Turkish Journal of Thoracic and Cardiovascular Surgery 2019;27(2):224-226
http://dx.doi.org/doi: 10.5606/tgkdc.dergisi.2019.17573

Case Report / Olgu Sunumu

Surgical treatment of a calcified amorphous tumor originating from left atrium

Sol atriyum kaynaklı kalsifiye amorf tümörün cerrahi tedavisi

Mehtap Eroğlu[1], Muhammet Bozgüney[2], Tamer Eroğlu[3], Burak Açıkgöz[4]

Institution where the research was done:
Kayseri Training and Research Hospital, Kayseri, Turkey

Author Affiliations:
[1]Department of Pathology, Niğde Ömer Halisdemir Üniversitesi Faculty of Medicine, Niğde, Turkey
[2]Department of Cardiovascular Surgery, University of Health Sciences, Kayseri City Hospital, Kayseri, Turkey
[3]Department of Cardiovascular Surgery, Niğde Ömer Halisdemir Üniversitesi Faculty of Medicine, Niğde, Turkey
[4]Department of Cardiovascular Surgery, Bakırköy Dr. Sadi Konuk Training and Research Hospital, Istanbul, Turkey

ABSTRACT

Calcified amorphous tumor is a non-neoplastic tumor or intracavitary cardiac mass which is rarely seen in heart. It is frequently associated with left ventricle and mitral valve. Clinical symptoms varies from asymptomatic status to serious neurological and cardiopulmonary symptoms. Imaging studies such as echocardiography, computed tomography, or magnetic resonance imaging can reveal the mass preoperatively, although the exact diagnosis is done by pathological inspection of the specimen. Follow-up is recommended by echocardiography after surgical treatment due to its recurrence potential. Herein, we present a mass attached to the mitral valve posterior leaflet causing rather silent symptoms such as dyspnea and fatigue on exertion.

Keywords: Calcified amorphous tumor, diagnosis, surgical treatment.

ÖZ

Kalsifiye amorf tümör, kalpte nadir olarak görülen bir non-neoplastik tümör veya intrakaviter kardiyak kitledir. Sıklıkla sol ventrikül ve mitral kapak ile ilişkilidir. Klinik semptomlar asemptomatik durumdan ciddi nörolojik ve kardiyopulmoner semptomlara kadar çeşitlilik gösterir. Kitle ameliyat öncesinde ekokardiyografi, bilgisayarlı tomografi veya manyetik rezonans görüntüleme gibi görüntüleme çalışmaları ile gösterilebilse de, kesin tanı numunenin patolojik olarak incelenmesi ile konur. Tekrarlama olasılığı nedeniyle cerrahi tedavi sonrasında ekokardiyografi ile takip önerilmektedir. Bu yazıda mitral kapağın arka yaprakçığı ile ilişkili olan, eforla birlikte dispne ve yorgunluk gibi nispeten sessiz semptomlara neden olan bir kitle sunuldu.

Anahtar sözcükler: Kalsifiye amorf tümör, tanı, cerrahi tedavi.

Calcified amorphous tumors (CATs) of the heart are extremely rare non-neoplastic tumors or intracavitary cardiac masses. The rarity can be explained by a long-term study for 29 years conducted at the Mayo Clinic in Rochester, Minnesota, USA in which only 11 patients were diagnosed with a CAT.[1] The histological features of CATs include calcified nodules in an amorphous fibrinous background with degeneration and focal chronic inflammation.[1] The clinical presentation may be confused with calcified cardiac myxomas and calcified thrombi. The gold standard method for the diagnosis is histopathological examination.

Herein, we present a case of a CAT attached to the mitral valve posterior leaflet causing rather silent symptoms such as dyspnea and fatigue on exertion in the light of literature data.

CASE REPORT

A 56-year-old woman was admitted to our hospital with dyspnea and early fatigue with

Received: November 20, 2018 *Accepted:* January 15, 2019 *Published online:* April 24, 2019

Correspondence: Tamer Eroğlu, MD. Niğde Ömer Halisdemir Üniversitesi Tıp Fakültesi, Kalp ve Damar Cerrahisi Anabilim Dalı, 51240 Niğde, Turkey.
Tel: +90 505 - 391 40 80 e-mail: tameroglu77@gmail.com

Cite this article as:
Eroğlu M, Bozgüney M, Eroğlu T, Açıkgöz B. Surgical treatment of a calcified amorphous tumor originating from left atrium. Turk Gogus Kalp Dama 2019;27(2):224-226

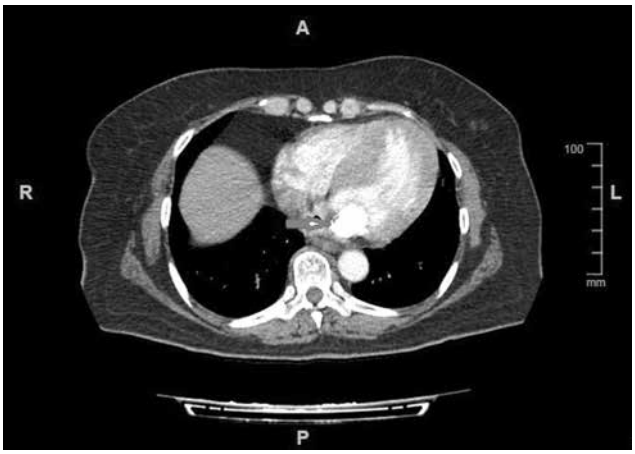

Figure 1. Cardiac computed tomography showing a calcified cardiac mass in mitral annulus with heavy mitral annular calcification.

exertion. The transthoracic and transesophageal echocardiography demonstrated a 2x3-cm immobile calcified mass in the left atrium attached to the mitral valve posterior leaflet with second-degree mitral insufficiency and an ejection fraction of 55 to 60%. Contrast-enhanced computed tomography demonstrated a 22×33 mm calcified mass localized in the mitral valve (Figure 1). Based on physical examination and imaging study findings, the patient was scheduled for surgery. A written informed consent was obtained from the patient.

After bicaval and aortic cannulation, cardiopulmonary bypass was initiated. The left atrium was exposed through a right atriotomy and interatrial septotomy. An immobile calcified mass adjacent to the annular side of the mitral valve posterior leaflet was detected intraoperatively. The mass was excised, and the sticky viscous contents were removed (Figures 2). Due to the involvement of the posterior leaflet, the defect in the leaflet was primarily repaired, after the excision of the mass. Postoperative transthoracic echocardiography demonstrated no cardiac mass left.

Histopathological examination of the mass showed an amorphous eosinophilic hyalinized material along with dense calcification (Figures 3). The patient was discharged without any complication in the postoperative sixth day. She was scheduled for regular follow-up. At 24 months of follow-up, transthoracic echocardiography demonstrated no mitral insufficiency and no recurrence of the tumor.

DISCUSSION

Primary cardiac tumors are rare and many of them are atrial myxomas.[2] It accounts for 50% of all benign cardiac tumors.[2] The single treatment option is the excision of the cardiac mass, independently of its nature, due to the potential risk of obstruction or embolization. Cardiac CATs are rare entities first described by Reynolds et al.[1] in 1997. Histologically, a cardiac CAT consists of calcified nodules in an amorphous fibrinous background with degeneration and focal chronic inflammation. Differential diagnosis includes cardiac calcified myxoma or fibroma, calcified cardiac tuberculoma, thrombi, embolism, vegetations, and intracardiac carcinosis, particularly in patients with end-stage renal disease

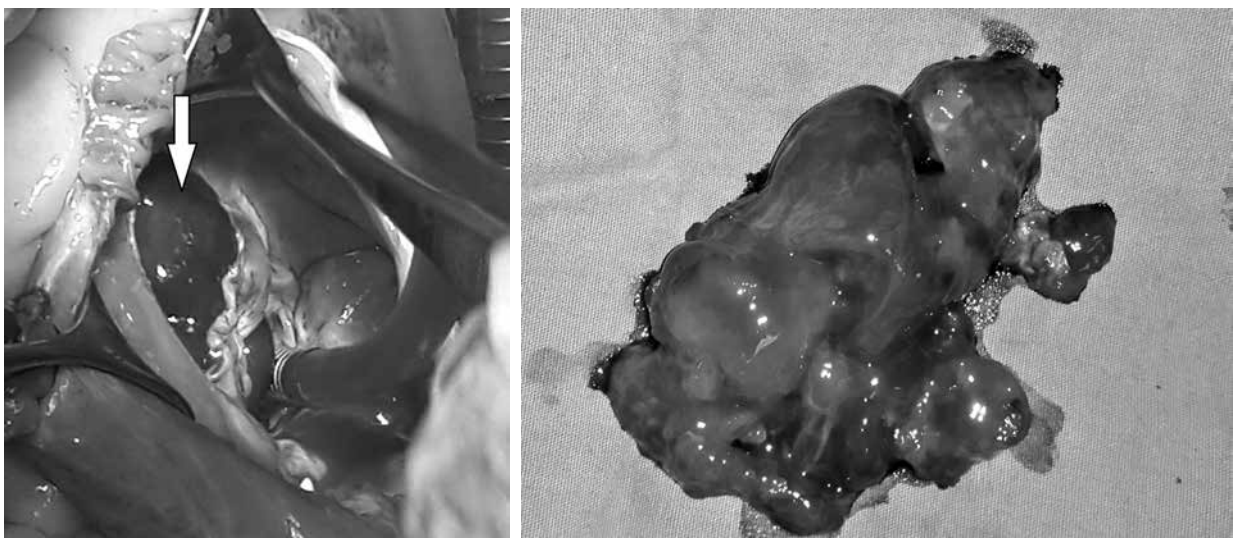

Figure 2. The gross appearance of mitral valve and resected calcified amorphous tumor.

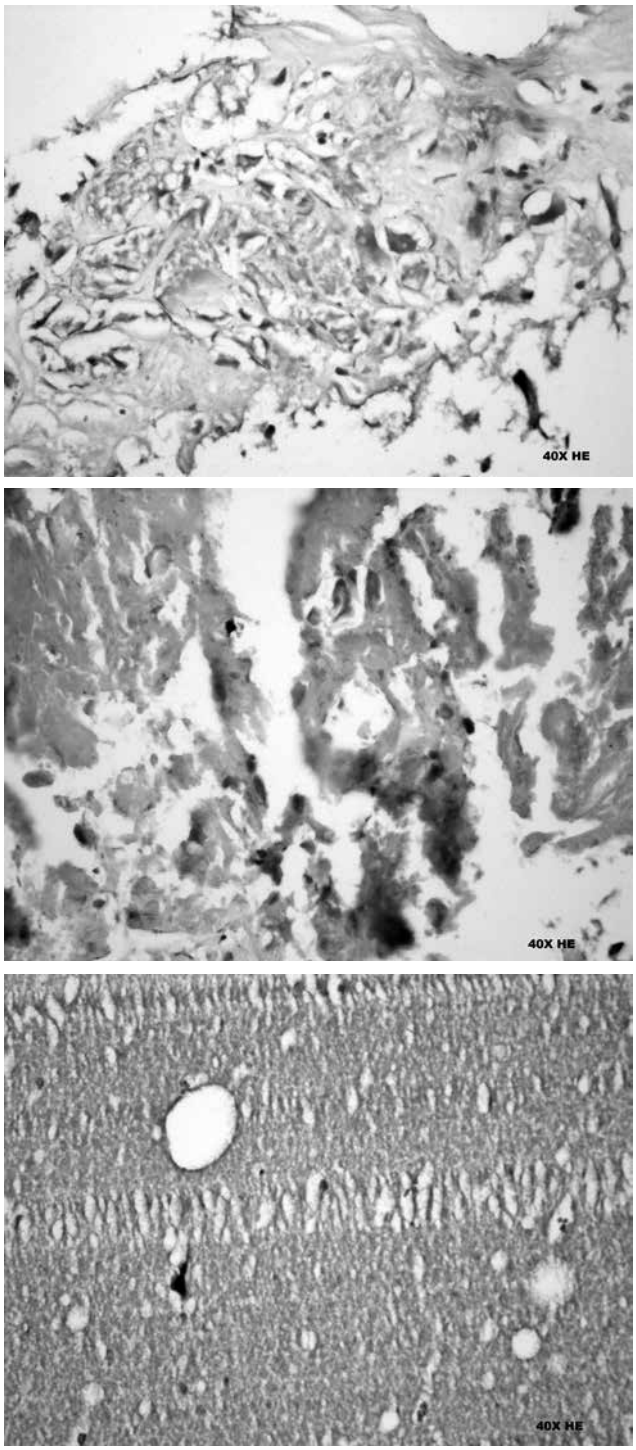

Figure 3. Histopathological examination of mass showing amorphous eosinophilic hyalinized material along with dense calcification (H-E×40).

receiving hemodialysis and with an impaired calcium and phosphorus metabolism.[3-5] Histopathological examination still remains the gold standard for the definite diagnosis of CATs.

Although cardiac CATs can grow in any chamber of the heart, they are predominantly localized in the left ventricle and mitral valve.[6] Tumor sizes range from 0.17 to 4 cm in their greatest dimensions with the mean size of 2.8 cm. There is a slight female predominance. In our case, the CAT was detected in the left atrium adjacent to the mitral valve annulus with a size of 1.5×2 cm.

The clinical presentation, which depends on the location and size of the mass, includes dyspnea, chest pain, syncope, and pulmonary or systemic embolism. Mobile CATs definitely indicate a greater risk of cerebrovascular events or systemic embolism than immobile amorphous tumors.[4]

Surgical excision is recommended, if the lesion is large or symptomatic, and surgery is curative, particularly for pedicled lesions. Postoperative recurrence has rarely been reported, particularly in patients not receiving a complete resection.[6] Therefore, these patients should be kept under follow-up after surgical excision through imaging studies.

In conclusion, cardiac calcified amorphous tumors are non-neoplastic rare cardiac tumors. The exact diagnosis is made based on pathological examination. Surgery is the only treatment option. Follow-up is recommended by imaging studies after surgical treatment due to its recurrence potential.

Declaration of conflicting interests

The authors declared no conflicts of interest with respect to the authorship and/or publication of this article.

Funding

The authors received no financial support for the research and/or authorship of this article.

REFERENCES

1. Reynolds C, Tazelaar HD, Edwards WD. Calcified amorphous tumor of the heart (cardiac CAT). Hum Pathol 1997;28:601-6.
2. Markel ML, Waller BF, Armstrong WF. Cardiac myxoma. A review. Medicine (Baltimore) 1987;66:114-25.
3. Pietro DA, Parisi AF. Intracardiac masses. Tumors, vegetations, thrombi, and foreign bodies. Med Clin North Am 1980;64:239-51.
4. Kubota H, Fujioka Y, Yoshino H, Koji H, Yoshihara K, Tonari K, et al. Cardiac swinging calcified amorphous tumors in end-stage renal failure patients. Ann Thorac Surg 2010;90:1692-4.
5. Aksut M, Onk OA, Sayar İ, Degirmenci H, Onk D, Erentug V. A left atrial calcified amorphous. Turk Gogus Kalp Dama 2015;23:346-8.
6. Choi EK, Ro JY, Ayala AG. Calcified amorphous tumor of the heart: case report and review of the literature. Methodist Debakey Cardiovasc J 2014;10:38-40.