

## A Rare Cardiac Mass: Late Diagnosis of a Giant Intracardiac Thrombus

Nadir Kardiyak Kitle: Geç Tanı Konulan Dev İtrakardiyak Trombüs.

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### Absract:

Atrial masses are rarely seen and sometimes large thrombus could be mixed with cardiac tumors. Intracardiac thrombus produces different symptoms according to the localization; when the thrombus is localized in the right atrium, it causes pulmonary embolism, and when it is localized in the left atrium, it causes peripheral arterial embolism, stroke, and even death. A 56-year-old female patient was operated on with an initial diagnosis of a cardiac tumor. However, the neoplastic growth was not detected in the histopathological examination of the mass and the removed tissue was fibroblastic connective tissue, which developed secondary to the thrombus.

**Key Words:** Thrombus, Cardiac Surgical Procedures, Rare Diseases

### Öz:

Atrial kitleler nadir görülmektedir ve bazen büyük trombüsler kardiyak tümörle karışabilir. İtrakardiyak trombüs bulunduğu yere göre değişik semptom verir; trombüs sağ atriumda olduğunda pulmoner emboliye neden olurken sol atriumda periferik arteriyel emboli, strok'a ve ölüme bile neden olabilir. 56 yaşındaki bayan hasta, kardiyak tümör ön tanısı ile opere edildi. Ancak kitlenin histopatolojik incelemesinde neoplastik oluşum saptanmadı ve organize trombüse sekonder geliştiği belirlendi.

**Anahtar Kelimeler:** Trombüs, Kardiyak Cerrahi işlemler, Nadir Hastalıklar

### Introduction

Atrial masses are rarely seen and frequently develop due to tumors, vegetation, and thrombus. The thrombus material within the cardiac cavity could mimic a tumor (2,9).

Intracardiac thrombus material could lead to severe complications ranging from transient cerebrovascular events to sudden death due to thromboembolism. Thromboembolic events could be observed in 10-20% of the patients with mitral

stenosis (3). In the current report, a refugee to Turkey with a giant left atrial mass, which developed due to delayed diagnosis of mitral stenosis, is presented.

The patient was operated on with the initial diagnosis of a cardiac tumor. However, neoplastic growth was not observed in the histopathological examination. The mass was a non-neoplastic structure composed of fibroblastic connective tissue areas, which developed secondary to an organized thrombus.

### Case report

A 56-year-old female patient was admitted to the cardiology clinic with complaints of dyspnea and palpitation. The preoperative trans thoracic echocardiography (TTE) revealed severe mitral stenosis (fibrocalcific changes were present in leaflets and mitral valve area was 1.01 cm<sup>2</sup>), intermediate-severe aortic insufficiency, intermediate-severe tricuspid insufficiency (pulmonary arterial pressure (PAP): 55mm Hg) were detected and the left ventricle ejection fraction (LVEF) was 55%, and the left atrium (LA) diameter was 5.35 cm. A calcified mobile mass of approximately 8x10 cm was detected in the left atrium. The patient was in sinus rhythm. The patient had no additional problems related to the other systems. Lymph nodes were normal. No pathology was observed in the chest radiography or abdominal ultrasonography. No critical coronary artery disease was detected in the preoperative coronary angiography of the patient. Informed consent was obtained from the patient before the operation.

### Surgical technique

Median sternotomy was performed under general anesthesia. Bicaval cannulation was performed by placing an arterial cannula and an antegrade cardioplegia cannula in the aorta and two cannulas in the inferior and the superior vena cava. A pulmonary vent cannula was placed. Cardiopulmonary bypass was initiated and intermediate-degree hypothermia was achieved. Following aortic cross clamping, tricuspid annuloplasty was planned, and the right atriotomy was completed under total cardiopulmonary bypass. The left atrium was accessed using the transatrial approach. A mass of approximately 8x10 cm, which completely occupied the left atrium and was dense in calcified and fibrotic tissues was excised (Figure 1). The excised mass

was surrounded by a sac and the thickness of the sac was approximately 1 cm. The left atrium was debrided with serum physiologic and the mitral valve was assessed.

The mitral valve leaflets were severely fibrocalcific and mitral orifices were severely narrowed. It was determined that the mitral valve was not suitable for the repair and the mitral valve was resected by placing a posterior leaflet. The mitral valve was replaced by a mechanical heart valve (CarboMedics, Inc.; Austin, Tx, no: 27) with single-layer polyester pledgeted suture; the atrial septum was closed and the tricuspid valve was assessed. There was severe insufficiency in tricuspid valve. Kay's annuloplasty was done to the tricuspid valve. The tricuspid valve was controlled intraoperatively and no leakage was observed. The right atrium was closed and the aortotomy was completed. The aortic valve was in the tricuspid structure and the valvular structure was not disturbed. There was no dilatation in the aortic root. A commissuroplasty was done on the aortic valve with pledgeted sutures. No insufficiency was observed during the intraoperative control. The patient was transferred to the intensive care unit at the end of the operation. The mass that was removed from the left atrium was sent to the pathology laboratory for the histopathological examination. Upon histopathological examination, connective tissue areas rich in collagen were observed and noneoplastic structures were observed (Figure 2). It was determined that these structures could be secondary to an organized thrombus.

In the control transthoracic echocardiography, which was conducted in the early postoperative period, the functional mechanical mitral valve (the maximum and the minimum gradients were 10 and 4 mm Hg, respectively) was observed; aortic valve insufficiency was not detected and mild tricuspid insufficiency (PAP: 30 mmHg) was detected; and the ejection fraction was 55% and

the left atrium diameter was 4.95 cm. No mass-thrombus was detected in the left atrium (Figure 3). The patient continues to be monitored without any health problems.

### Discussion

Thrombus, myxomas, lipomas, and non-myxomatous neoplasms are among the differential diagnoses of intracavitary cardiac masses. Cardiac myxoma is the most common benign primary cardiac tumor of the heart and it is generally observed in the left atrium. Cardiac thrombus is more frequently observed than myxoma. It is more frequently observed in the left atrium and the left atrial appendage and develops due to organic heart diseases (1).

In general, chest pain and congestive heart failure symptoms were observed in patients with atrial thrombus. Atrial thrombus produces different symptoms according to the localization; when the thrombus is localized in the right atrium, it causes pulmonary embolism, and when it is localized in the left atrium it might cause peripheral arterial embolism and stroke (2).

Moreover, the left atrial thrombus might lead to death by obstructing the mitral valve orifice and causing sudden collapse (3,4). TTE and transesophageal echocardiography (TEE) are used in the diagnosis of cardiac thrombus. However, it is reported that TEE is more effective in the left atrial appendage thrombus, in particular (5). The diagnosis of the patient was made with the assistance of TTE. In the present case, the patient had dyspnea and chest pain, yet there was no history of peripheral embolism or stroke. Left atrium thrombus is particularly observed in patients with atrial fibrillation who have rheumatic mitral stenosis. Sinus rhythm in these cases is quite rare (6). The present case had severe mitral stenosis, and intermediate-severe aortic and tricuspid valve insufficiency. The patient was in

normal sinus rhythm. According to the guidelines of the European Cardiology Society, tricuspid annuloplasty is a Class 1 indication in patients with severe tricuspid insufficiency who will undergo mitral valve surgery. Kay and De Vega procedures are frequently used annuloplasty methods for tricuspid valve repair (7). Recent studies demonstrate that aortic valve protective repair methods could be performed with low operative risk in selected cases (8). Upon assessment of the patient, it was observed that the mitral valve was severely fibrocalcific. As the mitral valve was not suitable for repair, it was replaced with a mechanical heart valve. In the aortic and the tricuspid valves, on the other hand, there was pure insufficiency with no degeneration or calcification. Plegid commissuroplasty was performed on the aortic valve; whereas Kay's annuloplasty was performed on the tricuspid valve.

It is difficult to differentiate a well-developed organized thrombus from a tumor. Recent diagnostic methods could be insufficient for the differential diagnosis. Organized large thrombus are generally immobile within the cardiac cavities. Well-developed, fibrotic, organized thrombus could be observed to be integrated with the atrium wall. In the literature, it is reported that the thrombolytic therapy is not effective in the treatment of the organized thrombus and open surgery is recommended (9).

In the current case, similar to the literature, at first the differential diagnosis of the resected left atrial mass, whether tumor or thrombus, could not be made. Moreover, the differential diagnosis could not be made during the intraoperative period. The diagnosis was made after the histopathological examination. In the literature review, other cases that contained this level of collective pathology were not found. The authors believe that the delayed diagnosis and treatment of the patient due to the civil war in Syria could be the cause of this.

### Conclusion

In patients with valvular diseases, intracardiac thrombus could develop and these patients should be monitored closely and the necessary interventions should be made before the development of decompensated heart failure. Furthermore, it should be kept in mind that the presence of thrombus secondary to valve disease could be detected in patients with valvular diseases and by considering the postoperative

pathological diagnosis of the mass, postoperative follow-up and treatment of the patient should be planned.

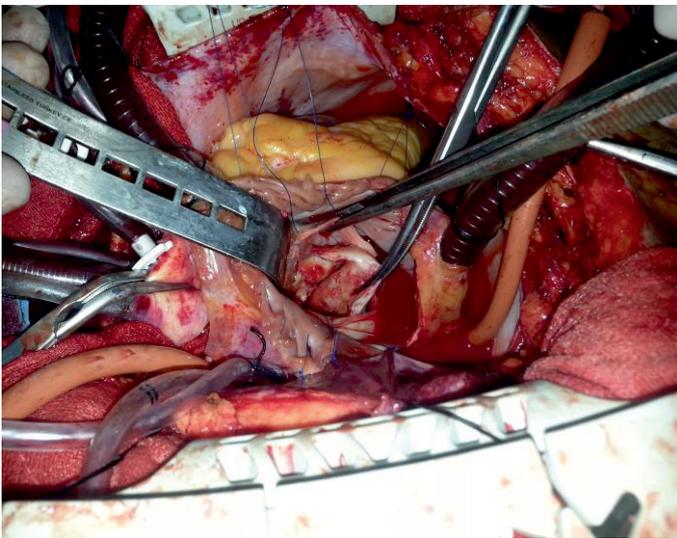
### Declaration of conflicting interests

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

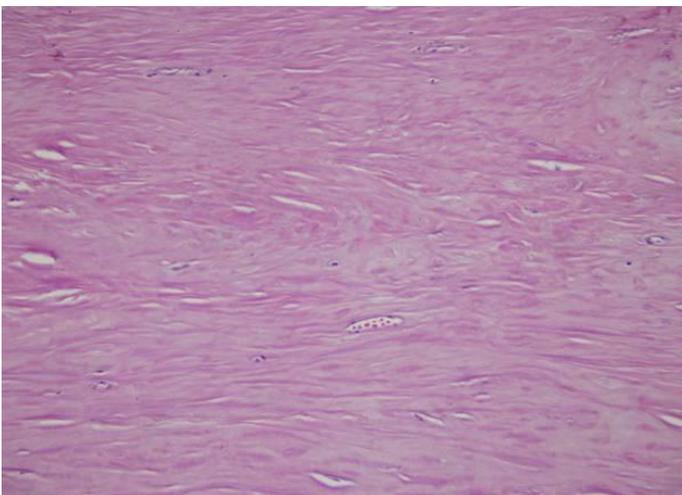
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**Figure 1.** The tissues removed from the left atrium and the sac from which the tissues were removed



**Figure 2.** Histopathological appearance of the mass removed from the left atrium



**Figure 3.** Postoperative TTE image of the patient; no foreign tissue is observed in the left atrium.



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