Author’s response to reviews

Title: Hegar-Based Method for Aortic Valve Replacement in Multiple Valve Surgery

Authors:

Marco Gennari (marcogennari.md@gmail.com)
Marco Agrifoglio (marco.agrifoglio@ccfm.it)
Gabriella Ricciardi (gabriella.ricciardi90@gmail.com)
Gianluca Polvani (gianluca.polvani@ccfm.it)

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Response to Reviewers

Reviewer #1: It is an interesting idea proposed in the manuscript. However, I cannot grasp the need and purpose of this procedure. Especially in calcified annuli, any manipulation of forced maneuvers in the LVOT and or aortic root can lead to serious damage. I am very uncomfortable of exposing the mitral valve properly while a massive and rigid metal instrument is in place. Also, I would be afraid of the risk of annular rupture.

I would rather recommend placement of the sutures in the anterior circumference of the mitral valve meticulously to avoid any plication effect. I agree that small annuli especially in rheumatic disease can be challenging, but considering few important issues additional manipulation that might make the procedure more complex (xclamp time!!). These are placement of correct mitral sutures (see above), transmural placement of sutures at least in the non-coronary sinus of the aortic root and considering root enlargement techniques when suitable. Furthermore, a 17 mm bileaflet mechanical valve would have offered a correct EOAI in both patients thus having kept the procedure simple.

Unfortunately, the further clinical course of both patients is unknown as are the postoperative echocardiographic follow-up data.

What is meant by MEAN CPB and xclamp time since only data of individual cases are presented?

Although I would not recommend this technique, congratulations on a (presumably) positive outcome!!

I thank Reviewer #1 for the comment on the paper. I appreciate the suggestion of placing the suture properly on the anterior aspect of the aortic annulus, to avoid any plication deformity.
For this purpose the Hegar introduced in the aortic valve is limited to the annulus, to maintain the proper diameter while suturing the mitral annulus. So the mitral valve is easily exposed without the Hegar presence within the LVOT.

We replaced the valves with two mechanical prosthesis in one case and with two biological ones in the other case, because of an hypercoagulation state of the patient with relative contraindication to a full mechanical device.

We did not perform any aortic root enlargement because in both cases the ascending aorta was very short and furthermore the mitro-aortic continuity very narrow.

I have added in the text the 1-year favorable echocardiogram follow-up data as Table 2.

Finally, thanks fur underlying a typing error in Table 1 (adding the term “mean” to CPB and cross-clamp times).

Reviewer #2: The authors demonstrated how to keep the diameter of the aortic annulus for replacing aortic valve replacement during mitral valve replacement in a case of small aortic annulus diameter.

Comment:

This method is interesting and could be useful for patients with small aortic annulus to prevent unexpected narrowing of it after replacing mitral valve replacement. To show the operative procedure in more detail, the authors should provide (1) a representative figure of a long-axis cross-section view while placing a Hegar dilator into the left ventricle through the aortic annulus, (2) how to place stitches (mattress stitches with spaghetti-like tubes or single stitches), and (3) kinds of the prosthetic valves (mechanical valve or bioprosthetic valve) in Table 1.

I thank the Reviewer # 2 for the comments on my work. The answers to your key-points are as follow:

1. I have added a scheme as Figure 3
2. The technique we use was U subannular stithes for both aortic and mitral annuli
3. I have added the specification of the prosthesis in Table 1.

I rest at your disposal for further clarifications.

Sincerely,

Marco Gennari MD