

See Article page 890.



Commentary: Thirty years of valve preserving surgery—are all questions answered?

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Few aspects of cardiac surgery have received more interest in the past 2 decades than valve-preserving surgery. Almost 30 years after the first publication,¹ one of the pioneers of the concept writes an update.² The paper essentially sends 2 messages: the results can be stable over 30 years, but aortic regurgitation increases over time. The first message confirms the concept, and the second does not come as a surprise. After all, evolution had hundreds of millions of years to create the perfect aortic valve, and still we see failures. It seems unrealistic to believe that a single surgeon can do better in the course of 2 hours. Thus, the publication confirms what can be expected.

To have the best learning benefit, the paper should also teach us what should not be done to possibly improve results. After all, an operation should be reproducible by colleagues, and ideally, it should be applicable to a larger number of patients. We must thus focus on failures, since we learn more from failures than from successes. It has become clearer in the past 20 years that failures of aortic valve reimplantation are usually cusp related.²⁻⁴ This is in line with the opinion of the senior author.⁵

Cusp management consists of selection and correction of abnormalities. Selection is obviously important.^{2,6} Apart from being “conservative” and not accepting “overstretched and flattened cusps,”² the authors do not give us details. To be reproducible in other hands, more objective criteria would be helpful, such as the ones we have developed.^{7,8}

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Disclosures: The author reported no conflicts of interest.

The *Journal* policy requires editors and reviewers to disclose conflicts of interest and to decline handling or reviewing manuscripts for which they may have a conflict of interest. The editors and reviewers of this article have no conflicts of interest.

Received for publication Aug 2, 2020; revisions received Aug 2, 2020; accepted for publication Aug 3, 2020; available ahead of print Aug 5, 2020.

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J Thorac Cardiovasc Surg 2021;161:903-4

0022-5223/\$36.00

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<https://doi.org/10.1016/j.jtcvs.2020.08.004>



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CENTRAL MESSAGE

Reimplantation of the aortic valve is associated with an increasing incidence of regurgitation over time. Better definition of its mechanisms is necessary to hopefully improve long-term results.

The same applies to the correction of the cusp lesions, such as prolapse or fenestrations.² It has been shown previously that concomitant prolapse correction does not compromise mid-term results.⁹ What about the Toronto series? Initially, prolapse correction was rare, and in the current series it includes 60% of the cohort.² What triggered cusp prolapse, and what are the detailed results? In particular, it would be helpful to see detailed results with reinforcement of the free margin with a suture.

In this context, a detailed analysis of the cusp pathologies leading to reoperation would be helpful. Similarly, a more detailed echocardiographic analysis¹⁰ could likewise give clues to mechanisms leading to failure. Is the reason for increasing regurgitation more likely recurrent or unrecognized prolapse from the initial operation, or is there evidence of cusp retraction? In my mind, retraction would be the more worrisome finding.

In summary, the current paper confirms that aortic valve reimplantation can be durable for up to 3 decades. Nonetheless, it also indicates that even in the hands of a master surgeon, the result may not always be perfect. To improve our performance of such operations, we must thus continue to define answers to detailed questions. Cusp configuration is of primary importance. While visual assessment apparently works well in the hands of David and colleagues, we need to look further to improve the reproducibility of this procedure.

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