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Rheumatic mitral stenosis in the perioperative setting – an old acquaintance with new implications

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Dear Editor,

Rheumatic heart disease remains a cause of valvular pathology with significant geographic variation. It is still endemic in Southeast Asia, sub-Saharan Africa, and Oceania, while accounting for approximately 2.5% of valve disease in western countries.¹ Although rare, in developed settings, rheumatic mitral valve disease should still be considered in the perioperative evaluation of elderly patients with a history of valvuloplasty. We present a clinically relevant case that illustrates the impact of intraoperative transesophageal echocardiography (TEE) in reshaping anesthetic and surgical strategies in a high-risk patient undergoing cardiac surgery.

A 75-year-old woman with hypertension, chronic atrial fibrillation on warfarin (discontinued three days preoperatively), and a history of mitral valvuloplasty (1998) was scheduled for elective mitral valve replacement. Preoperative transthoracic echocardiography (TTE) suggested moderate mixed mitral valve disease and mild tricuspid regurgitation. Intraoperative TEE revealed a markedly distorted anatomy with severe dilated right and left atria (Fig. 1). Detailed evaluation of the mitral valve showed severe rheumatic mitral stenosis with thickened and immobile leaflets, as well as moderate regurgitation, was detected – findings more severe than previously assessed (Fig. 2A). The left atrium was markedly dilated (7×6.3 cm) and filled with dense spontaneous echo contrast, although there was no thrombus in the left atrial appendage, indicating blood stasis and a high embolic risk (Fig. 2B). Moderate tricuspid regurgitation and significant annular dilation (3.9 cm) were also identified (Fig. 3), which was not evident in the preoperative TTE. Pulmonary artery catheterization revealed a mean pulmonary artery pressure of 32 mmHg and a wedge pressure of 16 mmHg.

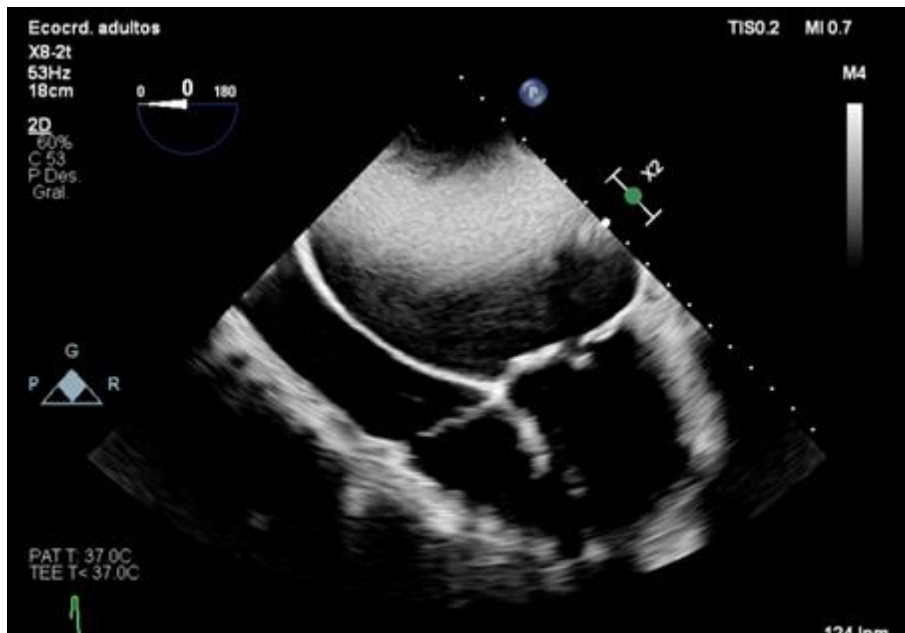


Fig. 1. Transesophageal echocardiogram showing a markedly dilated left atrium as well as an extremely dilated right atria that distorted the normal anatomy with increased difficulty obtaining the planes to evaluate the heart

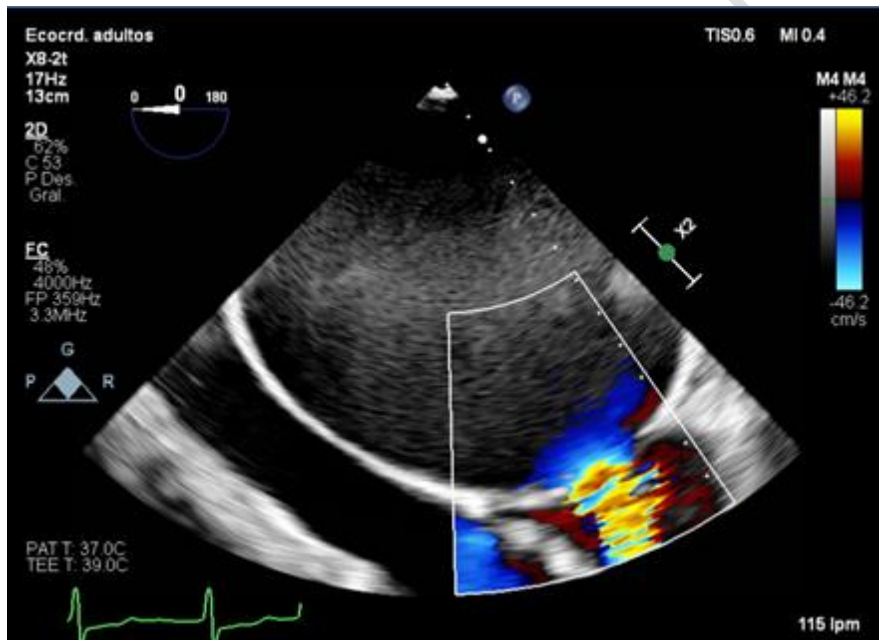


Fig. 2A. Severe mitral stenosis (seen in the figure with the central jet directed to the left ventricle) due to immobile leaflets associated with moderate mitral valve regurgitation differed from the previous assessment of moderate mixed mitral valve disease

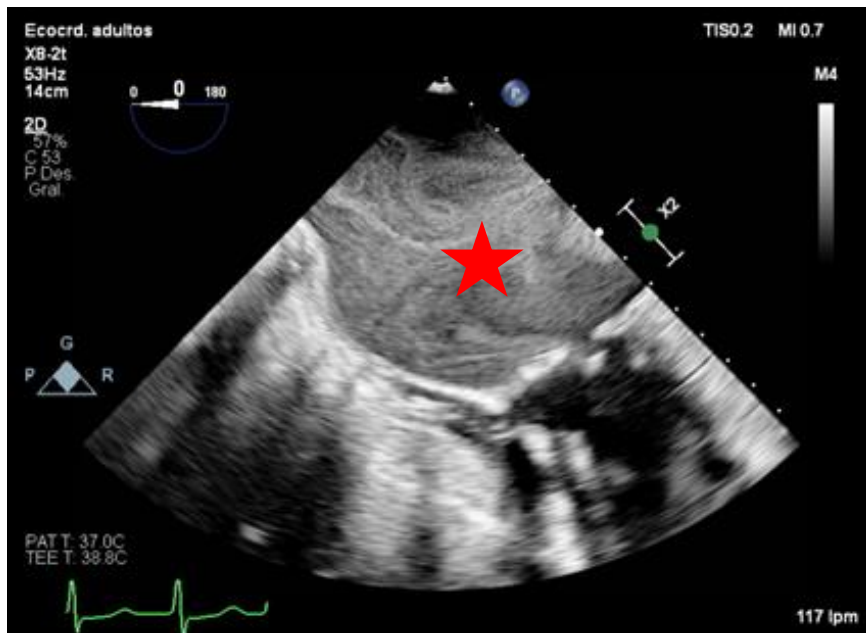


Fig. 2B. Markedly dilated left atrium (7×6.3 cm) filled with dense spontaneous echo contrast, signaled with the red star

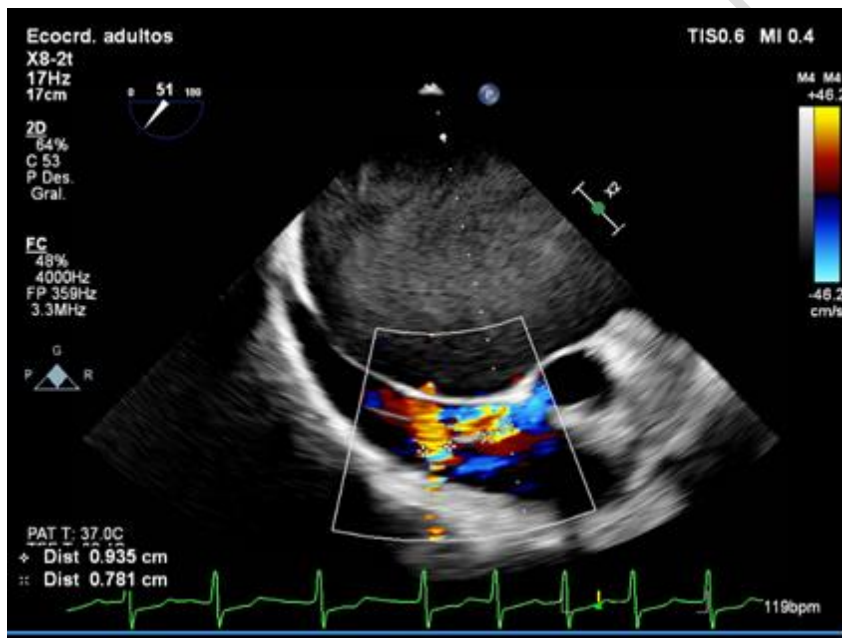


Fig. 3. Central jet of moderate tricuspid regurgitation is seen as a flow directed to the atria, with annular dilation not seen on preoperative transthoracic echocardiography

In light of these findings, cerebral oximetry monitoring was initiated to detect potential embolic events. The surgical plan was modified to include tricuspid valve annuloplasty in addition to bioprosthetic mitral valve replacement.² The patient was removed from cardiopulmonary bypass on the first attempt with low

dose dobutamine. No paravalvular leakage was observed and only mild central tricuspid regurgitation remained.

The patient was transferred to the intensive care unit, where her postoperative course was uneventful. She was extubated within five hours and progressively weaned off vasoactive drugs without complications. She was discharged on postoperative day six.

Previous studies have shown how TEE influences cardiac surgical decisions in up to 9% of patients.³ A study by Skinner et al. showed that unexpected findings were observed in 6.3% of patients, of which 68% had changes in the surgical management of their pathology, and where up to 20% of these unexpected findings were due to disease progression.⁴

This case underscores the evolving nature of valvular pathology and the critical role of intraoperative TEE in surgical planning. It also emphasizes the importance of multidisciplinary communication and real-time adaptation in the operating room to ensure optimal patient outcomes. Despite prior interventions and apparent stability, the progression of rheumatic disease may go unnoticed until reevaluation in the operative setting. The presence of spontaneous echo contrast is a valuable marker of stasis and thromboembolic risk, which requires vigilant hemodynamic and anesthetic management.

Rheumatic mitral stenosis may be a long-standing condition, but it remains a condition with significant implications for anesthetic and surgical decision-making, holding new implications for perioperative care.

Declarations

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Conflicts of interest

The authors declare no competing interests.

Data availability

No datasets are included in this letter.

Ethics approval

This manuscript is a clinical letter based on a single case report in which no identifiable data are disclosed and all data anonymized; therefore, ethics committee approval was not required.

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