

The author reported no conflicts of interest.

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have not seen any stenosis of the coronary ostia as a result of compression from blood flow or thrombus in false lumen of the aortic root. Our operative mortality is 6.5%.<sup>2</sup> We have followed up our patients with computed tomographic angiography annually, or biannually if the dissected aorta is stable. We find that all dissected aortic roots have completely after repair, healed with no residual dissection or aneurysm.

In summary, for aortic root repair in ATAAD, it is essential to respect mother nature and keep the operation simple and effective.

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## FACING THE SMALL AORTIC ROOT IN AORTIC VALVE REPLACEMENT: ENLARGE OR NOT ENLARGE?

**To the Editor:**

In patients with severe aortic stenosis, aortic valve replacement (AVR) should aim to implant a prosthesis of adequate size to effectively eliminate left ventricular obstruction and avoid the risk of patient–prosthesis mismatch (PPM). PPM has been demonstrated to be associated with increased mortality, decreased exercise tolerance, and reduced left ventricular mass regression after AVR for aortic stenosis.<sup>1</sup>

The important paper by Tam and colleagues<sup>2</sup> in the October 2020 issue of the *Journal* presents the results of a multicenter study analyzing 2 cohorts of patients, compared by propensity score matching, with or without aortic root enlargement (ARE) at time of AVR. They confirmed that ARE did not influence neither early mortality, despite longer operation times, nor survival up to 8 years, when compared with AVR alone. However, in their study there is no mention of the techniques used for ARE, which may have a different impact on the entity of annular enlargement,<sup>3</sup> on the real increase of prosthetic sizes, and whether PPM was effectively eliminated or minimized.

We have always been interested in the issue of PPM following AVR, and in a recent study we have shown, in agreement with Tam and colleagues,<sup>2</sup> that ARE is a safe and effective technique that does not adversely affect operative mortality<sup>4</sup>; moreover, our clinical, echocardiographic, and angio–computed tomographic follow-up indicates that, when a pericardial patch is used for ARE, this procedure is extremely stable, with no aneurysm formation up to 18 years and effectively addressing the problem of PPM. It must also be emphasized that, in their population, Tam and colleagues<sup>2</sup> report a high prevalence of tissue valves employed for AVR. In this respect, the need to avoid PPM appears even more relevant considering that PPM may accelerate structural deterioration of biological prostheses, either porcine or pericardial, influencing their long-term durability.<sup>5</sup>

There is currently enough evidence that ARE represents an important adjunct to the surgical armamentarium and that it should receive more widespread acceptance; on the other hand, use of small-sized bioprostheses for AVR should be discouraged, also in view of possible future valve-in-valve procedures.

The experience by Tam and colleagues<sup>2</sup> is clearly in favor of ARE during AVR. Despite the increasing use of new bioprosthetic models, such as the rapid deployment or sutureless devices, we feel that ARE should be still taught

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to the young generations so that they can grow eliminating at least one of the many Hamletic doubts with which cardiac surgeons are daily faced.

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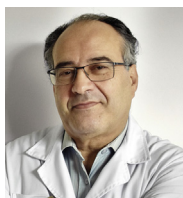
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## REPLY: AORTIC ROOT ENLARGEMENT, AGAIN AND AGAIN

### Reply to the Editor:

In their Letter to the Editor published in this issue of the *Journal*, Martino and colleagues<sup>1</sup> comment on a recently published article by Tam and colleagues<sup>2</sup> on the subject of enlargement of the narrow aortic root (ARE) for implantation of a larger prosthesis than what the native annulus would otherwise permit. This article was accompanied by an invited commentary that I wrote.<sup>3</sup> In the end, we all came out in favor of ARE; thus, there is not much to argue about in this letter, which was solicited by the Editor-in-Chief of the *Journal*.



However, this letter does serve to lend further support to 3 aspects related to the procedure. First, ARE is a relatively simple procedure and can be performed by any cardiac surgeon, irrespective of level of experience, after a short learning curve. As emphasized in my commentary, there are several simpler techniques than those originally described by Manoughian and Nicks, especially those that avoid interference with the anterior mitral valve leaflet, yet with similar efficacy. Curiously, neither Martino and colleagues nor Tam and colleagues detailed the techniques used in their respective experiences.

Second, the procedure has been demonstrated to be safe, with few added complications during surgery, and durable in the long term, with very low incidences of prosthetic dehiscence or aneurysmatic degeneration of the patch used for enlargement. Here, the only point still under discussion is the type of material used: fresh or glutaraldehyde-treated autologous pericardium, bovine pericardium, or synthetic patch. I have used bovine pericardium starting from the beginning in the 1980s, but autologous tissue is being increasingly used, again with long-term freedom from degeneration.

Third, ARE ordinarily achieves what it is meant to—that is, permits the insertion of a one- or two-size-larger prosthesis. The final sizing of the valve substitute must also consider the patient's body surface area, with the aid of readily available tables, to avoid patient-prosthesis mismatch (PPM). Here there is a difference between mechanical valves and bioprostheses, not only because the latter are usually slightly less hemodynamically efficient, but also because PPM appears to accelerate prosthetic biodegradation.

In summary, ARE has become an important tool in the cardiac surgeons' armamentarium and should be used more frequently. Some groups perform it in up to 20% of their cases, which matches my most recent experience. Furthermore, it can be performed by the vast majority of surgeons, even less experienced ones, which responds well to the plea by Martino and colleagues that it "should be taught to the young generations," preferably using simpler methods.

Citing Einstein, "everything should be made as simple as possible, but not simpler."

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