Author’s response to reviews

Title: Surgical Mitral Valve Replacement Using Direct Implantation of Sapien 3 Valve in a Patients with Severe Mitral Annular Calcification without Adjunctive Techniques, A Case Report

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Version: 1 Date: 01 Feb 2020

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Reviewer # 1: Interesting manuscript dealing with an important issue. Although this procedure has been done in the past for complex problems with the mitral valve utilizing percutaneous valve modification, the only new aspect of this procedure is that no suture was applied to secure the valve. From looking at the videos, this would have been very easy to do with 3 pledgeted sutures, which might aid in ensuring no movement of the valve. However, since the follow is good, one cannot question this result and technique.

Response: Thank you for your kind comments

Reviewer # 2: The article is curious and well written. It brings an innovative solution for patients with high risk mitral valve disease. It can be effective on patients who need faster surgery. I believe it arouses interest in the reading public. The films illustrate well the proposed technique. Congratulations.

Response: Thank you for your kind comments

Reviewer # 3: The authors reported an interesting case with severe MAC which was treated with open Sapien implant. this case report is well described and appropriate to publish in our journal. The discussion section is well written.

Response: Thank you for your kind comments
Reviewer # 4: I read the case report by Albacker et al with interest. Although direct transcatheter valve Implantation in mitral surgical setting has been reported previously it is of interest for readers to see different management of the MAC.

Response: Thank you for your comments

Reviewer # 4: are there more intra operative pictures of procedure

Response: All relevant details were shown in the videos and we are afraid that adding pictures from the video sections would be redundant, No changes needed

Reviewer # 4: what calculation and measurement were used to avoid obstructing LVOT

Response: To predict the risk of post procedure LVOT obstruction, the neo LVOT was assessed preoperatively during systole by measuring the distance from the inter-ventricular septum to the frame of the simulated transcatheter valve and then calculating the neo LVOT area which was 211 mm2 in this case. However, there is no set threshold for LVOT obstruction when this procedure is done using transatrial approach and the anterior mitral leaflet is excised since the calculated neo LVOT is underestimated due to the fact that there is flow through the cells of the valve stent frame. . This Note was added in page 5 line 97 to address this comment

Reviewer # 4: it is important to have repeat echo in 3 months time minimum and not only immediate post op echo

Response: We appreciate your comment. However, our focus in this manuscript was the immediate intra-operative success of the technique to prove the principle. Adding the 3 months F/U echo might be of value but it is not available

Reviewer # 5: I congratulate the Authors for this experience
This is an interesting case report about direct Sapien XT implantation in a native mitral valve severe with severe mitral annular calcification.
Authors did not resect anterior mitral valve and did not placed any pledgeted sutures to enhance stability and reduce paravalvular leak. They justify their choice in order to shorten the cross-clamp time

Response: Thank you for your comments

Reviewer # 5: Please comment about the choice not to place any pledgeted sutures to reduce the risk of atrial embolization of the prosthesis

Response: Our strategy in this case during the planning stage was to use direct implantation without any adjunct techniques regardless of what the technique would be, given the fact that the annular calcification was almost circumferential.No changes were made

Reviewer # 5: Please comment about the left ventricle outflow tract size and residual area after Sapien XT implantation and theoretical risk of LVOT obstruction
Response: To predict the risk of post procedure LVOT obstruction, the neo LVOT was assessed preoperatively during systole by measuring the distance from the inter-ventricular septum to the frame of the simulated transcatheter valve and then calculating the neo LVOT area which was 211 mm² in this case. However, there is no set threshold for LVOT obstruction when this procedure is done using transatrial approach and the anterior mitral leaflet is excised since the calculated neo LVOT is underestimated due to the fact that there is flow through the cells of the valve stent frame. This Note was added in page 5 line 97 to address this comment.

Reviewer # 5: Please comment the relationship between Sapien XT and mechanical aortic valve

Response: There was no interference with the mechanical aortic valve neither there was an obstruction to the flow through it as explained in another comment.

Reviewer # 5: Please comment about the choice of redo-sternotomy Versus minimally invasive heart-port right thoracotomy access.

Response: We do not have experience in minimally invasive heart-port right thoracotomy access especially in a case like this where we did not know what to expect.