

# Mitral degenerative valve leaflets suspected as primary valvular tumor: a case report

Shiqiang Wang<sup>1</sup>, Huaidong Chen<sup>1</sup>, Ximing Qian<sup>1</sup>, and Fan He<sup>1</sup>

<sup>1</sup>Department of Cardiac Surgery Sir Run Run Shaw Hospital School of Medicine Zhejiang University Hangzhou China

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## Abstract

**Introduction:** Echocardiography plays an important role in the diagnosis of heart disease. However, sometimes misdiagnosis information is also provided. **Methods and Results:** We report a rare case of preoperative echocardiography misdiagnosed as a primary mitral valvular tumor with severe regurgitation. During the surgery procedure, the true lesion was found to be mitral valve leaflet prolapse due to degenerative mitral valve disease. **Conclusions:** For individual patient, it may need to combine clinical symptoms and wide use of echocardiography and CT or MRI to make the optimal clinical decision.

## Introduction

Primary valvular tumors and valve degeneration are generally easy to distinguish, but in some special cases, the two have a certain similarity in echocardiography, especially for patients with atypical symptoms, it is often misdiagnosed one for another. Here, a case of mitral valve degenerative disease suspected to be diagnosed as primary valvular tumor was revealed.

## Case Report

Due to recurrent chest tightness and shortness of breath, the patient came to the emergency department of our hospital. Transthoracic echocardiography revealed mitral leaflet cystic nodules, suspected benign tumor or infective endocarditis with vegetations, and mitral valve with severe regurgitation. The patient had no other comorbidities except hypertension. Systolic murmur in apical region was heard. Transesophageal echocardiography revealed the presence of multiple cystic structures with significant separation in the A1, C1, and P1 leaflets of the mitral Carpentier nomenclature<sup>1</sup>. The larger one was located in the P1 area, about 18.3\*14.2mm in size, and smaller in the A1 area about 9.9\*5.4mm (Figure 1). The conclusion of ultrasonography showed that primary valve tumor should be considered first after excluding infective endocarditis. We had done a lot of examinations related to infective endocarditis, such as cranial Computed Tomography (CT), brain magnetic resonance imaging (MRI) and blood culture, etc. But our case did not fulfill the modified Duke criteria for the clinical diagnosis of infective endocarditis. Then we planned to perform valve tumor resection and mitral valve repair. However, no tumors were occupied and no infectious vegetations were found on the valve leaflets during the operation. The cystic structure described by ultrasound was caused by prolapse due to leaflet degeneration (Figure 2). In order to maintain the integrity of the leaflet structure, we performed folding repair for the mitral leaflet. The patient was recovered well after operation, and the result of echocardiography evaluation was satisfactory.

## Discussion

Echocardiography has evolved rapidly since its advent in the 1950s and is now the modality of choice for imaging occupying cardiac lesions. It provides high-quality, real-time images, which are invaluable in the

evaluation of cardiac masses. Although transthoracic echocardiography is an excellent initial diagnostic technique for the evaluation and diagnosis of cardiac masses, transesophageal echocardiography provides superior image resolution and better visualization of cardiac masses in patients with poorly studied transthoracic echocardiography<sup>2</sup>. For some diseases with quite similar echocardiographic presentation need to differential diagnosis carefully, especially for cases where the symptomatic presentation cannot be clearly identified<sup>3</sup>. The treatment options differ greatly between the two groups of potentially confusing diseases, such as the primary valve tumors and valve degeneration in this case.

Primary cardiac tumors are fairly uncommon, with an average incidence rate about 0.02%, while primary valvular tumors account for only 10% among them. Among the more common types are myxoma, papillary fibroelastoma, and lipoma<sup>4,5</sup>. The features of echocardiogram are often pedunculate, often a solitary mass, usually at the mid-portion of valve leaflets, and with a frond-like characteristic surface<sup>6</sup>. The primary valvular tumors need to be surgically removed if there is mobility, even for asymptomatic patients, because of the potential cerebral and cardiac embolization<sup>7,8</sup>. Valvular degenerative disease due to the absence of fibrin in the valve leads to lengthy chordae tendineae and leaflet prolapse, which often causes different degrees of valvular regurgitation<sup>9,10</sup>. In this case, the apex systolic murmur was consistent with the degree of echocardiographic mitral valve regurgitation.

Generally, only patients with severe mitral regurgitation combined with symptoms of cardiac insufficiency require surgery. This patient had severe mitral regurgitation before operation, and the wrong judgment before operation did not cause any adverse effect. However, for suspected valve masses without valve regurgitation, more accurate evaluation and identification of primary valvular tumors and valve degenerative lesions is clearly warranted. For individual patient, it may need to combine clinical symptoms and wide use of echocardiography and CT or MRI to make the optimal clinical decision.

### Consent for publication

Informed written consent was obtained from the patient for publication of this case and accompanying images.

**The authors have no conflicts of interests to disclose.**

### Author contributions:

Writing-original draft: Shiqiang Wang;

Writing-review & editing: Huaidong Chen; Ximing Qian;

Conceptualization and Supervision: Fan He;

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