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World J Clin Cases 2021 July 16; 9(20): 5352-5753





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RESPONSIBLE EDITORS FOR THIS ISSUE

Production Editor: Jia-Hui Li; Production Department Director: Yu-Jie Ma; Editorial Office Director: Jin-Lei Wang.

NAME OF JOURNAL

World Journal of Clinical Cases

ISSN

ISSN 2307-8960 (online)

LAUNCH DATE

April 16, 2013

FREOUENCY

Thrice Monthly

EDITORS-IN-CHIEF

Dennis A Bloomfield, Sandro Vento, Bao-Gan Peng

EDITORIAL BOARD MEMBERS

https://www.wignet.com/2307-8960/editorialboard.htm

PUBLICATION DATE

July 16, 2021

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INSTRUCTIONS TO AUTHORS

https://www.wjgnet.com/bpg/gerinfo/204

GUIDELINES FOR ETHICS DOCUMENTS

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https://www.wjgnet.com/bpg/GerInfo/288

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https://www.wjgnet.com/bpg/gerinfo/208

ARTICLE PROCESSING CHARGE

https://www.wjgnet.com/bpg/gerinfo/242

STEPS FOR SUBMITTING MANUSCRIPTS

https://www.wjgnet.com/bpg/GerInfo/239

ONLINE SUBMISSION

https://www.f6publishing.com

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World J Clin Cases 2021 July 16; 9(20): 5535-5539

DOI: 10.12998/wjcc.v9.i20.5535

ISSN 2307-8960 (online)

CASE REPORT

Multiple left ventricular myxomas combined with severe rheumatic valvular lesions: A case report

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Author contributions: Liu SZ and Hong Y contributed equally to this work; Hong Y collected the clinical data and wrote the manuscript; Liu SZ provided this case and drafted the manuscript; Liu SZ and Huang KL performed the surgery; Li XP helped perform the analysis with constructive discussions and approved the final version of the manuscript; all authors read and approved the final manuscript.

Supported by National Natural Science Foundation of China, No. 81770379.

Informed consent statement:

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Conflict-of-interest statement: The authors declare that they have no conflict.

CARE Checklist (2016) statement:

The authors have read the CARE Checklist (2016), and the manuscript was prepared and revised according to the CARE Checklist (2016).

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Abstract

BACKGROUND

Primary cardiac tumors are uncommon, of which cardiac myxoma accounts for 50%-80%. Left ventricular myxoma has been rarely reported, accounting for only 3%-4% of all cardiac myxomas. Multiple left ventricular myxomas are, relatively, even rarer.

CASE SUMMARY

In this report, we present a case of multiple left ventricular myxomas combined with severe rheumatic valve lesions. Symptomatically, the patient presented with fatigue, shortness of breath, and palpitation after activities. The patient underwent complete surgical resection of multiple left ventricular myxomas combined with mechanical replacement of the mitral and aortic valves, tricuspid valvuloplasty. The patient recovered well after the operation, with no obvious related complications.

CONCLUSION

Multiple left ventricular myxomas may coexist with severe rheumatic valve disease. Operation is an effective treatment.

Key Words: Left ventricular myxoma; Multiple; Rheumatic valvular lesions; Cardiac tumor; Surgery; Case report

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Manuscript source: Unsolicited manuscript

Specialty type: Medicine, research and experimental

Country/Territory of origin: China

Peer-review report's scientific quality classification

Grade A (Excellent): A Grade B (Very good): 0 Grade C (Good): C Grade D (Fair): 0 Grade E (Poor): 0

Received: November 8, 2020 Peer-review started: November 8,

First decision: April 29, 2021 Revised: May 10, 2021 Accepted: May 17, 2021 Article in press: May 17, 2021 Published online: July 16, 2021

P-Reviewer: Nisi F. Xue L

S-Editor: Fan JR L-Editor: Filipodia P-Editor: Yuan YY



Core Tip: The patient in our case complained of fatigue, shortness of breath, and palpitation after activities. Based on a series of examinations, he was diagnosed with multiple left ventricular myxomas combined with severe rheumatic valve lesions; clinically, this is a relatively rare case.

Citation: Liu SZ, Hong Y, Huang KL, Li XP. Multiple left ventricular myxomas combined with severe rheumatic valvular lesions: A case report. World J Clin Cases 2021; 9(20): 5535-5539

URL: https://www.wjgnet.com/2307-8960/full/v9/i20/5535.htm

DOI: https://dx.doi.org/10.12998/wjcc.v9.i20.5535

INTRODUCTION

Cardiac myxoma is the most common primary cardiac benign tumor, with about 75%-80% occurring in left atrium, and only 3%-4% in left ventricle[1]. Multiple left ventricular myxomas are extremely rare. In this report, we present a case of multiple left ventricular myxomas combined with severe rheumatic valve lesions.

CASE PRESENTATION

Chief complaints

Patient complained of a 20-year history of fatigue after activities, which was aggravated over the previous 2 mo.

History of present illness

A 53-year-old male was admitted to hospital with complaints of a 20-year history of fatigue after activities, which was aggravated over the previous 2 mo.

History of past illness

He had a more than 2-year history of diabetes.

Personal and family history

There was no history of rheumatic fever and family history of cardiac tumor or sudden death.

Physical examination

On admission, there was a diastolic rumbling pathological murmur of grade III/VI in the apical region. Grade IV/VI systolic ejection murmur and III/VI diastolic sighing murmur in the second intercostal space near the right margin of sternum were heard. Electrocardiogram showed atrial fibrillation with rapid ventricular rate.

Laboratory examinations

Laboratory data revealed slightly elevated glutamic oxaloacetic transaminase (45 U/L, normal level < 40 U/L) and total bilirubin (56 μmol/L, normal range < 23 μmol/L) and remarkably increased brain natriuretic peptide (692.7 pg/mL, normal range 0-100 pg/mL). Erythrocyte sedimentation rate was 6 mm/h. There were unremarkable abnormalities in circulation levels of serum tumor markers.

Imaging examinations

Chest computed tomography revealed bilateral emphysema with mild pulmonary edema, generally enlarged heart, and calcification of the aortic and mitral valves. Transesophageal echocardiography (TEE) demonstrated enlarged left atrium (50 mm), left ventricle (60 mm), and right atrium (64 mm × 57 mm). Mitral, aortic, and tricuspid valves were thickened and adhered, similar to rheumatic valve lesions. The mitral and aortic valve orifices exhibited severe stenosis, and the areas were 0.64 cm² and 0.87 cm², respectively. Multiple abnormal echo masses were found in the left ventricle (Figure 1), with the largest mass (about 23 mm × 15 mm in diameter) located in the left ventricular cavity at the junction of the anterior septum and the posterior papillary

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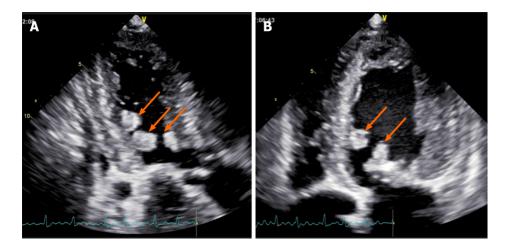


Figure 1 Transesophageal echocardiography demonstrates multiple abnormal masses were in the left ventricle. A: Apical three chamber view showed abnormal echo masses in the anterior septum and posterior wall of the left ventricle (arrows); B: Apical four chamber echocardiography showed abnormal echo mass in left ventricular posterior septum and mitral leaflet (arrows).

muscle.

FINAL DIAGNOSIS

Postoperative histopathological examination showed that the tumor cells were irregular, surrounded by empty halos, and scattered with sparse stroma, which confirmed the cardiac myxoma (Figure 2A). Mitral valve and aortic valve exhibited very obvious rheumatic lesions. The main manifestations of the microscopic examination of the valve specimens were comprehensive, manifested fibrous tissue hyperplasia, hyaline degeneration, and mucoid degeneration (Figure 2B). According to clinical manifestations, TEE and pathological biopsy, the final diagnosis was as follows: Multiple left ventricular myxomas combined with severe rheumatic valve lesions.

TREATMENT

The patient underwent surgical treatment through median sternotomy under cardiopulmonary bypass. Multiple masses were found in the left ventricle, which existed in the left ventricular outflow tract, anterior interventricular septum, anterior and posterior papillary muscle roots, and anterior mitral valve. The diameter of masses ranged from 5 mm to 20 mm; they had a crisp texture and were gelatinous with high mobility (Figure 3). The masses in the left ventricle were completely resected via the mitral and aortic valve orifices. The thickened and adhered mitral and aortic valves were replaced with mechanical valves. The tricuspid valvuloplasty was performed by incising the junction of anterior and septal valve and the junction of posterior and anterior valve. Then, the thickened leaflet was thinned to increase the activity of leaflet. Meanwhile, a tricuspid annuloplasty ring was used. The left atrial appendage was ligated during operation.

OUTCOME AND FOLLOW-UP

The patient recovered well after the operation, and his condition improved considerably; there were no obvious related complications.

DISCUSSION

Myxoma, the most common primary cardiac tumor, mainly arises from the left atrium, with barely 3%-4% arising in left ventricle. Cardiac myxoma typically occurs as a

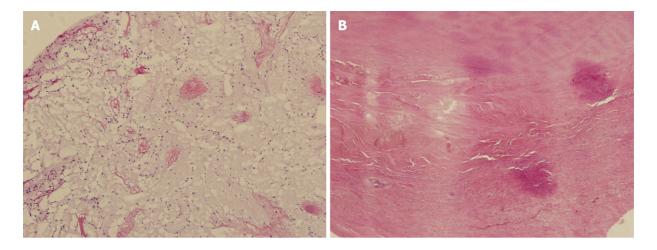


Figure 2 Histopathological findings. A. The tumor cells were irregular, surrounded by empty halos, and scattered with sparse stroma; B: The valve specimens manifested fibrous tissue hyperplasia, hyaline degeneration, and mucoid degeneration.

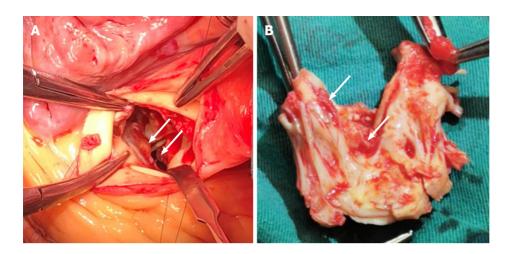


Figure 3 Intra-operative finding. A: Multiple masses were found in the left ventricular outflow tract (arrows); B: Multiple masses were found in the anterior mitral valve (arrows).

single mass and originates from the subendocardial interlobular tissue and occasionally from the remains of the embryo[1]. The symptoms and signs may be nonspecific. In this case, although the patient had multiple myxomas, there was no family history and no extracardiac symptoms such as skin pigmentation, heart or endocrine abnormalities, and nerve tumors. Therefore, Carney complex was excluded [2]. TEE is the most frequently used method for diagnosing cardiac myxoma and can determine the location, size, valve shape, valve leaf activity, etc.[3]. It needs to be differentiated from left ventricular thrombus and cardiac valve excrescences. The left ventricular function of this patient was acceptable, and no signs of infection were found in laboratory examination, so left ventricular thrombus and cardiac valve excrescences were excluded.

Surgery is an effective treatment for cardiac myxoma. Left ventricular myxoma is usually removed through the mitral orifice or aortic valve orifice or via left ventricular incision[4]. Due to severe rheumatic valve lesions, the patient required simultaneous mitral and aortic valve replacement, tricuspid valvuloplasty. Thus, the multiple left ventricular myxomas were completely removed through combination of mitral and aortic valve orifices approaches. In addition, considering the patient's financial difficulties, the radiofrequency ablation for atrial fibrillation was not performed. However, we ligated the left atrial appendage to avoid the possibility of embolism caused by left atrial appendage thrombosis.

CONCLUSION

In conclusion, we describe here a unique case with multiple left ventricular myxomas combined and severe rheumatic valve lesions. Surgical treatment was effective.

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