

Peer Review File

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Reviewer A:

Comment 1. The narrative describes docking and use of the Xi system whereas some of the videos show draping and docking of the Si system. The authors should mention this in the narrative or use all Xi videos to be consistent.

Reply 1. We started our robotic programme with SI system and then used both XI and SI systems according to availability and schedule of other departments. Therefore, the videos in this manuscript might be captured from different systems. We mentioned this issue at the Video 1.

Comment 2. The techniques described constitute the preferences of the authors. Perhaps some mention of alternative approaches (e.g. use of the endoballoon) should be mentioned.

Reply 2. We added some comments to operative section about other techniques such as using of endoaortic balloon.
(Page 7; 163)

Comment 3. It is apparent from the video that the stitches are first placed anteriorly in the A3 area working counterclockwise. This should be mentioned in the manuscript with a justification as to why this approach was chosen.

Reply 3. We agree that one of the most important step of robotic assisted MVR is the suture management. We overcome this step by using a convenient suture organizer (three the same plastic units) which reduces frustration during valve implantation by keeping suture ends organized and tangle-free therefore saves time. The suture organizer is seen at video 10. The reason for putting the stitches from A3 to the counter clockwise direction is that they stay on the left side of the camera as they are lined up on the suture organizer, do not crowd in front of the bedside surgeon and leave the surgeon a hassle free space. After your comment, we added this issue to technical details section.
(Page 9, Lines 199-200)

Comment 4. While placing the robotic scope through the same working port is done by some robotic operators it is not the preferred technique by many who use two separate ports (one for the camera and one as a working port). This should be mentioned.

Reply 4. Because the scope and the working port are in the same incision, there is one less incision. Additionally, if replacement is necessary, it is not possible to insert the prosthetic valve through the port.

Comment 5. What number of these cases have the authors performed and how has their experience with percutaneous cannulation been?

Reply 5. We recently reported our results with percutaneous cannulation during robotic mitral valve surgery between April 2018 and December 2020. According to that study, 32 consecutive patients were evaluated and followed for a mean duration of 23.5 months and satisfactory results were obtained. According to that study, the patients did not present with a late wound infection, a seroma, or a pseudoaneurysm, nor had complaints of limb ischemia or claudication. This topic has been referred to in the article (Reference Number 2).

Comment 6. The description of the details and nuances of trans catheter MVR is probably not within the scope of this manuscript.

Reply 6. After the suggestions, we deleted from the manuscript the details about the transcatheter MVR which was mentioned at the Discussion section.

Comment 7. Finally, some minor English language edits would strengthen this manuscript.

Reply 7. English edition was performed.

Reviewer B.

Comment 1. This manuscript will require substantial editing because of language issues.

Reply 1. Grammar and spelling errors were reviewed and corrected through the manuscript.

Comment 2. The authors devote a significant amount of the manuscript to the port setup and cannulation issues. Most of this information is a repeat of the setup described by Chitwood in the early 2000's. The associated videos need to have voice overlay describing the details of the steps or at least closed captioning.

Reply 2. We edited the videos in terms of voice overs after your suggestion.

Comment 3. The video of the valve excision showed no preservation of chords. There did not appear to be any reason to excise the posterior leaflet which could increase the incidence of AV groove separation. The authors should discuss this.

Reply 3. As long as there is no heavy calcification in the posterior leaflet especially in patients with low ejection fraction, we protect the leaflet. However, as you suggested, we changed that part of the video 10 at which subvalvular apparatus was preserved.

Comment 4. Why did the authors use everting sutures with a tissue valve.

Reply 4. We prefer everting suture technique during mitral valve replacement and had satisfactory results for long years.

Comment 5. The patient in the video had obviously large intercostal spaces allowing the delivery of the valve through the chest wall with the holder attached. The authors should address this step in patients with narrow interspaces.

Reply 5. Due to the narrow space, first we place the sutures on the prosthetic valve, then remove the holder and turn the sideways of prosthesis and finally pass from the intercostal space. If there is still difficulty, the prosthesis can be inserted by widening the intercostal space via the Farabeuf retractor. This step was added to operative technique section.

(Page 9; 203-206)

Comment 6. The critical step in robotic MVR is suture management by the patient-side assistant to prevent tangling and crossing. The authors should address the technique used.

Reply 6. As you mentioned, one of the most critical step during robotic assisted MVR is suture organizing. For this issue we use two different colored tycron sutures and a suture organizer (the same three plastic units) which reduces frustration by keeping suture ends organized and tangle-free. Systematic order and placed to the suture organizer again systematically.

We almost always start from the A3 to P3 with the counter clockwise direction. We detailed this technique at the manuscript.

(Page 9;199-203)

Comment 7. There needs to be more information on de-airing. Is the left atrial vent placed across the valve to de-air? Aortic venting?

Reply 7. As you mentioned, to perform deairing, we place a venting catheter through left atrium till the left atrial closure. We also put a 16 G needle to ascending aorta just before declamping and check the air bubbles with TEE before pulling. After your suggestion we detailed this issue at operative technique section.

(Page 9;212-215)

Comment 8. The discussion of trans catheter MVR adds little to a manuscript on robotic MVR technique.

Reply 8. After your advice, we deleted the details about transcatheter MVR from the discussion section.

Reviewer C

Comment 1. How you assess vascular system in pt with kidney injury preoperatively. Just CT without contrast?

Reply 1. In patients with preoperative renal problems, we highly hesitate to administer contrast to evaluate the aorta, iliac and femoral arteries and then we check the calcifications via tomography without contrast (page 4 ; line 78-81)

Comment 2. When do you give heparin? Before or after putting the 17 fr cannula in SVC. I would like you to write the order of the procedures, heparin, cannulation, etc.

Reply 2. We administer 5000 units of Heparine before cannulation of vena cava superior and full dose of Heparine (around 25000 Units) before arterial and femoral vein cannulation. We detailed these steps at the manuscript.

(Page 4; Line 93-Page 5; 105)

Comment 3. Do you put any retraction sutures on the diaphragm? If so, please write because that is very important tip.

Reply 3. We put retraction sutures on the diaphragm especially when the exposure is not clear. (Page 7; 158-159)