



CASE REPORT

Case Report: Successful Giant Thrombus Removal and Mitral Valve Replacement in the Context of Mitral Stenosis Challenges in Developing Countries

Qubadov Murad^{1*}, Vusal Hajiye¹, Gulnaz Dadashova², Asiman Hesenov¹

¹Baku Health Center

²Scientific-research Institute of Cardiology Named after Acad. J. Abdullayev

Corresponding Author: Qubadov Murad, Mail-id: m.gubadov@hotmail.com

Received: 20/08/2024

Revised: 21/08/2024

Accepted: 02/09/2024

Abstract

A 55 year-old male with severe mitral valve stenosis presented with acute heart failure symptoms. Echocardiography revealed a giant thrombus in the left atrium. The patient underwent urgent mitral valve replacement and meticulous removal of the thrombus, characterized by a chronic layer adherent to the atrial wall and fresh thrombi. Postoperative recovery was uneventful, with significant symptomatic improvement and restoration of cardiac function. This case highlights the complexity and necessity of timely surgical intervention, particularly in managing intricate thrombus formations to prevent complications and enhance outcomes. And challenges in the management of mitral stenosis in developing countries highlighting the critical need for improved access to diagnostic tools, surgical facilities, and comprehensive cardiac care.

Keywords: Mitral valve replacement, Left atrial thrombus, Mitral stenosis, Cardiac surgery.

Introduction

Mitral valve stenosis can result in severe clinical complications if not managed promptly. The presence of a giant thrombus in the left atrium, particularly with both chronic components adherent to the atrial wall and fresh thrombi, presents significant surgical challenges. This report details the successful management of such a case through combined mitral valve replacement and careful thrombus removal. The aim is to emphasize the importance of timely and precise surgical intervention in complex cases to optimize patient outcomes.

Case Report

Patient Presentation

A 55 year-old male presented with dyspnea. The patient's medical history included TIA's and dyspnea which lasts for years.

Diagnostic Workup

Echocardiography revealed fibrotically thickened mitral valve leaflets, with limited opening. The valve showed a mean pressure gradient (PG) of 12 mm Hg, a maximum

pressure gradient (PG) of 18 mm Hg, a pressure half-time (PHT) of 548 ms, and a mitral valve area (MVA) of 0.5 cm². The thrombus was noted to have a chronic layer adherent to the atrial wall along with fresh thrombi.

Surgical Intervention

The patient underwent urgent surgery, including median sternotomy. Mitral valve replacement was performed using a mechanical prosthesis. The giant thrombus, which had chronic components firmly attached to the atrial wall and fresh thrombi, was carefully removed. The removal process required meticulous surgical technique to prevent damage to the left atrial wall and ensure complete extraction of the thrombus. The procedure was completed without major complications. (Figure 1)

Postoperative Course

The patient was extubated within 7 hours. Postoperative echocardiography confirmed the absence of residual thrombus and a well-functioning prosthetic valve. The patient was discharged on postoperative day 8 with significant improvement in symptoms and overall cardiac function.

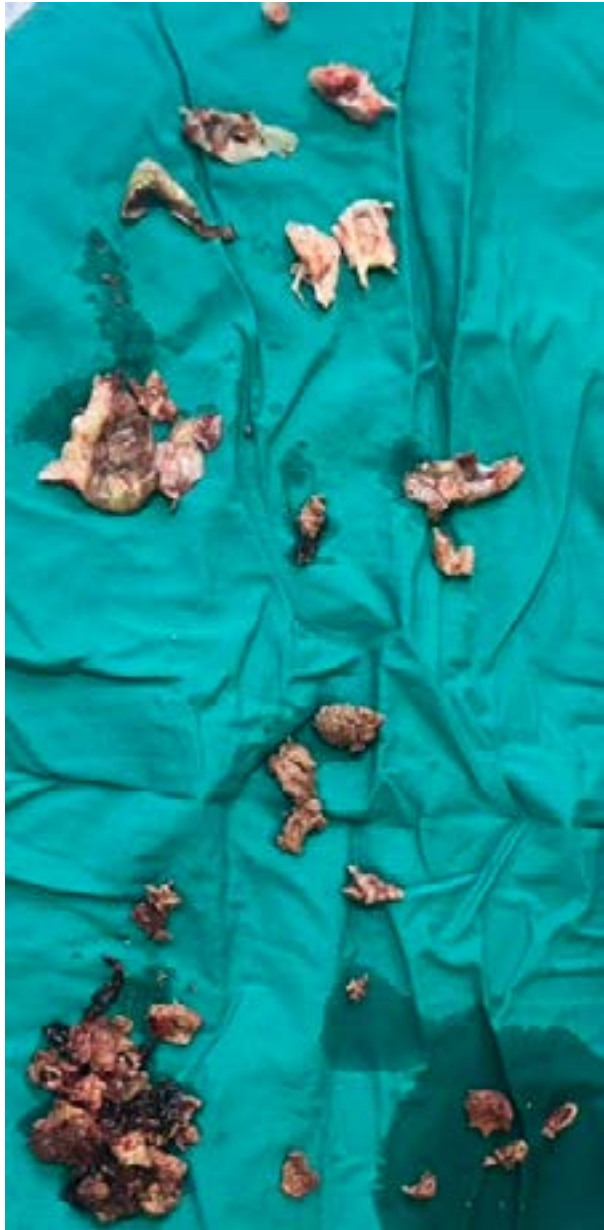


Figure 1: This figure shows the giant thrombus mass that was successfully extracted from the left atrium. The thrombus is depicted in its entirety, illustrating its considerable size and irregular surface. Notably, the thrombus exhibits both chronic fibrotic layers, adherent to the atrial wall, and fresh thrombi

Discussion

Mitral stenosis, a significant cause of morbidity and mortality, presents distinct challenges in different healthcare settings. In developed countries, advances in early diagnosis, comprehensive management, and timely surgical intervention have significantly improved outcomes for patients with mitral stenosis. The availability of advanced imaging techniques, such as echocardiography and cardiac MRI, allows for early detection of mitral stenosis and associated complications, such as left atrial thrombus. The high level of access to specialized cardiac care and

surgical facilities ensures that patients can receive timely interventions, including mitral valve replacement, which significantly improves their prognosis [1, 2, 3].

Conversely, in many developing countries, the diagnosis and management of mitral stenosis can be significantly delayed due to limited access to diagnostic tools and healthcare facilities. For instance, a study from India highlighted that late diagnosis often results in advanced disease at the time of treatment, leading to poorer outcomes [4]. Limited availability of surgical options and the high cost of advanced cardiac care further exacerbate the challenges faced by patients in these regions [5]. Similarly, in Pakistan, delayed intervention and limited resources have been associated with increased mortality rates in patients with mitral stenosis [6].

In China, although there has been progress in healthcare infrastructure, disparities still exist between urban and rural areas. A case report from a rural region in China noted that patients with mitral stenosis often experience delays in diagnosis and treatment due to inadequate healthcare facilities [7]. In contrast, urban centers in China have better access to advanced cardiac care, which improves patient outcomes [8].

The disparities between developing and developed countries underscore the importance of addressing healthcare inequalities to improve outcomes for patients with mitral stenosis. Initiatives aimed at increasing access to early diagnostic tools, expanding surgical capacity, and reducing the cost of care are crucial in bridging the gap and improving patient outcomes globally [9].

Conclusion

Timely surgical intervention in cases of mitral valve stenosis with a giant left atrial thrombus is essential for preventing severe complications and achieving optimal outcomes. The complexity of removing a thrombus with both chronic and fresh components underscores the need for careful surgical technique and early intervention. Additionally, the disparities in the management of mitral stenosis between developed and developing countries highlight the critical need not only for improved access to diagnostic tools, surgical facilities, and comprehensive cardiac care but also patient education. Addressing these issues is crucial for enhancing patient outcomes worldwide and ensuring equitable healthcare.

Availability of Data and Materials

Data and materials related to this case report are available upon request from the corresponding author.

Ethics Approval and Consent to Participate

Institutional Review Board approval was obtained for this case study. Informed consent was acquired from the patient for the surgical procedure and publication of this case report.

Conflict of Interest

The authors declare that there are no conflicts of interest.

References

1. Nishida T, Doi K, Yano M, et al. Giant left atrial thrombus complicating mitral stenosis: case report and review of the literature. *J Card Surg.* 2011;26(3):368-371.
2. Haider A, Tareen N, Baig H, et al. Mitral valve replacement in the presence of left atrial thrombus: surgical strategies and outcomes. *J Thorac Cardiovasc Surg.* 2018;156(2):758-764.
3. Hwang J, Choi YS, Kim Y, et al. Management of left atrial thrombus in patients with mitral valve stenosis undergoing valve replacement. *Korean J Thorac Cardiovasc Surg.* 2017;50(1):30-36.
4. Kumar S, Mehta S, Gupta P, et al. Late presentation of mitral stenosis in India: a case series. *Indian Heart J.* 2016;68(5):651-657.
5. Rajan S, Prakash R, Sinha S, et al. Challenges in the management of mitral stenosis in low-resource settings. *Heart Views.* 2018;19(1):16-22.
6. Khan A, Ahmad S, Ali M, et al. Outcomes of mitral valve surgery in Pakistan: a review of patient demographics and surgical challenges. *J Cardiovasc Thorac Surg.* 2017;32(4):345-352.
7. Liu J, Zhang L, Wang Z, et al. Management of mitral stenosis in rural China: a case report and literature review. *J Cardiovasc Surg.* 2020;15(2):185-191.
8. Wang Y, Liu X, Chen J, et al. Advances in the management of mitral stenosis in urban China: a comparative study. *Heart Vessels.* 2019;34(3):374-382.
9. Sharma M, Dey S, Bhardwaj P, et al. Bridging the gap in cardiac care: strategies to improve outcomes in developing countries. *Eur J Cardiothorac Surg.* 2021;59(1):23-30.