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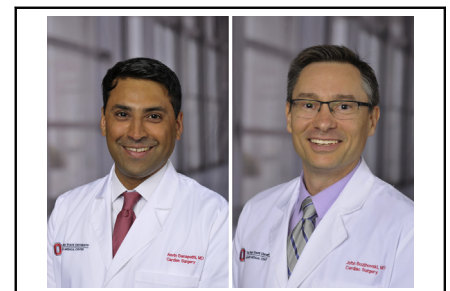


Commentary: Mitral principles for aortic problems

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Although prosthetic heart valves provide a valuable option for patients with valvular heart disease, surgeons continue to look for ways to repair native valves for a multitude of reasons, including superior hemodynamics, no need for short- or long-term anticoagulation, and improved longevity relative to bioprosthetic valves. Recent analysis of the Society of Thoracic Surgeons database demonstrated that nearly 90% of aortic root reconstructions were done with a composite valve graft, as opposed to sparing the aortic valve, particularly in patients at higher risk.¹ Although valve-sparing aortic root replacement and some other annuloplasty methods address annular geometry, other techniques address only the leaflets, unlike mitral or tricuspid repairs, which address the annulus as an important structural component contributing to valvular function. Consequently, most patients undergoing surgery for aortic regurgitation will end up with a prosthetic valve.

In this issue of the *Journal*, Rankin and colleagues² describe the regulatory long-term data in the first-in-human experience with the HAART 200 ring (BioStable Science & Engineering, Inc, Austin, Tex) for patients with bicuspid valves. Building on the group's previous publication of the initial data with the ring,³ they describe excellent outcomes, with a significant reduction in aortic insufficiency in patients with bicuspid aortic valves and associated aortic insufficiency. In addition to the absence of short- or long-term mortality, there was a reduction in aortic insufficiency to a grade of less than 1, with excellent long-term gradients (mean of 13.3 mm Hg). Remodeling of the left ventricle was also noted, with appropriate reductions in



Asvin M. Ganapathi, MD (left), and John Bozinovski, MD, MSc (right)

CENTRAL MESSAGE

Improving success at preserving native regurgitant valves is a noble goal, and annuloplasty has facilitated this for the atrioventricular valves. Perhaps this should be expanded to the aortic valve.

left ventricular dimensions and mass. Finally, it is notable that nearly half of the patients underwent an aortic valve repair alone, demonstrating the durability of the repair without an aortic root reconstruction.

Although these results are admirable, they should also be taken with some caution. The results presented by Rankin and colleagues² are from a group of only 16 patients, which limits generalizability, although they point out that the ring has been used in more than 500 patients overall. In addition, the data presented are for a 2-year follow-up because the technology is newly introduced in the past few years. The average age of the patients in the study is 43 years, and the question is how these patients will do 10, 20, or more years in the future. One of the major advantages of mitral repair is that when performed by an experienced surgeon, there is a high freedom from reoperation even at 20 years (>95%), as most recently demonstrated by David and colleagues.⁴ Achievement of a similar level of success with repair of bicuspid valves would be essential, given the young average age of these patients as well as the fact that bicuspid valves are more difficult to repair, particularly when an annulus larger than 28 mm is present.⁵

Given these excellent results, the ring may provide a more reproducible method of aortic valve repair for individuals with bicuspid aortic valves. The potential to prevent the need for reoperation later in life or for lifelong anticoagulation is enticing as well. In addition to this device's

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opportunity to standardize repair of bicuspid valves, there are new technologies that allow for the possibility of assessing the repair in ways other than echocardiography and while the aorta is still crossclamped.^{6,7} Finally, as more surgeons and centers begin to focus on repair of the aortic valve, the question of the need for defining centers of excellence similar to those in mitral valve surgery must be addressed.⁸

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