

mitral valve leads to progressive enlargement of the cardiac chambers, with the left atrium being the earliest and most prominently affected structure due to altered valvular function. As a consequence of chronic mitral valve pathology, both the volume and linear dimensions of the left atrium progressively increase. Giant left atrium is an uncommon condition, typically defined as a left atrial diameter exceeding 65 mm, and is most often associated with long-standing rheumatic mitral stenosis.⁶

An increase in left atrial size is strongly linked with the development of atrial fibrillation (AF) and a heightened risk of thrombus formation due to blood stasis.⁷ Left atrial size has also been identified as an independent predictor of thromboembolic events.⁸ Atrial fibrillation is closely associated with left atrial enlargement, and together they contribute significantly to morbidity and mortality. Among the complications of AF, stroke is considered the most serious.^{9,10} A markedly enlarged left atrium, particularly a giant left atrium, provides a structural substrate that predisposes to the development of arrhythmias. In patients with mitral valve disease, atrial fibrillation develops in approximately 50-80% of cases. In addition, severe left atrial enlargement may produce compressive symptoms such as bronchial compression or hoarseness of voice due to recurrent laryngeal nerve involvement.^{11,12} The association between left atrial enlargement and stroke is multifactorial, and increased left atrial size has been consistently recognized as a strong predictor of adverse cardiovascular outcomes.

In clinical practice, most surgeons primarily address the mitral valve pathology while giving limited attention to an excessively enlarged left atrium. It is commonly believed that successful mitral valve surgery alone will allow gradual remodeling and reduction of left atrial size over time.¹³⁻¹⁶ However, mitral valve surgery by itself often fails to restore sinus rhythm or prevent recurrence of atrial fibrillation postoperatively. Although surgical reduction of markedly enlarged left atria is performed in some cases during mitral valve surgery, there is no universally accepted consensus regarding the management of left atrial enlargement.

Furthermore, the assumption that mitral valve surgery alone leads to reverse remodeling of the left atrium is not supported by most published studies.^{17,18}

Certain surgical groups advocate routine left atrial reduction even in cases with only mild enlargement, particularly when there are no overt clinical signs of significant atrial dilatation. Others recommend reduction when the left atrial diameter exceeds 50 mm.^{19,20} The concept of left atrial size reduction was originally introduced with the aim of restoring more normal atrial geometry and reducing thromboembolic risk in patients with mitral valve disease accompanied by left atrial enlargement. Following atrial reduction, restoration of sinus rhythm has been reported in 77.3% of patients compared with 61.1% in those without reduction.¹⁹ The addition of left atrial size reduction to mitral valve surgery has also been associated with a reduction in stroke and thromboembolic complications. Nevertheless, this procedure is associated with longer aortic cross-clamp and cardiopulmonary bypass times and may increase the risk of excessive postoperative bleeding. At present, no standardized guidelines exist regarding the indication for left atrial reduction based on atrial size. Moreover, clear evidence-based recommendations on the optimal extent of atrial reduction are lacking, and it remains uncertain whether left atrial size reduction consistently translates into improved clinical outcomes.

Left atrial enlargement is a common consequence of chronic mitral valve disease and is strongly associated with atrial fibrillation, thromboembolic complications, and adverse cardiovascular outcomes. Although mitral valve replacement is the standard definitive treatment, it does not consistently achieve reverse remodeling of the left atrium or reliable restoration of sinus rhythm. Left atrial size reduction has been introduced as an adjunct procedure during mitral valve surgery to improve atrial geometry and potentially reduce arrhythmia and thromboembolic risk; however, its routine use remains controversial due to added operative complexity, increased bypass time, and lack of clear guidelines or consistent evidence of benefit. In this context, the present study aims to compare