Mitral Valve Repair with the MitraClip following Surgical Mitral Annuloplasty Failure

Case Objectives:

• Explore new options for mitral surgery failure
• Tips and tricks for mitraclip placement and imaging
Case Presentation

• 72 year-old male with symptomatic recurrent mitral regurgitation, NYHA Class III/IV

• Previous History
  • Degenerative mitral regurgitation with anterior leaflet prolapse
  • Prior surgical mitral valve repair with annuloplasty ring (34mm Carpentier-Edwards Physio Annuloplasty ring) and tricuspid annuloplasty (2010)

• Recurrent mitral regurgitation diagnosed 4 months postoperatively
Transesophageal Echocardiography

- Annuloplasty ring easily visualised (34mm Carpentier-Edwards Physio Annuloplasty ring)
- Anterior leaflet prolapse
Transesophageal Echocardiography

- Normal left ventricular size and function
- Degenerative mitral valve with anterior leaflet prolapse and severe mitral regurgitation
Evaluation

- Normal coronary angiogram
- Euroscore II: 2.13%, STS: 2.81%
- Referred by previous cardiac surgeon, surgical risk felt to be significant and evaluation for MitraClip requested
Surgical mitral regurgitation repair

• Despite prior surgical repair, nontrivial mitral regurgitation may occur in 50% of patients within 5 years, and 80% at 7 years \(^1\)

• Reoperation is associated with significant mortality and morbidity

• Need for less invasive and different option has driven an alternative approach

Safety and efficacy

• Previous reports $^{1,2}$
  • Seems safe and feasible
  • Efficacy achieved with 1 clip
  • Acceptable post-procedural transvalvular mean pressure gradients and mitral valve areas demonstrated in all patients
  • No procedure-related adverse event on 12 month follow-up

 Therapeutic Considerations & Potential Challenges

• Size and type of mitral annuloplasty ring
• Potential of post-intervention mitral stenosis
  • Undersized annuloplasty or associated high transmitral pre-procedure gradient
  • Complete vs. Partial ring
  • Need perfect position to achieve minimal increase in transmitral gradient as well as effective MR reduction

• Imaging issues for MitraClip delivery with annuloplasty shadow on TEE.
Procedure

- Echocardiographic guidance trans-septal puncture
- More posterior puncture for flail leaflets
• Sheath advancement
Procedure

- Mitral valve echo guided crossing
Procedure

MitraClip placement
Procedure
Final result
Post procedural evaluation

• Reduced MR from 4/4 to 1-2/4
  Mitral surface 1.8cm² post-procedure

• Small residual atrial septal defect

• Discharge on Day 2
Take Home Message/Summary

- Good option for failed previous annuloplasty repair
- Inherently dependent on echo imaging
  - Echocardiographic shadow due to previous annuloplasty can occur
  - Usefulness of intracardiac echocardiography (ICE)
- Potential of mitral stenosis with previous surgical annuloplasty ring
  - May be worsened by the reduction in valve area post MitraClip
  - Importance of annuloplasty size and pre-intervention valve area measurement
- 1 clip is usually sufficient, based on our experience and previous reports