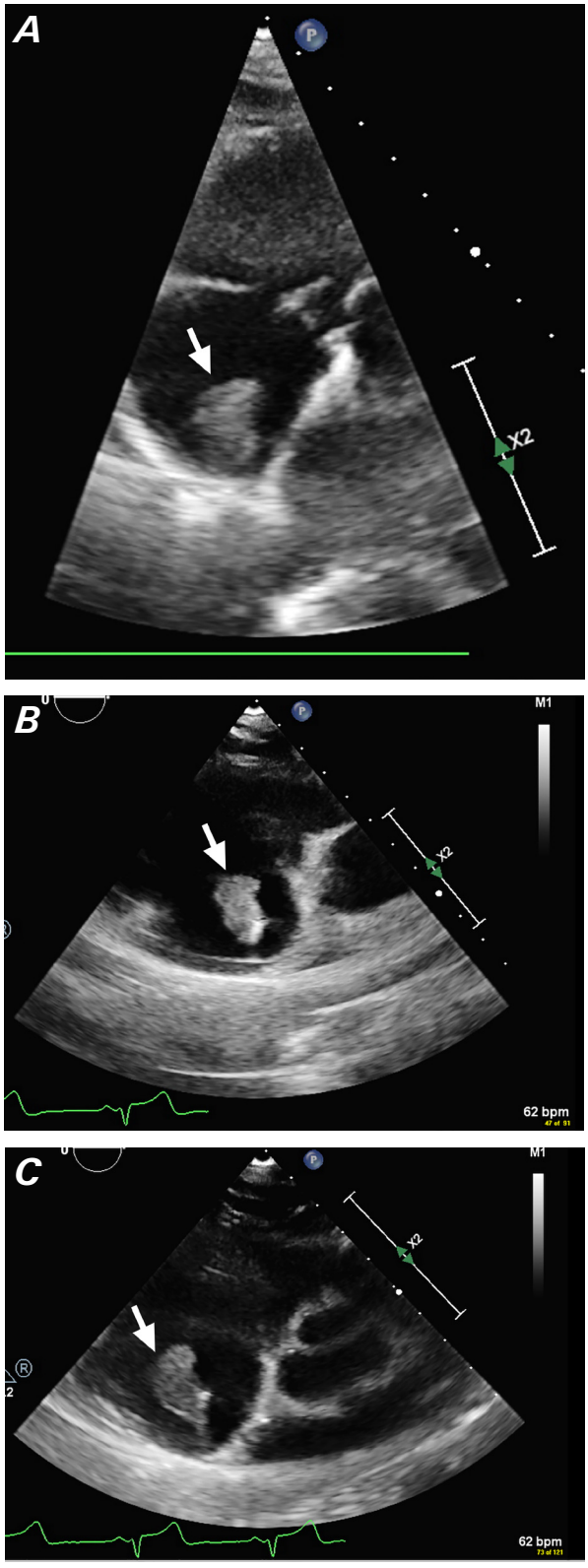

Fig. 3 *Transthoracic echocardiograms in **A**) apical 4-chamber, **B**) subcostal, and **C**) parasternal short-axis views show a 2.1-cm-long right atrial mass (arrows).*

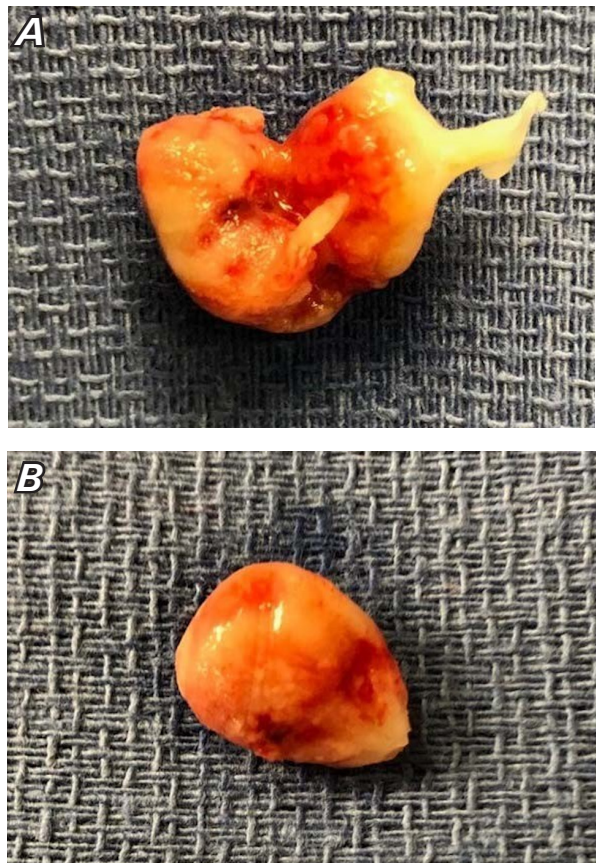

Fig. 4 *Photographs after excision show **A**) the previously identified right atrial mass with its stalk, and **B**) the second mass, found intraoperatively.*

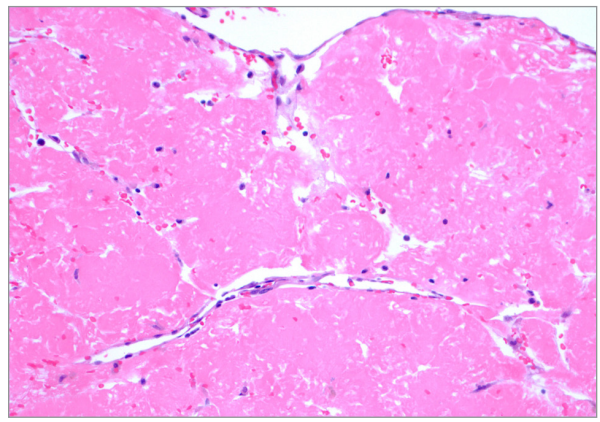

Fig. 5 *Photomicrograph shows organizing thrombus (H & E, orig. ×200).*

Conclusion

To our knowledge, this is the first report of RA thrombus in a patient with IgM antiphosphatidylserine antibodies who was taking an OCP and who had no vascular thrombosis or thrombophilia. Noninvasive images, including cardiac magnetic resonance, suggested myxoma; however, the pathology report identifying thrombus in our patient indicates the need for pathologic confirmation before a diagnosis of myxoma. In addition to obtaining the usual APS profile, which includes LAC, aCL and aβ2GPI, it is also prudent to evaluate antiphosphatidylserine in patients who may have an underlying hypercoagulable disorder. This case suggests the need to examine further the role of antiphosphatidylserine antibodies in the diagnosis of APS.

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