Percutaneous treatment of severe degenerative mitral regurgitation due to papillary muscle rupture with a posterior mitral cusp flail

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Introduction: Mitral regurgitation (MR) is a common valvular disorder, occurring in up to 10% of the general population. Although surgery is the established treatment for primary MR[1], transcatheter edge-to-edge mitral valve repair (TEER) has been recommended as a reliable treatment option for selected patients with severe degenerative and functional mitral regurgitation (MR)[2]. This report presents the case of a patient with severe primary degenerative mitral regurgitation due to partial papillary muscle rupture resulting with posterior mitral cusp flail.

Case report: 78-year-old woman with a left-sided hemiparesis due to cerebrovascular insult, who overcame streptococcal endocarditis of the mitral valve treated conservatively five years ago, was admitted to the Cardiology department due to dyspnea. Transesophageal echocardiography showed posterior mitral cusp flail dominantly in P2 segment with complete chordae and partial papillary muscle rupture with consequent severe, eccentric mitral regurgitation directed anteriorly (**Figure 1**). Given the

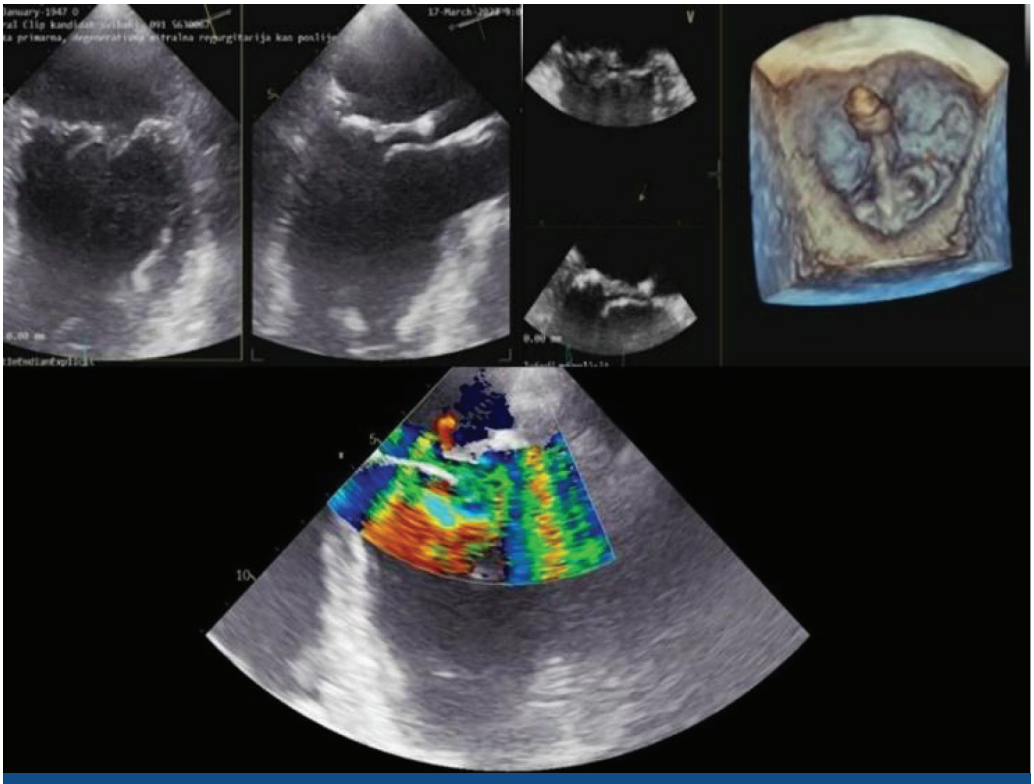

FIGURE 1. 2D and 3D imaging of posterior a mitral cusp flail dominantly in P2 segment, with complete chordae and papillary muscle rupture with consequent severe, eccentric mitral regurgitation directed anteriorly.

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high risk of surgical intervention, the Heart team decided on a transcatheter edge-to-edge mitral valve repair (TEER). The procedure was extremely demanding due to avoidance of the floating part of papillary muscle. It was successfully performed using a single cobalt chromium plate (Mitraclip XTW) placed in the target regurgitant area (A2P2) with significant reduction of regurgitation (severe -> mild). Follow-up echocardiography confirmed correct A2P2 clip position with significant reduction in regurgitation with free floating part of papillary muscle and ruptured chordae between the left cardiac chambers during the cardiac cycle with an acceptable mean gradient (up to 5 mmHg) (**Figure 2**). The patient was closely monitored for any complications, and no further issues were observed.

Conclusion: This is technically extremely demanding procedure due to floating part of the papillary muscle which makes clipping even more difficult. To our knowledge, only one case has been recorded in Europe which further emphasizes the complexity of the procedure.

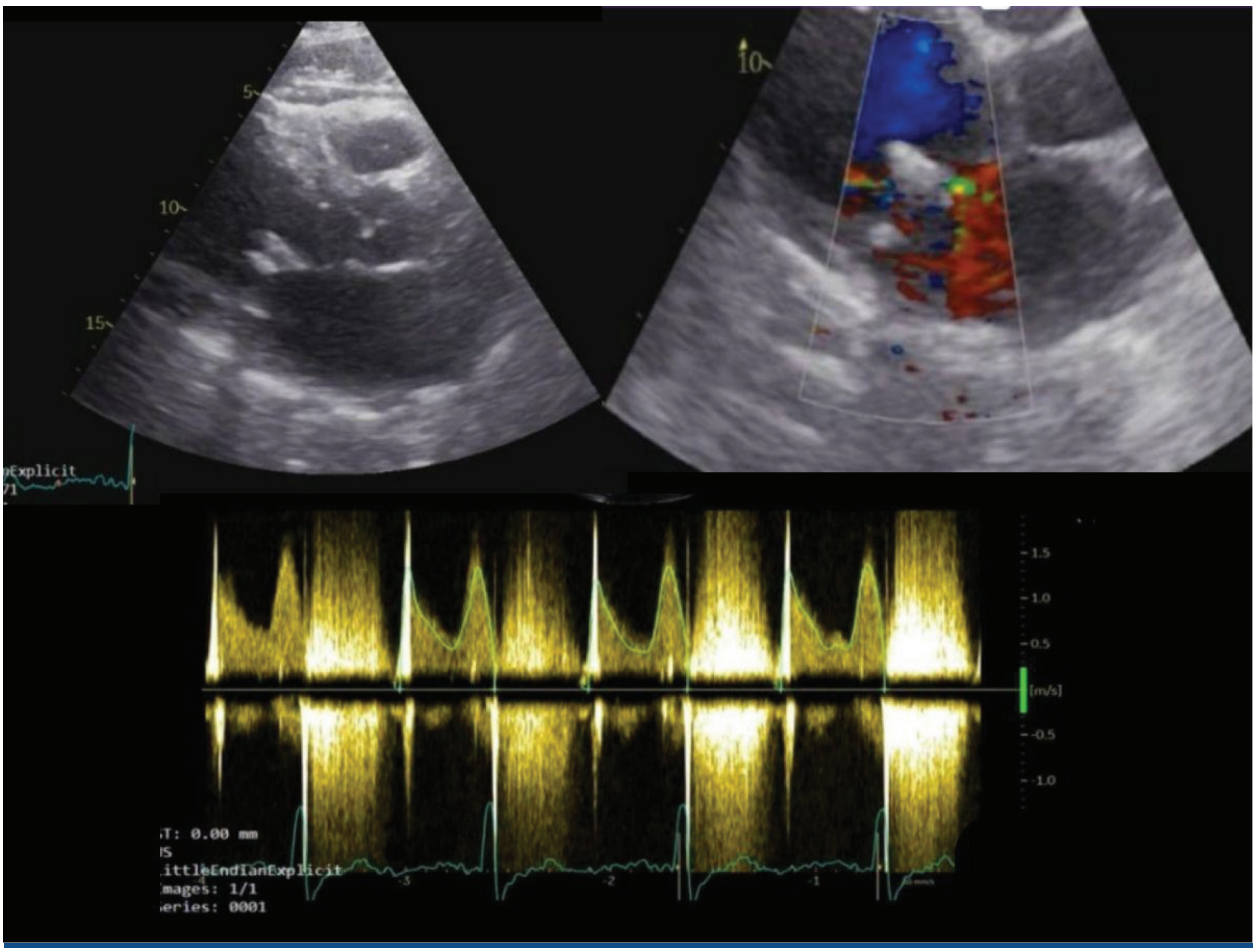

FIGURE 2. Postinterventional A2P2 clip position with significant reduction in regurgitation and the free floating part of papillary muscle with ruptured chordae between the left cardiac chambers during the cardiac cycle with an acceptable mean gradient.

LITERATURE

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