Commentary: Aortic root reconstruction in acute dissection: What is the reality?

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Central Message

Surgeons without expertise in anatomic restoration of the dissected root with the patch technique may be better served with traditional root replacement.

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In the current issue of the *Journal*, Irimie and colleagues¹ review 100 patients with acute type A aortic dissection surgically treated over 17 years with an anatomic restoration of the involved root with individual patch replacement of 1, 2, or all 3 of the sinuses of Valsalva. The technique has been well documented since the original review in 2005² and reflects the good results that can be obtained by cardiac surgeons with both expertise in this technique and surgical judgment in patient selection. This single-center surgical group should be commended for their operative mortality of 1% in this high-risk group of patients and the 100% freedom from any aortic valve or aortic root reintervention or relevant (>2+) aortic insufficiency postoperatively for up to 12 years.

This surgical technique is reflective of the imaginative procedures that have been applied to the myriad of pathologic conditions affecting the aortic root. Since Bental and De Bono's³ original description of root replacement in 1968 with a mechanical valve-conduit and Gula and colleagues'⁴ documentation of homograft implantation in the aortic root in 1977, numerous bioprosthetic replacement options with porcine roots^{5,6} and hand-sewn bioroot composites using stented bioprostheses sewn into Dacron grafts⁷ have been used. In addition to the satisfactory results with such total replacement procedures using both mechanical and biologic options, aortic valve-sparing techniques have been designed and adopted with equal clinical outcomes avoiding the challenges of Coumadin administration or structural valve deterioration of the bioprosthesis. Both the root remodeling technique of Yacoub⁸ and the inclusion technique of David⁹ have stood the test of time with satisfactory results.

Although the procedure described by this group,¹ pioneered by the senior author who contributed 77% of the results, could be considered a modification of the Yacoub technique, there are very real differences and benefits afforded by the individual patch replacement of 1, 2, or all

3 of the sinuses of Valsalva. The importance of surgeon experience, clinical judgment on patient selection particularly in those patients with type A dissection involving the root, understanding of aortic root anatomy and pathophysiology of aortic insufficiency in this clinical setting, and the presence of a "specialized and experienced aortic team"¹ were all defined as critical to obtain excellent surgical outcomes in acute dissection surgery.

Is it realistic, however, for cardiac surgeons who have infrequent exposure to type A aortic dissection to possess the experience, judgment, and anatomic understanding to accomplish satisfactory results with the techniques described in this publication? In addition, the surgical team participating in such operative intervention may not have such specialization and the necessary experience that are integral to surgical excellence. Although such surgical options are enticing and interesting to contemplate, experience may be more realistically obtained with adoption of the described techniques on arteriosclerotic aortic root aneurysms. Until the achievement of such knowledge has been realized, the realistic surgical approach to such dissected root pathology may well be to apply the "gold standard" of Bental's root replacement as suggested by Irimie and colleagues.¹

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