Thrombus entrapped in a patent foramen ovale, causing only vague symptoms

Belirsiz bulgularla kendini gösteren, açık foramen ovalede yakalanmış bir trombüs

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Patent foramen ovale provides a passage from venous circulation to arterial circulation. This may allow passage of a thrombus formed in the venous system into the systemic circulation. We present a case in which a thrombus was entrapped in a patent foramen ovale. A 45-year-old woman presented with complaints of atypical chest pain and pretibial edema. Transthoracic echocardiography showed normal systolic function and grade I diastolic dysfunction. Pulmonary artery pressure was 43 mmHg. There was a mobile multilobular mass in the right atrium, attached to the interatrial septum via a thin pedicle. Transesophageal echocardiography showed a biatrial mass. It was 7-10 mm thick, multilobular, homogeneously echogenic, and highly mobile. It passed through the patent foramen ovale into the left atrium. The left atrial part was 6-8 mm thick, relatively shorter, and less mobile. The patient denied any symptoms related to a cerebrovascular accident. Heparin was initiated and an urgent operation was decided. Intraoperative transesophageal echocardiography showed that the mass was a thrombus which had become smaller due to anticoagulation. She had no neurologic symptoms postoperatively. Venous Doppler examination revealed deep vein thrombosis and warfarin was started.

Key words: Echocardiography; embolism, paradoxical; foramen ovale, patent/diagnosis/surgery; pulmonary embolism; thrombectomy; thrombosis/diagnosis.

Foramen ovale açıklığı venöz dolaşımdan arteryel dolaşıma bir geçiş sağlar. Bu geçiş, venöz sistemde oluşan pıhtıların sistemik dolaşıma geçmesine neden olabilir. Bu yazıda açık foramen ovalede yakalanmış bir trombüs olgusu sunuldu. Kırk beş yaşında kadın hasta atipik göğüs ağrısı ve pretibial ödem yakınmalarıyla başvurdu. Transtorasik ekokardiyografide sistolik fonksiyon normal bulunurken, derece I diyastolik disfonksiyon saptandı. Pulmoner arter basıncı 43 mmHg idi. Sağ atriyumda, interatriyal septuma ince bir pedikülle tutunmuş, hareketli, lobüllü bir kitle görüldü. Transözofageal ekokardiyografi kitlenin iki atriyumda da bulunduğunu gösterdi. Kalınlığı 7-10 mm olan kitle, lobüllü, homojen ekojenik ve oldukça hareketliydi. Foramen ovale açıklığından sol atriyuma geçiyordu. Atriyum kısmında kalınlığı 6-8 mm, daha kısa ve daha az hareketliydi. Hastada kardiyovasküler olayla ilişkili olabilecek herhangi bir yakınma ya da bulgu yoktu. Heparin tedavisine başlanan hasta için acil ameliyata karar verildi. Ameliyat sırasındaki transözofageal ekokardiyografide kitlenin trombüs olduğu ve antikoagülan tedaviyle küçüldüğü izlendi. Ameliyat sonrasında hastada herhangi bir nörolojik bulgu görülmedi. Venöz Doppler incelemesinde derin ven trombozu saptanması üzerine warfarin tedavisine başlandı.

Anahtar sözcükler: Ekokardiyografi; embolizm, paradoksal; foramen ovale açıklığı/tanı/cerrahi; pulmoner embolizm; trombektomi; tromboz/tanı.

The right atrium is a frequent localization for cardiac masses. Echocardiography, both transthoracic and transesophageal, is the method of choice in the evaluation of these masses. The elongated Eustachian valve or the Chiari network account for the majority of these masses,[1] but thrombus or tumors are also common.

CASE REPORT

A 45-year-old female patient presented to our outpatient clinic with complaints of atypical chest pain and pretibial edema. She was referred to the echocardiography laboratory for examination of systolic and diastolic functions. Transthoracic echocardiography

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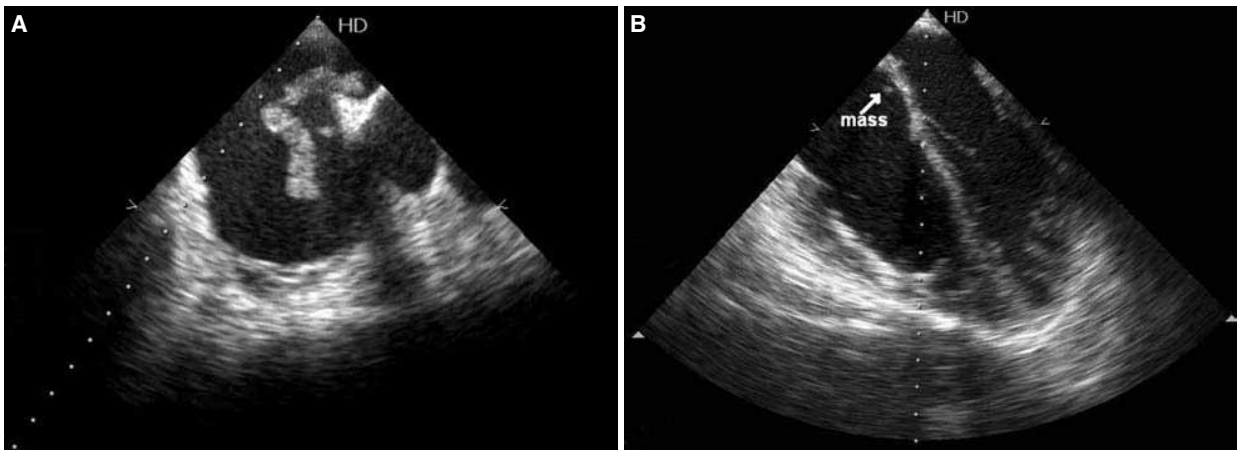

Figure 1. (A) Transesophageal echocardiography (TEE) showing a right atrial mass in the patent foramen ovale. **(B)** Intraoperative TEE showing the decreased size of the mass due to anticoagulation.

showed normal systolic function and grade I diastolic dysfunction. Pulmonary artery pressure was 43 mmHg. There was a mobile multilobular mass in the right atrium, attached to the interatrial septum via a thin pedicle. The left atrium seemed to be free of any mass lesion, but the examiner was suspicious about the posterior of the aortic valve because of poor visualization. For better delineation of the atria, emergent transesophageal echocardiography (TEE) was performed after a five-hour fasting, which showed a biatrial mass (Fig. 1a). It was 7-10 mm thick, multilobular, homogeneously echogenic, and highly mobile. It passed through the patent foramen ovale into the left atrium. The left atrial part was 6-8 mm thick, relatively shorter, and less mobile. The patient was interrogated in detail, but she denied any symptom related to a cerebrovascular accident; she sometimes had dyspnea resolving within a few days. Heparin was initiated and an urgent operation was decided. Intraoperative TEE showed that the mass was a thrombus which had become smaller due to anticoagulation (Fig. 1b). Postoperative neurologic examination showed no abnormality. Venous Doppler examination revealed deep vein thrombosis and warfarin was started.

DISCUSSION

Right atrial thrombus entrapped in a patent foramen ovale is a rare condition. It is usually associated with pulmonary embolism or paradoxical embolism.[1-5] It is generally regarded as an impending paradoxical embolus because of its high potential to result in systemic embolism. In our case, the patient denied any symptom suggesting systemic embolism. The reason might be that the patient had not experienced systemic embolism or the symptoms were so vague to be noticed. Although there was no documented attack of pulmonary embolism, pulmonary artery pressure was mildly elevated and there were some episodes of dyspnea that might be related to pulmonary microembolism.

The treatment of an entrapped thrombus may be either medical or surgical. Medical treatment includes anticoagulant therapy with or without thrombolytic agents.[6,7] Due to risk for systemic emboli during medical treatment, surgical approach seems to be a better choice, especially in patients without comorbidities.[8] Complete disappearance without treatment was also reported.[9] In the present case, the thrombus became smaller but did not disappear, however, the operation was still indicated to clear the entire atria and close the patent foramen ovale. The major problem for surgery in these patients is that most of the cases have a highly predisposing condition such as cancer treatment or severe stroke.[8] In our case, the medical condition of the patient was not severe; therefore, we performed surgical removal of the remnants of the thrombus and closure of the patent foramen ovale. In such cases, possible predisposing conditions should be investigated. In this patient, deep vein thrombosis was detected, requiring life-long anticoagulation. Apart from deep vein thrombosis, other predisposing conditions such as antiphospholipid syndrome, Behçet's disease, various malignancies, and bedridden living should also be investigated.

Systemic embolism, especially cerebrovascular thromboembolism is the major complication in patients having coagulation abnormalities along with a patent foramen ovale. Warfarin is indicated in such patients. Therefore, we prescribed warfarin so that the INR would be between 2.0 and 3.0.

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