Transcatheter Management of Failed Mitral Valve Repair

Gagan D. Singh M.D.

Division of Cardiovascular Medicine
UC Davis Medical Center
Sacramento CA
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Not a Dr Bolling case

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Case Presentation

- 69 year old male with ex-tobacco use, severe COPD (on 3L home O2), CAD with prior anterior MI, hx of symptomatic degenerative mitral regurgitation
  - 2005: MV repair with annuloplasty + TV annuloplasty
  - Mar 2016: admitted to outside institution with hypoxic respiratory failure
    - Treated for COPD exacerbation and discharged
    - TTE: severe bioprosthetic MR and mitral stenosis
  - Apr 2016: readmitted to local hospital with hypoxic respiratory failure
    - Transferred to UC Davis Med Center for further management
Case Presentation

- Other comorbidities:
  - Severe COPD (3L O2)
  - Coronary Artery Disease
  - MV and TV surgery
    - MV: #26 Physio I
    - TV: #26 Edwards
  - Atrial fibrillation
  - GI bleeding
  - Ex tobacco use
    - Quit 2013

- Pertinent Meds:
  - Amiodarone 200mg daily
  - Amlodipine 10mg daily
  - ASA 81mg daily
  - Lipitor 20mg daily
  - Lasix 40mg daily
Case Presentation

PFTs

Mixed severe obstructive-restrictive lung disease based on FV loops, spirometry, and lung volumes. Severe reduction in DLco, however, IVC >85% not achieved therefore true DLco could be higher than measured.

BAD LUNGS!!!!
Trans-thoracic echocardiogram

Mean Gradient
8 mmHg

LV

LA
Trans-esophageal echocardiogram
Heart Team Assessment

- What’s the bigger contributor?
  - COPD
  - MR ± MS

Doc: "Take the MV off the table for me!...I know I’m sick."

- Extreme risk for redo open MVR
- Comorbidities do not preclude the expected benefit from MR reduction

- So can we place a new valve inside his ring?
  - Yes = Valve in Ring TMVR

- How?
### Table 1. Sizing Charts for the Sapien XT and Sapien 3 Valves

<table>
<thead>
<tr>
<th>Sapien 3 Valve Sizing Chart</th>
<th>20 mm</th>
<th>23 mm</th>
<th>26 mm</th>
<th>29 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annulus diameter (mm)</td>
<td>16–19</td>
<td>18–22</td>
<td>21–25</td>
<td>24–28</td>
</tr>
<tr>
<td>Annulus area (mm²)</td>
<td>273–345</td>
<td>338–430</td>
<td>430–546</td>
<td>540–680</td>
</tr>
<tr>
<td>Expanded length (mm)</td>
<td>15.5</td>
<td>18</td>
<td>20</td>
<td>22.5</td>
</tr>
</tbody>
</table>
Heart Team Assessment – Approach Options
Heart Team Assessment – Approach
Heart Team Assessment - Plan

- Given substantial pulmonary disease, transapical approach not preferable.
- Plan for R femoral venous access.
- Transseptal puncture with pre-dilatation of inter-atrial septum
- Delivery of 23mm Sapien S3
- Deployment under rapid pacing.
Procedure
Post ViR MR Assessment

Severe para-valvular leak
Paravalvular Leak (AVP II)
Procedure
Final TEE assessment
Procedure
23mm Sapien S3 Valve in Ring

18mm C: Two 10mm Amplatzer Vasc Plugs II
Features of this Case/Summary

- Use of TF-TS approach for complete transcatheter reduction of mitral regurgitation.
  - Paravalvular leak closure post Valve-In-Ring TMVR
- Significant residual iatrogenic ASD after valve delivery requiring closure
- Patient had significant improvement in MR severity and functional class with transcatheter therapies.
...on behalf of the UCD Heart Team

- Reginald Low MD
- Jason Rogers MD
- Jeffrey Southard MD
- Garrett Wong MD
- Doug Boyd MD
- Zane Atkins MD
- Nilas Young MD
- Thomas Smith MD
- Dali Fan MD
- Kori Harder RN
- Janine Neely RN
- Janine Carslon RN
- Allison Carrol RN
- Ben Claridad RN
- Cath lab and OR45 staff
- Cardiac ICU and Telemetry RNs
- Research RNs