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CASE REPORT

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Case Report: Tetris Ball In The Left Atrium

Vaka raporu: Sol Atriyal Tetris Topu Trombüs

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ABSTRACT

A free-floating ball thrombus in the left atrium is a rare and serious medical problem that can cause fatal systemic emboli or block the flow of blood into the left ventricle, which usually ends in sudden death.This report discusses a case of a significant left atrial thrombus that was found to be free-floating in an enlarged left atrium. A 73-year-old male, who had experienced a cerebrovascular infarction and hemorrhage five days earlier, along with a history of chronic atrial fibrillation, was referred to the cardiology department to investigate the embolic cause. A transthoracic echocardiogram identified a free-floating ball thrombus. Thrombolytic therapy was not recommended because there were areas of bleeding within the cerebrovascular infarction and the patient had a high risk profile The individual, with several comorbid conditions, a Glasgow Coma Scale score of 8, and right-sided hemiplegia, was classified as high-risk by the cardiovascular surgery team. In spite of the potential for bleeding complications, treatment with warfarin and unfractionated heparin was started. Subsequent evaluations indicated that the thrombus did not diminish in size. We lost our patient due to progressive heart failure and cardiogenic shock while anticoagulant treatment was continuing. As a result, in such cases, it is important to determine the treatment according to the patient's general condition, glaskow coma score, embolization and the risk of fatal bleeding.

Keywords: Tetris Ball Thrombus; Left Atrium; Mitral Valve

ÖZ

Sol atriyumda serbest yüzen bir top trombüs, ölümcül sistemik embolilere veya sol ventrikül girişinin tıkanmasına yol açabilen, genellikle ani ölümle sonuçlanan nadir ve ciddi bir tıbbi sorundur. Bu vaka raporunda, genişlemiş sol atriyumda serbestçe yüzdüğü tespit edilen önemli bir sol atriyal trombüs vakasını tartıştık. Beş gün önce serebrovasküler enfarktüs ve kanama geçiren ve kronik atriyal fibrilasyon öyküsü olan 73 yaşındaki erkek hasta, embolik nedenin araştırılması için kardiyoloji bölümüne sevk edildi. Transtorasik ekokardiyogramda serbest yüzen bir top trombüs tespit edildi. Serebrovasküler enfarktüs içinde hemorajik bölgelerin varlığı ve hastanın yüksek risk profili nedeniyle trombolitik tedavi uygun görülmedi. Komorbiditesi yüksek olan, Glasgow Koma Skalası skoru 8 olan ve sağ taraflı hemiplejisi bulunan hasta, kardiyovasküler cerrahi ekibi tarafından yüksek riskli olarak sınıflandırıldı. Kanama komplikasyonu potansiyeline rağmen, varfarin ve fraksiyone olmayan heparin ile tedaviye başlandı. Daha sonraki değerlendirmeler trombüsün boyutunun küçülmediğini gösterdi. Vakamızı antikoagulan tedavisi devam etmekteyken ilerleyen kalp yetmezliği ve kardiyojenik şok tablosundan kaybettik. Sonuç olarak bu gibi vakalarda hastada kar zarar oranına göre klinik kararı hastanın genel durumu glaskow koma skoru, embolizasyon ve ölümcül kanama riskine göre tedavi belirlenmesi önemlidir.

Anahtar Sözcükler: Trombüs, Sol Atriyum, Mitral Kapak

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Introduction

The left atrial free-floating ball thrombus is a rare clinical entity. The diagnosis of this condition has been made easier thanks to the availability and advancement of echocardiography and multi-detector row computed tomography (MDCT), and a considerable number of cases have been published.[1] An unattached, free-floating thrombus in the left atrium that is not touching the atrial wall or mitral leaflet is a rare condition that can lead to serious problems. It can have different signs and symptoms. Peripheral embolization of thrombus fragments can cause ischemia or infarction in the heart, brain, organs, or limbs. Syncope and/or pulmonary congestion occur due to partial or total obstruction of the normal opening of the mitral valve. We present a case of a free-floating ball thrombus in the left atrium. [2]

Case

A 77-year-old male patient was referred to cardiology while being monitored in the general intensive care unit due to a low glasgow coma scale following an acute cerebrovascular infarction 5 days prior. He had a history of hypertension and smoking, as well as known chronic atrial fibrillation. On physical examination, the patient was right hemiplegic, unconscious, and responded to painful stimuli by pulling away. Cardiac examination revealed a 3/6 systolic murmur, and his bilateral lower extremities were in a flexion posture. His electrocardiogram showed a heart rate of 65 beats per minute, consistent with atrial fibrillation. Vital signs included a blood pressure of 120/60 mmHg, a pulse rate of 65 beats per minute, and a respiratory rate of 20 breaths per minute, with no fever present.

We performed transthoracic echocardiography to investigate the embolic focus in this patient, who was in poor general condition. A ball-shaped thrombus, resembling a Tetrix ball, was observed in the left atrium, moving towards the mitral valve and then circulating back to the left atrium. The heart's ejection fraction was 45%, anterior wall is akinetic, and the aortic valve was calcified with mild aortic stenosis. The left atrium was enlarged, but there was only mild mitral regurgitation.

We classified the case as high-risk and sought the expertise of a cardiovascular surgeon.

It was concluded that surgery would be high-risk and that medical follow-up would be more appropriate. It was recommended that if treatment with warfarin did not result in regression, surgery should be considered. The risks were explained to the patient and their relatives, and a joint decision was made to proceed with warfarin treatment due to the high risk of surgery. The patient continues to receive treatment with heparin and warfarin in the intensive care unit. On follow up, we lost our patient due to progressive heart failure and cardiogenic shock while anticoagulant treatment was continuing.

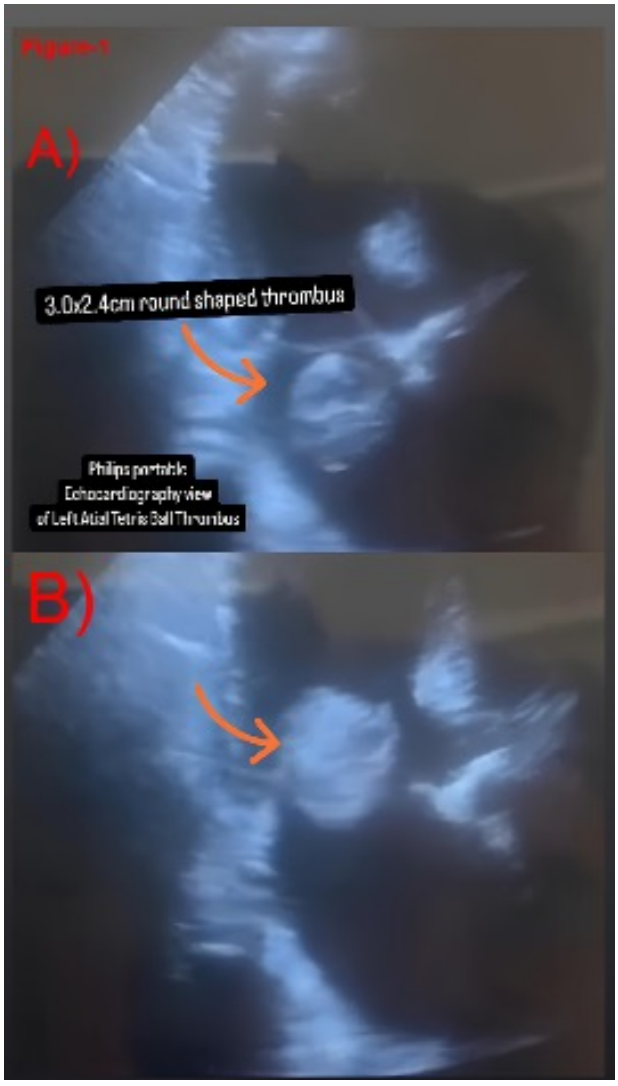

Figure 1- A) Echocardiographic image of a moving tetrix ball thrombus in the left atrium with Philips portable echocardiography device. B) Ping Pong Ball Thrombus in Left Atrium : A ball-shaped thrombus, resembling a Tetrix ball, was observed in the left atrium, moving towards the mitral

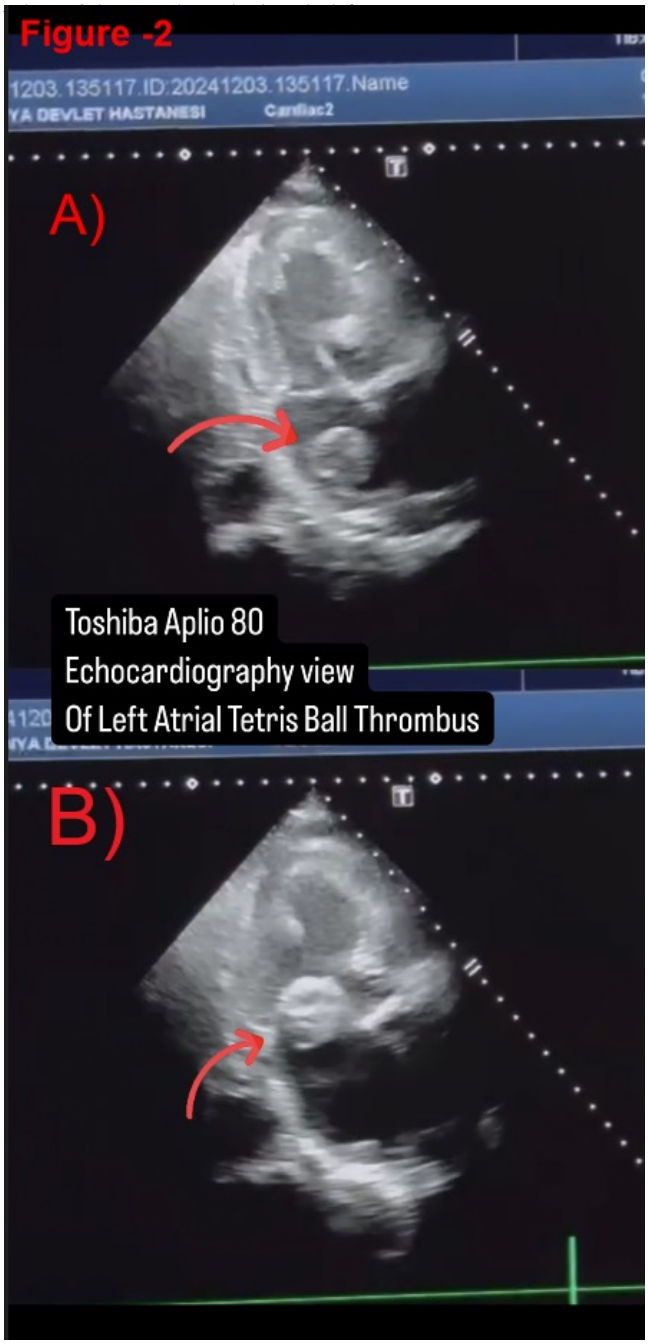

Figure 2- A) Echocardiographic image of moving tetrix ball thrombus in the left atrium with Toshiba Aplio 80 echocardiography device. B) Toshiba Aplio 80 echocardiogram showing a moving tetrix ball thrombus in the left atrium trying to pass through the mitral valve

Discussion

Medical conditions that may result in left atrial thrombi include stenotic mitral valves, atrial fibrillation, an enlarged left atrium, prior mitral valve replacement, congestive heart failure, bradycardia, occluder material in the left atrium, thrombophilia, reduced cardiac output, myocarditis, hypertrophic cardiomyopathy, and infectious endocarditis. [2-5]

About 12% of patients with atrial fibrillation have a left atrial (LA) thrombus. Very seldom, a "ball thrombus" can form. Certain specialists believe this occurs due to the thrombus rotating and frequently impacting the left atrial wall and mitral valve apparatus, hence altering the heart's structure. Differentiating thrombi from myxomas is important because it affects treatment options. Differentiating myxomas from thrombi can be difficult, but the medical history and unique features are usually helpful. Echocardiography represents one of the most valuable non-invasive imaging modalities. Cardiac myxomas typically present as mobile masses with a thinly stalk connected to the atrial septum, demonstrating both movement and flexibility. [6-7] Thrombi, on the other hand, are typically non-mobile and have a broad-based attachment to the left atrial wall. However, if thrombi are pedunculated and mobile, as in our case, it is difficult to differentiate. The ultimate diagnosis is based on pathology. A medical history of mitral stenosis and left atrial enlargement supports the diagnosis of thrombus. Anticoagulation and follow-up care can help explain further. Anticoagulation therapy can resolve thrombi, but it won't alter myxomas. [7]

Ball thrombus is regarded as highly prone to embolism, but treatment is not formalized. Immediate thrombectomy is typically considered the best option, with a 90% survival rate. We offered the patient mitral valve replacement for valvular stenosis and ligation of the left atrial appendage. Although an occasional case of thrombus resolution by anticoagulation alone has been reported, this should only be attempted in very high-risk cases or patients refusing surgery because of some risk of fragmentation and embolization and postoperative regime will require anticoagulation therapy. İn clinical practice, ball thrombosis is a rare phenomenon. Urgent thrombectomy is recommended, and echocardiography may be employed for instantaneous monitoring throughout the time. [7] A number of managerial alternatives were taken into account. It was feared that anticoagulation or lysis might change the mass's size enough to pass through the mitral orifice but not the left ventricular outflow tract, which has a smaller cross-sectional area and lacks the mitral leaflets' protective mobility effect. This could result in a potentially fatal consequence. Transcatheter

options that employ electrocautery and/or aspiration procedures are new approaches to treating masses in the heart chambers. However, because of its size, the LA mass may be difficult to remove via a trans-septal technique. [8]

We looked for "ball thrombus" on PubMed to evaluate this rare condition, and we found 19 examples in the last ten years. The average age of the 12 females and 7 males is 54.8 years. There are several thrombi in three cases. Regarding the first symptom, cerebral embolism occurred in 4 cases and heart failure in 11 cases, whereas twelve cases underwent surgery. Two people died, one from increasing heart failure and the other from thrombosis obstructing the left ventricular inflow tract. [7] And in our case, we lost our patient to cardiogenic shock due to progressive heart failure.

In conclusion, in such cases, which may rarely occur in the elderly population with rheumatic valvular disease and atrial fibrillation, it is recommended to make a clinical decision according to the patient's general condition, glasgow coma scale, embolization and the risk of fatal bleeding.

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Ethics Committee Approval: The study followed the ethical principles outlined in the 1964 Declaration of Helsinki and its later amendments. Informed consent form for case presentation was obtained from the patient and/or his/her relatives.

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