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Papillary fibroelastoma situated in the subvalvular structure of the mitral valve

Mitral kapak subvalvüler yerleşimli papiller fibroelastoma

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Cardiac papillary fibroelastomas (CPFs) are rare tumors.[1] They are the third most common primary cardiac tumor, following myxomas and lipomas, and the most common primary valvular tumor.[2-5] They usually occur on the left side of the heart, especially on the aortic valve.[6] However, involvement of the subvalvular structure of the mitral valve is uncommon. Although CPFs are benign in nature, they can cause severe thromboembolic complications regardless of the tumor size.[1,3,5,7,8] Therefore, surgical treatment is recommended to prevent this from happening.[2,4] Here we report a patient with papillary fibroelastoma of the subvalvular structure of the mitral valve that was treated surgically.

CASE REPORT

A 56-year-old male patient was admitted to our hospital with a history of stroke that had occurred two years previously. A physical examination revealed no abnormality except for left hemiparesis, and routine laboratory test results were normal. Transthoracic and transoesophageal echocardiograms revealed a mobile mass in the left ventricle beneath the posterior leaflet of the mitral valve near the posteromedial commissure (Figure 1a, b). An operation was performed via a median sternotomy and under cardiopulmonary bypass with aortic arterial and bicaval venous cannulation. The aorta was cross-clamped, and combined antegrade and retrograde blood cardioplegia was used to preserve the

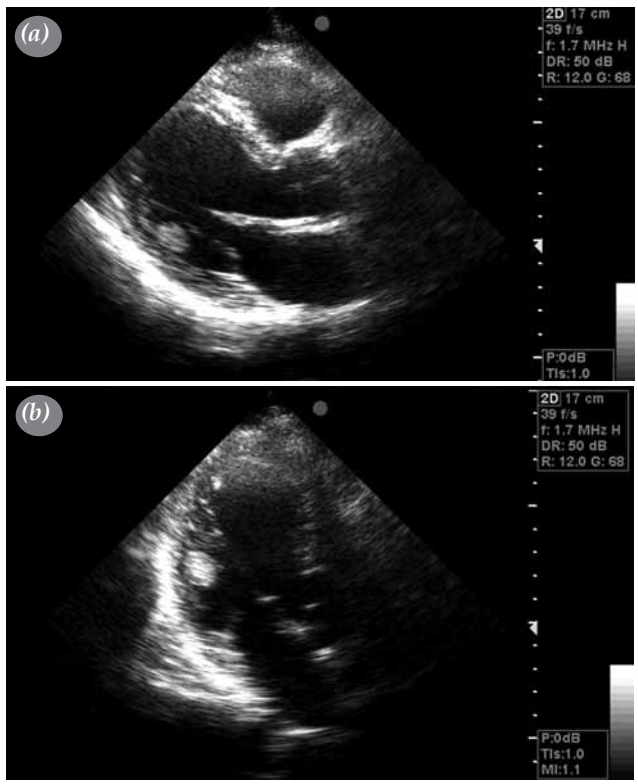

Figure 1. (a) Parasternal long axis view demonstrating the mass in the left ventricular cavity located between the posterior wall and the chordae tendineae. **(b)** Apical long axis view demonstrating the spherical hyperechogenic mass located beneath the posterior leaflet of the mitral valve.

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Figure 2. The left atrial tissue was retracted using pledgeted sutures to better visualize the subvalvular structure.

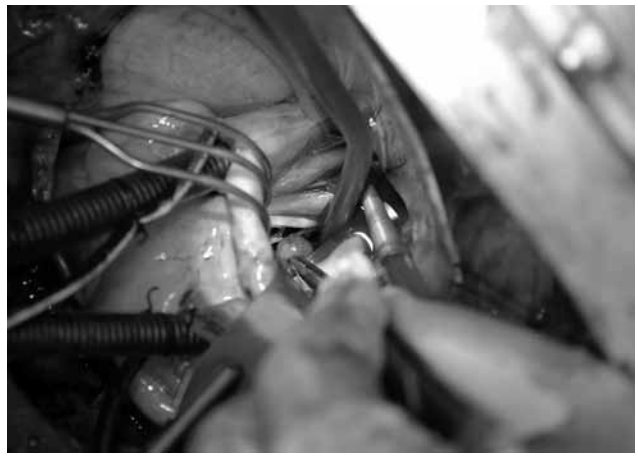

Figure 3. Intraoperative view.

myocardium. The patient also underwent a left atriotomy in which we retracted the left atrial tissue using pledgeted sutures to improve the exposure of the mitral valve and to visualize the subvalvular structure (Figure 2). The tumor, which was attached to the left ventricular wall in the subvalvular structure beneath the posterior leaflet of the mitral valve, was carefully removed in its entirety (Figure 3). The valvular and subvalvular structures were not affected; therefore, intervention to the mitral valve was not needed. The semi-transparent, grey mass was fragile in nature and measured 16x18x17 mm (Figure 4). We then carefully inspected the exposed chambers to eliminate the multiple presence of the tumor. A histopathological examination of the mass conducted afterwards confirmed the diagnosis of CPF (Figure 5), and the early and late postoperative periods were uneventful.

DISCUSSION

The real pathogenesis of CPF is still unknown,[1] and it accounts for approximately 7-15% of all primary cardiac tumors.[2-3] Cardiac papillary fibroelastomas are rare benign cardiac tumors that have an incidence of 0.001-0.030% and are accepted as the most common primary valvular solitary tumor.[3,5,6] They originate from endocardial tissue[5] and are most frequent located in the aortic valve (29%), followed by the mitral valve (25%).[2,5,6] However, chordal and subvalvular involvement of the mitral valve rarely occurs with CPF.[2]

Transthoracic echocardiography is the most common noninvasive method for diagnosis[5] since it shows the location of the tumor and reveals the relationship with adjacent structures. Transesophageal echocardiography can be used for a more detailed evaluation of left atrial and mitral valve involvement.[5]

Most of the reported cases involved patients who were diagnosed in their fourth or fifth decades.[5] Cardiac papillary fibroelastomas are usually symptomatic and

Figure 4. External view of the removed tumor.

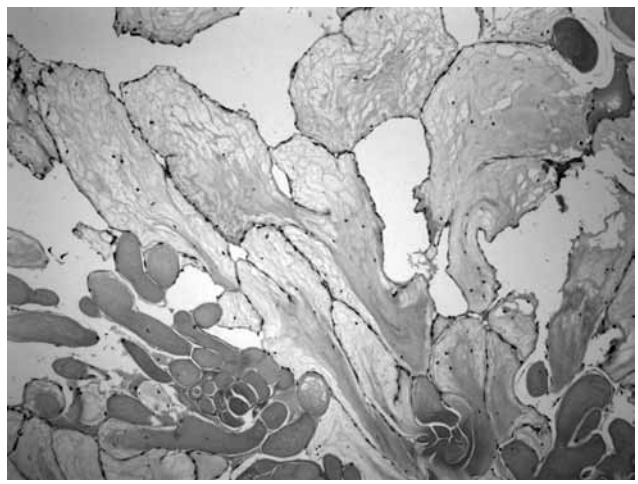

Figure 5. Histopathological specimen with hematoxylin-eosin staining (H-E x 100).

smaller than 1 cm in diameter.[2,5] The thromboembolic complications of this disease cause symptoms such as transient ischemic attack, stroke, acute coronary syndrome, and pulmonary embolisms.[5] Surgical treatment, regardless of tumor size and location, is recommended for all CPFs to prevent such complications from occurring.[5,9] Our case suffered a stroke two years prior to his admission to our hospital and presented with left hemiparesis. Normally, it is preferable that cardiac surgery be performed approximately two months after the occurrence of a cerebrovascular accident.

The subvalvular left ventricular location in our patient was very rare, and exposure and excision of the tumor at this site can be difficult. The left atrial tissue was retracted using pledgeted sutures to expose the mitral valve, better visualize the subvalvular apparatus, and avoid a left ventriculotomy. In case of inadequate exposure of the tumor, guidance with a thoracoscope or flexible fiberscope can be an alternative.[10]

In conclusion, CPF situated in the subvalvular structure of the mitral valve is rarely seen, and resection of a tumor in this location can be a complicated procedure.

Declaration of conflicting interests

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