



## An aortic valve papillary fibroelastoma: A case report

### *Aort kapağının papiller fibroelastomu: Olgu sunumu*

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#### ABSTRACT

Papillary fibroelastomas are rare tumors of the heart, mostly involving the valves. They can be asymptomatic and diagnosed incidentally or they can cause life-threatening clinic scenarios including cerebrovascular accidents, coronary arterial occlusions, or peripheral embolisms. Papillary fibroelastomas can be easily excised surgically using valve sparing techniques with low complication rates and without recurrence. In this report, we present a case of papillary fibroelastoma which was found incidentally before coronary artery bypass grafting operation and successful removal of the lesion with a valve sparing approach.

**Keywords:** Aortic valve repair; coronary artery bypass grafting; papillary fibroelastoma; valve sparing surgery.

Papillary fibroelastomas are rare benign tumors of the heart. They can be found at different localizations, but mostly on valves, particularly on the aortic valve.<sup>[1]</sup> Papillary fibroelastomas are mostly asymptomatic and are incidentally recognized by echocardiography. Surgical excision is recommended for symptomatic patients and in patients undergoing cardiac surgery for other reasons, while necessity for surgery and timing should be discussed in asymptomatic patients.<sup>[2]</sup> Valve sparing surgery is recommended, particularly for fibroelastomas involving the valves; however, valve replacement may be performed, when necessary. Herein, we present excision of an incidental aortic valve papillary fibroelastoma, which was diagnosed before coronary artery bypass grafting (CABG) surgery, and a successful repair of the resulting defect using a pericardial patch.

#### ÖZ

Papiller fibroelastomlar sıklıkla kalp kapaklarını tutan, nadir görülen kalp tümörleridir. Asemptomatik olabileceği ve tesadüfen tanı alabileceği gibi, serebrovasküler olay, koroner arter oklüzyonları ve periferik emboliler gibi yaşamı tehdit eden klinik senaryolarla karşımıza çıkabilir. Papiller fibroelastomlar kapak koruyucu cerrahi teknikleri kullanılarak düşük komplikasyon oranları ile ve nüks olmaksızın cerrahi ile kolaylıkla eksize edilebilir. Bu yazıda, koroner arter baypas greftleme öncesi rastlantısal olarak saptanan papiller fibroelastomun kapak koruyucu yaklaşım ile başarılı bir şekilde çıkarıldığı bir olgu sunuldu.

**Anahtar sözcükler:** Aort kapak tamiri; koroner arter baypas greftleme; papiller fibroelastom; kapak koruyucu cerrahi.

#### CASE REPORT

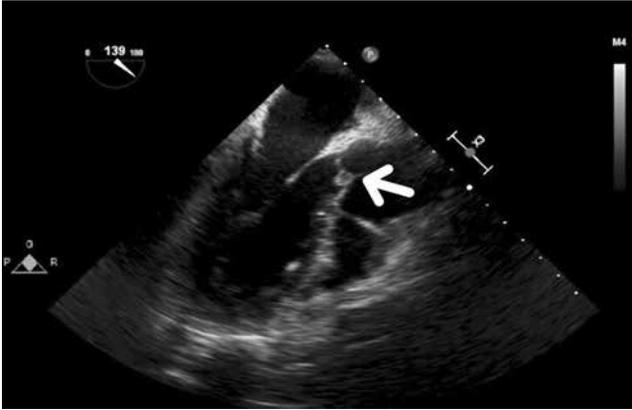
A 48-year-old male patient was admitted to our emergency department with chest pain. After physical examination, the patient was hospitalized with the diagnosis of unstable angina pectoris. Coronary angiography revealed three-vessel disease and decision for CABG was made. Preoperative echocardiography revealed a uniform mass sized 5x5 mm on the ventricular surface of the aortic valve (Figure 1). Diagnostic transesophageal echocardiography showed a mass conforming to a fibroelastoma on the right coronary cusp. Although the patient was asymptomatic, excision of the tumor was planned, as he was already scheduled for CABG surgery. A written informed consent was obtained from the patient.

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**Figure 1.** A transesophageal echocardiographic image of the mass on the right coronary cusp of the aortic valve.

### Operative technique

Following median sternotomy and routine aortic and right atrial cannulation, cardiopulmonary bypass was initiated. Cardiac arrest was established. After performing the distal anastomoses, aortotomy was made. A mass with a large base on the ventricular surface of right coronary cusp was seen and excised (Figure 2a, b). A 5x5 mm round pericardial patch was prepared to repair of the valve and fixated with glutaraldehyde. The defect on the aortic valve after excision was repaired with the pericardial patch using continuous 7-0 propylene sutures (Figure 3a, b). There was no significant leakage and sufficient coaptation

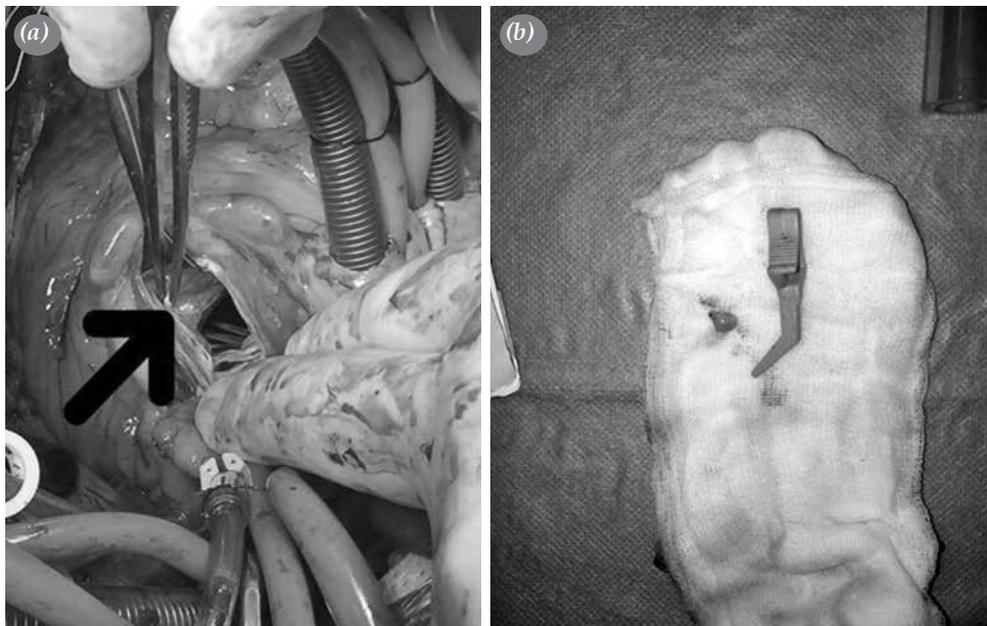
was achieved in saline infusion test. Repeated transesophageal echocardiography performed prior to termination of cardiopulmonary bypass showed no significant regurgitation or coaptation defect on aortic valve. The operation was ended in a routine fashion.

The patient recovered normally and was discharged on postoperative seventh day. The pathological diagnosis of the mass was reported as a papillary fibroelastoma (Figure 4). Postoperative transthoracic echocardiography at one and six months revealed normal structure and function of the aortic valve.

### DISCUSSION

Papillary fibroelastomas are thought to be the second most common tumors among primary cardiac tumors, accounting for approximately 10% of all primary cardiac neoplasms.<sup>[1]</sup> However, with the advanced echocardiographic techniques, recent studies have suggested that papillary fibroelastomas may be more frequent than myxomas.<sup>[2]</sup> Therefore, in several studies, fibroelastomas are reported to be the most common tumors of the heart valves.<sup>[3]</sup>

Papillary fibroelastomas can be found at different localizations on endocardium, but mostly on valves, particularly on aortic valve with a rate of about 50%. Approximately 80% of fibroelastomas on the aortic valve are located on the aortic side, while the other 20% are located on the ventricular surface.<sup>[2,4]</sup> Small sized fibroelastomas located on valves seem not to



**Figure 2.** An image of the mass on ventricular surface of the right coronary cusp (a) and the mass after excision (b).



**Figure 3.** Defect on the right coronary cusp after excision of the mass (a) and the valve after repair of the defect with a pericardial patch (b).

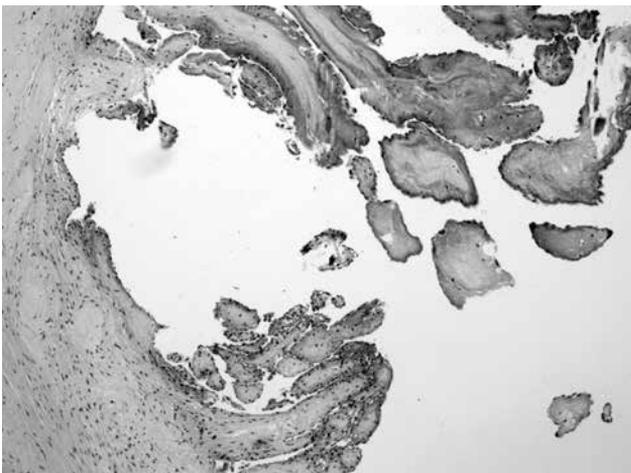
cause valve dysfunction. Similarly, the mass detected in our case was located on the aortic valve and did not lead to valve dysfunction. However, it was located on the ventricular surface, which is rarely seen.

Papillary fibroelastomas are mostly asymptomatic and incidentally recognized by echocardiography. Symptoms are usually caused by embolic events, and fibroelastomas often present with a transient ischemic attack or cerebrovascular accident.<sup>[2-4]</sup> Fibroelastomas may also cause angina, cardiac arrest, and even sudden

cardiac death.<sup>[3]</sup> Surgical excision is recommended for symptomatic patients and for patients undergoing cardiac surgery. In a study conducted by Gowda et al.,<sup>[5]</sup> surgical excision was recommended due to an increased embolic risk with masses measuring 1 cm or above and mobile, whereas conservative approach was recommended for nonmobile masses or masses below 1 cm. Correspondingly, Oz et al.<sup>[6]</sup> reported a successful removal of a large, mobile fibroelastoma without any neurological or cardiac complications.

In asymptomatic patients, whether and when to perform surgery is still a debate.<sup>[4]</sup> In a study by Tamin et al.,<sup>[2]</sup> no echocardiographic finding to identify the embolic risk could be found and surgical excision was recommended for asymptomatic patients at external centers with a high surgical experience. Valve sparing techniques are also recommended, instead of replacement, due to high success rates, low rates of postoperative valve dysfunction, and there is no reported recurrence in the literature.<sup>[2]</sup> We also preferred surgically excising papillary fibroelastoma in our asymptomatic patient who was scheduled for CABG and we repaired the defect on the aortic valve using a pericardial patch. The patient had normal aortic valve functions at six months postoperatively.

In conclusion, papillary fibroelastomas, although rare, are capable of causing major complications due to their location and embolic risk. In the literature, no



**Figure 4.** A histopathological image of the excised tumor (H-E×100).

consensus has been reached upon for the treatment. Based on our experience, we suggest that, due to low risk of postoperative complications, high success rate of valve sparing surgery, and lack of recurrence in the literature, surgical intervention is appropriate for symptomatic patients and asymptomatic patients who are scheduled for cardiac surgery for other reasons.

#### **Declaration of conflicting interests**

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