

Abstract

Giant Left Atrium: A Clinical Case of Extreme Atrial Remodeling

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Introduction: Left atrial enlargement is an important marker of cardiac remodeling and is associated with an increased risk of atrial fibrillation, stroke, and cardiovascular mortality. Giant left atrium is a rare condition, generally associated with mitral valve disease, particularly of rheumatic etiology, although it may occur in different settings of chronic volume and/or pressure overload. **Case Report:** We report the case of a 56-year-old Black male patient with a history of long-standing hypertension, hypertensive heart disease with reduced left ventricular ejection fraction (LVEF), permanent atrial fibrillation, and previous stroke with residual motor impairment. He presented to the emergency department with a 15-day history of progressive exertional dyspnea, paroxysmal nocturnal dyspnea, orthopnea, and easy fatigability. On physical examination, he was conscious and tachypneic, with bilateral jugular venous distension and a positive hepatjugular reflux, and was unable to tolerate the supine position. Pulmonary auscultation revealed decreased breath sounds at the lung bases, bilateral fine crackles, and diffuse wheezing. Cardiac auscultation revealed irregular, normophonic heart sounds with a grade III/VI holosystolic murmur over the mitral area. Bilateral ankle edema and left-sided spastic hemiparesis secondary to the previous stroke were also present. Electrocardiography revealed atrial fibrillation with a ventricular rate of 78 bpm, left-axis deviation, and signs of left ventricular overload. Chest radiography showed an increased cardiothoracic ratio and signs of pulmonary congestion, without evidence of an infectious process. Trans-thoracic echocardiography demonstrated dilated hypertensive heart disease with reduced LVEF, right ventricular systolic dysfunction, and moderate mitral regurgitation. Marked left atrial enlargement was noted, with an area of 217.9 cm² and an estimated volume of 2,036 mL, consistent with a giant left atrium. **Conclusion:** Giant left atrium is a rare manifestation of chronic atrial remodeling, traditionally associated with significant mitral valve disease, particularly of rheumatic etiology. However, giant left atrium may also occur in the absence of severe mitral valve disease. In this case, the extreme atrial enlargement appears to have resulted from a multifactorial process involving hypertensive heart disease, permanent atrial fibrillation, and heart failure. Recognition of this condition should raise awareness of the high risk of complications, particularly thromboembolic events and worsening heart failure, warranting systematic clinical and echocardiographic assessment.

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