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REPLY: RINGS AND THINGS: CHOICES IN MITRAL VALVE REPAIR

Reply to the Editor:

Whereas Ma and colleagues¹ note the deleterious consequences of elevated post-repair mitral gradients, Kim and Choi² suggest that the combination of an edge-to-edge repair and a small, complete annuloplasty ring can lead to higher transmitral gradients and ensuing complications. We agree with both.

Nearly 100% of degenerative mitral valves can be repaired by experienced surgeons.^{3,4} Relative to replacement, repair confers significant clinical advantages, including greater freedoms from anticoagulant-related hemorrhage, thromboembolism, and endocarditis; better left ventricular function; and, possibly, improved long-term survival. Mitral valve repair is therefore the preferred procedure for those with degenerative mitral valve disease. This statement is not controversial.

The choice of repair techniques, however, is controversial. Surgeons argue the relative merits of artificial chord creation versus leaflet resection (respect vs resect) and the type of annuloplasty device (complete ring vs posterior band). Combinations of all these techniques have yielded excellent short- and long-term results.³⁻⁵ Application of the edge-to-edge repair as a primary repair technique is relatively uncommon. De Bonis and colleagues⁶ report good results in a variety of settings, while others reserve this strategy primarily for patients with Barlow disease. In patients with Barlow disease, the valves are very large, rendering the likelihood of postrepair stenosis low after an edge-to-edge repair.

The surgical goal in patients with degenerative mitral valve disease is a repair that exhibits neither stenosis nor regurgitation. An edge-to-edge repair is rarely necessary in such patients, and a downsized annuloplasty device is generally inappropriate. Repair is best achieved with a relatively large annuloplasty device (labeled size 34 or larger) and either creation of artificial chords (anterior or posterior leaflet prolapse) or leaflet resection (posterior leaflet prolapse).

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REPLY: HESITATE TO APPROXIMATE?

Reply to the Editor:

I read with great interest the astute commentary of Kim and Choi¹ on the genesis of postoperative valvular gradients after degenerative mitral valve repair, as described by Ma and colleagues.² We can all agree that the combination of a small complete ring and the Alfieri leaflet approximation can lead to increased transmitral gradients. This is not inevitable, however, and may vary with width of the approximation and its location. In a subset of 54 patients with end-stage cardiomyopathy and significant ischemic mitral regurgitation repaired with undersized complete rings (mean size, 28.2 ± 2.3 mm) and leaflet approximation, De Bonis and colleagues³ reported mean transmitral gradients of 3.8 ± 1.2 mm Hg at hospital discharge and 3.3 ± 2.1 mm Hg at 1.5 postoperative years. Larger rings (36.6 ± 2.5 mm) were used when repairing degenerative pathology with the edge-to-edge technique to, however, maintain valve area greater than 2.5 cm^2 in patients with preserved myocardial function.⁴ In the setting of significant degenerative disease and associated annular dilatation, the entire length of the P2 scallop is often approximated with deep bites to the rough zone of the corresponding anterior leaflet segment, yet Alfieri's group outlines that a "shorter suture should be used in patients with smaller valves."⁵ If the width of edge-to-edge approximation is not extensive, it is feasible to achieve acceptable mitral gradients even in the setting of smaller annuloplasty rings, such as those used in the study at hand of Ma and colleagues,² particularly when the average body surface area of the patients was only approximately 1.7 m^2 , which is unusual for Western