

A left atrial calcified amorphous tumor

Sol atriyal kalsifiye amorf tümör

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ABSTRACT

In this article, we present a 82-year-old female case without any previous history of heart disease diagnosed with a hyperdense mass originating in left atrial side of the interatrial septum on echocardiography. The patient was scheduled for surgery. Left atrium was entered through the interatrial groove. The tumor was found attached to the interatrial septum. It was macroscopically creamish-yellow colored, 20x10 mm in size and solid in texture. It was totally resected from its attachments to the interatrial septum. Light microscopy showed polypoid formations with prominent papillary structures including scattered hyalinized areas and large areas of calcification. The mass was pathologically diagnosed as cardiac calcified amorphous tumor. She was discharged under medical treatment on seventh day after surgery.

Keywords: Calcified amorphous tumor; left atrium; surgery.

A calcified amorphous tumor (CAT) of the heart is extremely rare and most commonly originates in the endocardium of the right or left ventricle. Its pathogenesis has yet to be established.^[1] The mass should be differentiated from a variety of lesions, including cardiac myxomas, fibromas, thrombi, vegetation, and malignant tumors, and a definitive diagnosis warrants histopathological confirmation after surgery. In this paper, we present a patient with CAT of the heart, describe the surgical treatment, and review the related literature.

CASE REPORT

An 82-year-old woman with no previous history of heart disease presented to our facility with shortness

ÖZ

Bu yazıda, daha önceden kalp hastalığı öyküsü olmayan ve ekokardiyografide interatriyal septumun sol atriyum yüzeyinden köken alan hiperdens bir kitle tanısı konulan 82 yaşında bir kadın olgu sunuldu. Hastaya cerrahi planlandı. Sol atriyuma interatriyal oluktan girildi. Tümörün interatriyal septuma tutunduğu görüldü. Kitle makroskopik olarak kremi-sarı renkte ve 20x10 mm boyutlarında ve solid yapıdaydı. Kitle interatriyal septuma tutunduğu bölgeden tamamen çıkarıldı. Işık mikroskopisinde hiyalinize alanlar ve geniş kalsifikasyon alanları içeren belirgin papiller yapılarla birlikte polipoid oluşumlar görüldü. Kitlenin patolojik tanısı kardiyak kalsifiye amorf tümör olarak konuldu. Hasta ameliyat sonrası yedinci gün tıbbi tedavi ile taburcu edildi.

Anahtar sözcükler: Kalsifiye amorf tümör; sol atriyum; cerrahi.

of breath and fatigue. Her heart rate was 90 bpm, her blood pressure was 110/70 mmHg, and her respiratory rate was 20 breaths per minute. In addition, her electrocardiogram was normal except for a few premature extra atrial systoles, and there were no abnormal findings on her chest X-ray. Furthermore, her chemical analysis and complete blood count were within normal ranges. However, transthoracic echocardiography (TTE) revealed a hyperdense floating mass in the left atrium, and transesophageal echocardiography showed a hyperdense mass originating in the left atrial side of the interatrial septum and extending through the left atrial cavity (Figure 1). However, full-body computed tomography showed no tumor involvement elsewhere.



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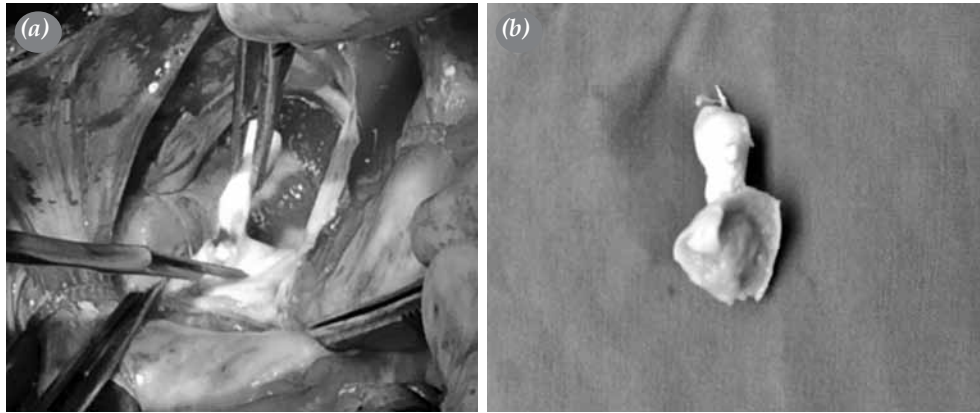


Figure 1. (a) On the left is the operative view of the cardiac calcified amorphous tumor, and (b) on the right is the macroscopic view of the tumor.

The patient was scheduled for surgery, and the operation was performed under general anesthesia. A median sternotomy was carried out and cardiopulmonary bypass (CPB) was established via a standardized aortic-bicaval fashion. The left atrium was entered through the interatrial groove, and a solid, creamish-yellow tumor measuring 10x20 mm was found attached to the interatrial septum (Figure 2). A total resection was then performed to separate it from the interatrial septum. The right atrium was then opened via an oblique incision, and the defect created in the interatrial septum was primarily closed. After complete rewarming, the patient was weaned from the CPB, and the rest of the surgery proceeded uneventfully. A histopathological examination of the lesion was performed, and light microscopy showed polypoid formations with prominent papillary structures in scattered hyalinized areas along with large areas of calcification (Figures 3). The mass was then diagnosed

as a cardiac CAT, and the patient's postoperative course continued without any complications. She was given beta blockers and acetylsalicylic acid and discharged on the seventh postoperative day.

DISCUSSION

Primary cardiac tumors are rare, with the most common being atrial myxomas.^[1] However, not all cardiac masses are neoplasms, which can also resemble intramural thrombi. Accurate diagnosis and successful resection of the tumor are of the utmost importance to prevent potential complications, such as systemic embolization and obstruction, from occurring, irrespective of the nature of the lesion. A cardiac CAT has been defined as a non-neoplastic lesion containing calcified nodules which develop within an amorphous fibrinous substance.^[2] With regard to the pathogenesis

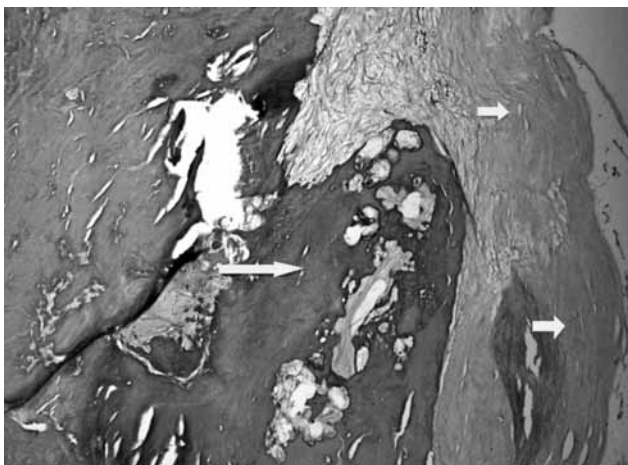


Figure 2. Hyalinized areas (small arrows) and calcification (big arrow) inside the tumor (H-E x 100).

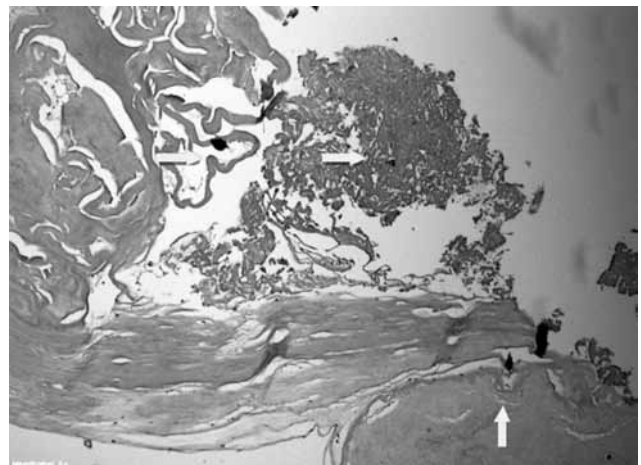


Figure 3. Hyalinized areas inside the polypoid formation (big arrow) and prominent papillary (small arrows) structures (H-E x 100).

of cardiac CATs, it is commonly believed that these lesions develop secondary to the calcification of the intramural thrombus. This seems reasonable since some patients with a cardiac CAT have predisposing factors for an increased risk of thrombosis, whereas others do not possess any risk factors. In previous reports, cardiac CATs varied from 2 to 65 mm in size.^[3,4] Viewed microscopically, it is easy to see this tumor composed of calcified nodules and eosinophilic substances which contain degenerated blood elements and chronic inflammatory cells.^[3-5]

In a series reported by the Mayo Clinic, Reynolds et al.^[5] found that there have been only 11 cases of cardiac CATs during the clinic's 29 years of experience. These CATs may manifest with dyspnea, syncope, or an embolism, which is similar to other intracardiac mass lesions. The use of TTE is crucial for diagnosing of these tumors, but histopathological confirmation is also needed to differentiate the lesion from a variety of conditions such as atrial myxomas, thrombi, embolisms, vegetation, fibromas, fibroelastomas, and malignant tumors.^[5-7] For our patient, the histopathological examination distinguished the mass lesion that we resected from a myxoma by revealing the absence of polygonal cells with myxoid areas. In addition, a papillary fibroelastoma could be ruled out because there were no elastic fibrillary myofibroblasts surrounded by endothelial cells. Cardiac fibromas were also not a possibility because the examination detected no fibrocytes.

Chaowalit et al.^[8] reported that the clinical course after CAT surgery is uneventful, although in some cases, residual calcium deposits remained and that a recurrence of a cardiac CAT was only seen in one young patient. The only mortality reported occurred in a 60-year-old woman who had a cardiac CAT in the right ventricle.^[9]

This case was interesting given that the tumor was detected in the left atrium. Our patient had no previous history of any cardiac disease or thromboembolism,

and she was also not carrying any of the known risk factors for thrombosis. In conclusion, the opinion that cardiac CATs develop secondary to calcification of the intracardiac thrombus may not always be true.

Declaration of conflicting interests

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