

A giant right ventricular myxoma being separated into pulmonary thrombus simultaneously in the process of Transthoracic echocardiography: a case report

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Abstract

Introduction: A giant right ventricular myxoma with simultaneous pulmonary embolism during Transthoracic Echocardiographic examination is rare, hardly been reported in the literature. We present a case of a giant right ventricular myxoma with being separated into pulmonary thrombus simultaneously during process of Transthoracic Echocardiographic examination. **Case presentation:** An 18-year-old young man performed physical examination before college entrance examination. Transthoracic echocardiography (TTE) showed: a heterogeneous mass was found in the right ventricle. The patient suddenly felt the symptoms of chest pain and dyspnea during a transthoracic ultrasound examination, and TTE demonstrated the mass maybe a myxoma with being separated into pulmonary thrombus simultaneously. Electrocardiogram showed complete right bundle branch block. The young man underwent intracardiac repair immediately and was doing well. **Discussion/Conclusion:** Although myxoma of the right heart is common, complicating of pulmonary embolism during examination is rare especially. Early diagnosis of right heart myxoma complicated with pulmonary embolism provides an important basis for timely operation, and provides a guarantee for saving the life of patients.

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KEY WORDS

right ventricular myxoma, pulmonary embolism, Transthoracic echocardiography

1| INTRODUCTION

Giant cardiac myxoma is a rare disease that occurs in 3–4% of cases and is associated with pulmonary embolism in only 0.1% to 0.6% of cases [1,2,3], which can lead to cardiac arrest, accompanied by acute heart failure, affecting the patient's health. We report a case of a giant right ventricular myxoma being separated into pulmonary thrombus simultaneously in the process of Transthoracic echocardiography. The young man underwent intracardiac repair immediately according to ultrasonic suggestion and was doing well.

2| CASE PRESENTATION

An 18-year-old young man performed physical examination before college entrance examination. Transthoracic echocardiography (TTE) showed: a heterogeneous mass was found in the right ventricle, a 40 mm wide pedicle, occupying 2/3 chamber of right ventricle, 86 mm×65mm×49 mm in irregular papillary shape. (**Fig. 1A–C, Supplementary file: Video 1 and 2**). With the heart beating, one end of the mass swung back and forth to right atrium through the tricuspid valve, the other end swung to right ventricular outflow tract simultaneously (**Supplementary file: Video 1 and 2**). There was no obvious dilation of pulmonary trunk and its branches. CDFI: the mass has no obvious blood flow signals. A small amount of regurgitation at the tricuspid orifice during systole was observed with 2.4 m/s peak flow velocity and 24 mmHg pressure gradient (**Fig. 1D**). The blood flow velocity of pulmonary artery valve orifice was 0.98m/s during diastole, with no obvious backflow. (**Supplementary file: Video 3**). the patient suddenly felt the symptoms of chest pain and dyspnea, and TTE demonstrated the mass maybe a myxoma, and it was detached simultaneously. Electrocardiogram showed complete right bundle branch block.

Emergency lung Contrast-enhanced CT and Pulmonary artery CT (CTPA) was performed for the patient as following, 7.0 cmx4.3 cm mass with no contrast enhancement was showed with Contrast-enhanced CT (**Fig. 1E**). About 3.2 cmx1.6 cm nodular filling defect was found in the right inferior pulmonary artery, and the blood perfusion in the right lower lung was decreased with CTPA(**Fig. 1F**). There has no obvious abnormality with CT of carotid artery and cerebral artery, there was no lower extremity deep venous thrombosis with point-of care Ultrasonography. blood gas and biochemical parameters were normal. Immediately, an emergency treatment of "cardiac tumor resection + pulmonary thrombectomy + tricuspid valvuloplasty" were successfully performed for the patient, the right ventricular myxoma and pulmonary tumorous embolus were showed during the operation (**Fig. 1G–I**). So many primitive blood vessels were found in the myxoid matrix, CD34 was strongly positive stained (**Fig. 1J–L**), All the results suggested that the mass was myxoma. Of course, the patient has been followed-up for half a year with no signs of recurrence of myxoma and pulmonary embolism.

3 | DISCUSSION

Cardiac myxoma is common primary benign cardiac tumor in the middle-aged female.

Three-quarters of cardiac myxomas were located in the left atrium [1]. Most of the rest occurred in the right atrium. RV myxomas were reported in just 3–4% of cardiac myxoma cases. But in our case, it was a RV myxomas occurred in a young man. Cardiac myxoma is often

attached to heart chamber wall with a narrow pedicle, and its surface is smooth or

papillary, or villous. In our report, it has a wide base pedicle, and the surface was papillary.

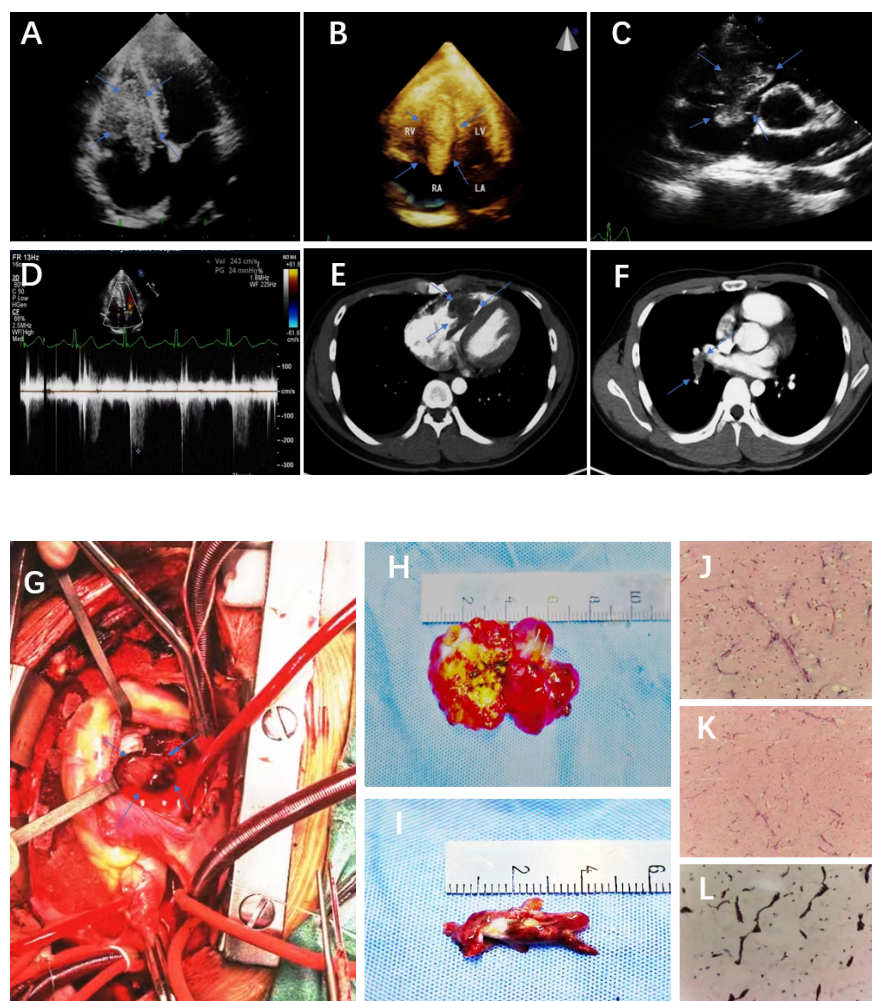
There has study reported that the morphology of cardiac myxoma, especially for villous or

papillary myxomas, is important predictor of pulmonary embolism (PE) event. All the TTE imaging indicated the myxoma is fatal, particularly maybe PE occur. PE caused by myxoma

has an extremely low incidence . There has almost no reports about it during TTE till now. In our report, the patient suddenly felt chest pain and difficult respiratory during TTE, it was suggested PE maybe occur. We contacted the department of radiology immediately. Emergency lung Contrast-enhanced CT and CTPA was performed for the patient, and the results showed PE occurred, surgery was operated subsequently. Of course, contrast-enhanced ultrasound (CEUS) can identify the nature of cardiac mass [5], but considering the potential danger of PE, CEUS was no further performed. At last, the young man was pulled back from the dangerous situation. It was attributed to prompt management of heart-team members.

All in all, early diagnosis and surgical resection are most important for life-threatening PE of myxoma. Due to the interval from resection to recurrence ranging from a few months to 8 years, with recurrence rate of myxomas approximately 1% to 4% [6], so long-term follow-up echocardiography is recommended particularly in adolescents.

References



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Compliance with ethical standards

Conflict of interest All authors declare that they have no conflict of interest.

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