

Letters to the Editor

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Reply to the Editor:

We greatly appreciated the comments of Dr Garcia-Villarreal regarding our recent article.¹ On the basis of a previous study,² we aimed to analyze mitral valve hemodynamic performance, both at rest and during exercise, of patients with functional mitral regurgitation (MR) who received either restrictive annuloplasty or mitral valve replacement. We agree with Dr Garcia-Villarreal that implanting the smallest ring size (24–26 mm) would be more likely to lead to abnormal postoperative transmitral gradients, particularly if the cardiac output is normal or increased. However, in our surgical series, only 6 patients (17%) received a 26-mm ring, whereas 83% of our population received a ring of 28 mm or greater. Despite this surgical policy,

patients with annuloplasty showed no exercise-induced changes in indexed effective orifice area. In contrast, patients with mitral valve replacement had better exercise mitral valve hemodynamic performance and mitral opening reserve. Thus, our results suggest that even in patients with relatively high implanted ring size, exercise functional mitral stenosis, resulting in increased systolic pulmonary arterial pressure, may occur.

Our findings suggest that sparing mitral valve replacement may be considered as an alternative valid surgical option, even with the obvious limitations.

As underlined by Dr Villareal, “complete prosthetic annuloplasty rings to treat chronic ischemic mitral regurgitation are an absolute must as there is an antero-posterior annular enlargement in addition to the asymmetric PL tethering.”

In this context, the outcome after mitral valve annuloplasty can largely be predicted by a posterior high leaflet angle (>45°), regardless of the tethering pattern.³

Any strategy aiming to avoid the risk of persistent or recurrent MR after surgery should be promoted and performing a sparing mitral valve replacement in those with high posterior leaflet angle could be very beneficial by reducing the need for smaller ring size in some cases.

However, anterior leaflet restriction should not be overlooked in understanding and repairing mitral valve tethering.³

The reasonable option introduced by Dr Villarreal, selecting rings between 28 and 30 mm, requires validation. Nevertheless, our data suggest that even with a ring 28 mm or greater, functional mitral stenosis and limited exercise hemodynamic performance may be frequent. This shows the real difficulty faced by surgeons when selecting ring size for mitral valve repair in patients with functional MR; that is, to concomitantly avoid persistence/recurrence of

MR and risk of postoperative functional mitral stenosis. Current data from the literature seem to suggest that whatever gains are obtained in the reduction of recurrent MR risk by even more restrictive annuloplasties, they are likely to be lost by the introduction of functional mitral stenosis.^{1,4}

Hence, despite the rule to promote not “very aggressive undersizing,” restrictive mitral annuloplasty only addresses annular dilatation with a minimal impact on the subvalvular tethering.

Awaiting new insights, the ideal approach in well-selected patients would be to consider sparing mitral valve replacement⁵ or a ring with adjunctive surgical procedures targeting the subvalvular tethering.

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