

S.M.S. is a consultant for Abbot, Stryker, and Artivion. J.J. reported no conflicts of interest.

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YANG TECHNIQUE FOR AORTIC ANNULAR ENLARGEMENT AND THE “LEMON ON A STICK”



To the Editor:

First, we would like to congratulate the author on his simple and reproducible technique that facilitates the placement of a larger aortic prosthesis.¹ However, we do not feel at ease when the technique is being described as an aortic annular enlargement (AAE) and is being compared with and considered superior to other well-established true annular enlargement techniques, such as those of Nicks,² Manouguian,³ and Konno-Rastan.⁴

One of the key technical principles for achieving a true AAE is cutting across the surgical aortic annulus, which is a key difference between all well-established AAE procedures and the Y-incision described by Yang. Here, the incision is actually placed above the left ventricular outflow tract (LVOT) and does not extend across the virtual basal ring. Although the functional aortic annulus is enlarged from the virtual basal ring to the sinotubular junction, the virtual basal ring itself remains unchanged and while it is being rebuilt posteriorly with a prosthetic patch, this does not alter its actual dimensions.

In our opinion, Yang's technique facilitates the placement of a supra-annular prosthesis. To achieve this, it enlarges the sinuses of Valsalva of the aortic root, specifically the non- and left coronary sinuses only. We believe the following points support our opinion: first, there is inconsistency in the degree of “annular” enlargement and what size prosthesis can be placed using Yang's technique across several of the most recent publications. This varied between three, four, or five valve sizes larger. The second point is the most recent publication of the “roof technique” demanding patching of the ascending aorta to facilitate closure of the aortotomy. This is most likely the result of placing a very large supra-annular prosthesis and inability

to close the aortotomy without creating a supra-valvular gradient.⁵

We have used the technique in some of our patients as well, and we found it helpful when it is carefully applied. It is critical for those who are performing the procedure to understand the following: (1) the technique does not address the LVOT, and a larger prosthesis placed above a smaller LVOT could potentially create suboptimal hemodynamics that mimic subvalvular stenosis, that is, “lemon on a stick.” Therefore, the effective orifice area of the placed prosthesis has to be equal to and not much larger than the true LVOT diameter. (2) We must be careful how big of a prosthesis we place so we do not compromise the aortotomy closure or the coronary ostia. This is also important for transcatheter interventions and future valve-in-valve therapy, where everyone is eager to place the largest possible prosthesis but some of these transcatheter valves rest in the LVOT, which is not addressed by Yang's technique.

We still believe that Yang's technique is useful and certainly of value, but understanding the basic principles of any procedure is a key to its successful application.

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<https://doi.org/10.1016/j.xjtc.2022.09.007>