

# Surgical treatment of a case of acute left heart failure caused by prosthetic valve thrombosis after mitral valve replacement

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## Abstract

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## Title Page

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**short running title:** Prosthetic heart valve thrombus

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Methodology: Pengying Zhao, Ruisheng Liu.

Project administration: Pengying Zhao.

## **Surgical treatment of a case of acute left heart failure caused by prosthetic valve thrombosis after mitral valve replacement**

**Abstract:** Prosthetic valve thrombosis ( PVT) is a serious complication after prosthetic heart valve replacement. When thrombosis causes the prosthetic valve to dysfunction, it may cause the patient to die. We successfully treated a patient with acute left heart failure due to prosthetic valve thrombosis. The report is as follows.

**Keywords:** prosthetic heart valve, thrombus

The patient, male, 36 years old, underwent "cardiac mitral valve replacement surgery" 12 years ago, and received oral warfarin anticoagulant therapy after the operation. At present, the main symptoms of the patient are "difficulty breathing, coughing up foamy sputum". Echocardiogram display (Figure A): Prosthetic heart valve activity disorder, suspected thrombosis around the valve. This patient is currently in a state of acute heart failure and respiratory failure, and his vital signs are difficult to maintain. We urgently give endotracheal intubation, ventilator assisted breathing, and ECMO cardiopulmonary support treatment. The patient's vital signs stabilized, and we decided to undergo emergency surgery.

During the operation, it was seen that the patient's prosthetic heart valve was completely wrapped by thrombus (Figure B). Pannus can be seen around the mitral valve annulus (Figure C), the valve movement was severely blocked, and thrombosis was also seen in the left ventricle. We completely removed the thrombus and removed the original prosthetic valve (Figure D), and found that the mitral valve annulus also suffered severe pathological damage. We use an autologous pericardium to reinforce the mitral valve annulus and replace it with a new prosthetic mitral valve (Figure E). The entire operation went smoothly. ECMO continued to be given adjuvant treatment after the operation. The ECMO was successfully evacuated the next day after the operation. The patient recovered well. The echocardiogram after the operation (Figure F) showed that the new prosthetic mitral valve moved well without paravalvular leakage.

Prosthetic valve thrombosis leads to prosthetic valve dysfunction, which is clinically rare. But it can quickly cause heart failure and respiratory failure, endangering the patient's life<sup>[1-2]</sup>. Echocardiography is an important means of diagnosis, once the diagnosis is clear, emergency surgery is required.

## **References:**

1. Ahmad Separham, Samad Ghaffari, Naser Aslanabadi, et al. Prosthetic valve thrombosis. J Card Surg. 2015 Mar;30(3):246-250.
2. M Lengyel, L Vandor. The role of thrombolysis in the management of left-sided prosthetic valve thrombosis: a study of 85 cases diagnosed by transesophageal echocardiography. J Heart Valve. 2001 Sep;10(5):636-649.
3. Maria Bonou, Konstantinos Lampropoulos, John Barbetseas. Prosthetic heart valve obstruction: thrombolysis or surgical treatment? Eur Heart J Acute Cardiovasc Care. 2012 Jun;1(2):122-127.

**Figure legends:**

**Figure A:** Preoperative echocardiogram displayed the patient's prosthetic heart valve activity disorder, suspected thrombosis around the valve.

**Figure B:** The patient's original prosthetic heart valve was completely wrapped in thrombus.

**Figure C:** A large number of pannus formed around the mitral valve annulus.

**Figure D:** Remove the patient's original prosthetic heart valve and completely remove thrombus and pannus.

**Figure E:** Replace a new prosthetic heart valve.

**Figure F:** The postoperative echocardiogram of the patient showed that the new prosthetic heart valve was working normally without paravalvular leakage.

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