

Abstract

Mitral Valve Fenestration Associated with Severe Mitral Regurgitation: A Case Report

Juliana Camoço Garcia^{1,*}, Neusa Canganjo¹, Rita Casimiro¹, André João², Gonçalves Manuel², Benvindo Barroso²

¹ Faculty of Health Sciences, Methodist University of Angola (UMA), Luanda, Angola.

² General Hospital of Viana Bishop Dom Emílio de Carvalho (HGV-BEC), Calumbo, Icolo e Bengo, Angola.

* Correspondence: julianacamoco@gmail.com.

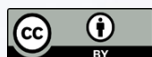
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Introduction: Mitral regurgitation in pediatric patients represents a complex diagnostic challenge and may have either congenital or acquired etiology. In developing countries, rheumatic carditis secondary to untreated streptococcal infections remains one of the leading causes of mitral valve disease. Mitral valve fenestration is a rare structural abnormality characterized by a perforation in the valve leaflet. Its association with rheumatic carditis may increase the severity of regurgitation and promote progression to pulmonary hypertension. **Case Report:** We present the case of a 10-year-old male patient with a history of recurrent untreated chronic tonsillitis who was admitted to the emergency department with persistent fever, dry cough, progressive dyspnea, orthopnea, and lower-limb edema. On physical examination, the patient was febrile and tachycardic (heart rate, 145 bpm), hypoxemic despite supplemental oxygen therapy, with pulmonary crackles on auscultation and audible murmurs over the mitral, tricuspid, and aortic valve areas. Laboratory tests showed elevated inflammatory markers (C-reactive protein, erythrocyte sedimentation rate, and antistreptolysin O [ASO] titer), consistent with previous streptococcal exposure. Transthoracic echocardiography revealed remodeling of the left cardiac chambers, including a dilated left ventricle with moderate systolic dysfunction (ejection fraction, 45%) and a dilated left atrium. Valvular assessment demonstrated a thickened aortic valve with mild-to-moderate regurgitation and a thickened mitral valve with prolapse and fenestration of the anterior leaflet (A3 segment), resulting in severe mitral regurgitation. Moderate pulmonary and tricuspid regurgitation were also identified, with an estimated pulmonary artery systolic pressure (PASP) of 98 mmHg, suggestive of severe pulmonary hypertension. The clinical and echocardiographic findings suggested severe mitral regurgitation of mixed etiology, combining a congenital leaflet abnormality with rheumatic involvement. The patient was admitted for clinical stabilization and, after his condition improved, was transferred to a specialized cardiovascular disease hospital. **Conclusion:** Mitral valve fenestration is a rare structural abnormality. In the present case, echocardiography, as an available imaging modality in the hospital setting, enabled its identification and characterization of its hemodynamic consequences, contributing to the diagnostic assessment of severe mitral regurgitation with a complex etiology.