Heart Institute
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New paradigm in treatment of acute prosthetic valve mitral regurgitation

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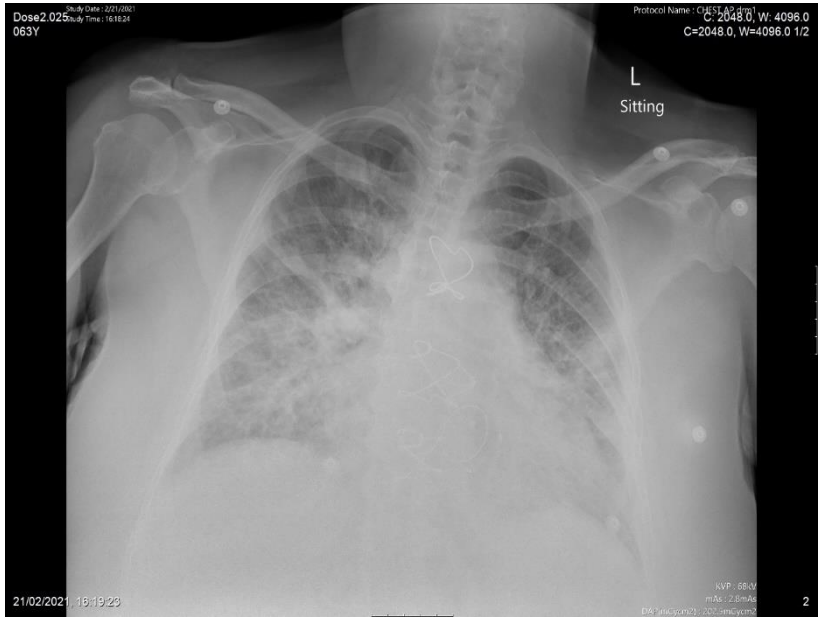
Patient presentation

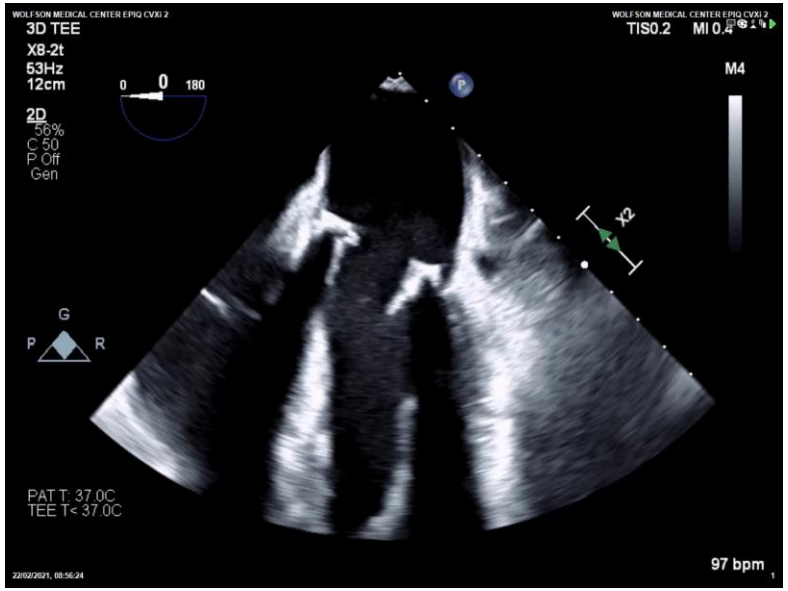
- A 63 -year-old female was admitted to our hospital with severe dyspnea and chest discomfort
- **Past medical history:**
  - RHD – S/A AVR (Magna 19 mm) & MVR (Hancock II Bio 29 mm)
  - DM, HTN
  - Morbid obesity (BMI-39)
- Upon arrival: ***Pulmonary edema with rapid hemodynamic deterioration to cardiogenic shock***
- TTE: normal size ventricles with good left ventricular function, severe mitral bioprosthetic regurgitation with a possible flail leaflet (the mechanism was unclear)
- **Trans- esophageal echocardiogram (TEE)** demonstrated severely torn mitral bioprosthetic leaflet prolapsing into the left atrium causing severe valvular mitral regurgitation

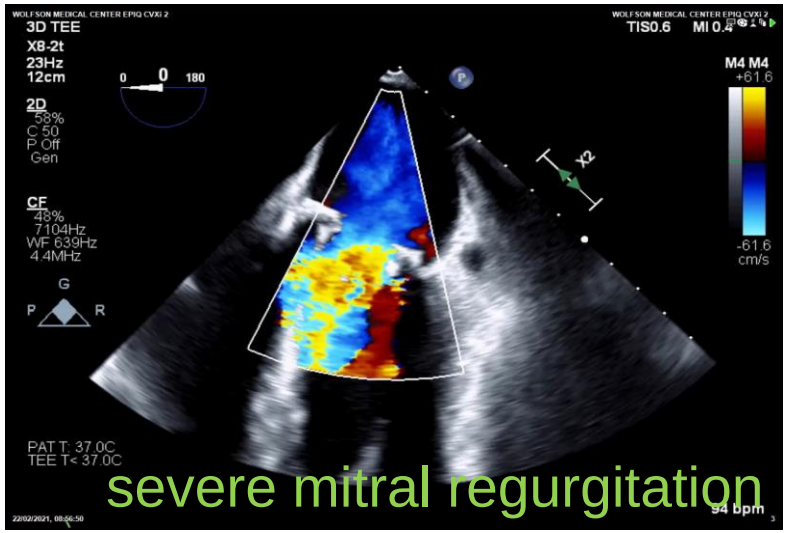
Initial work up

Flail prosthetic mitral valve leaflet

Chest X-RAY revealed bilateral pulmonary edema

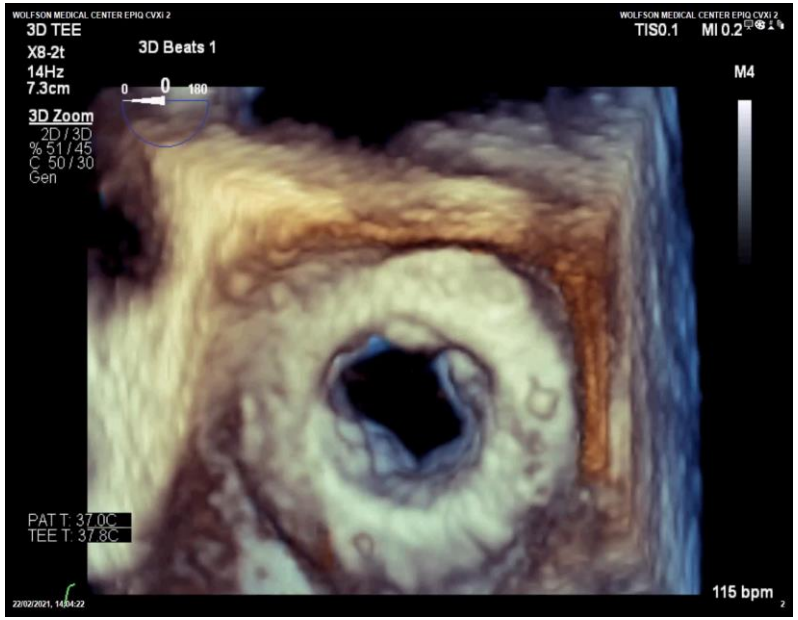






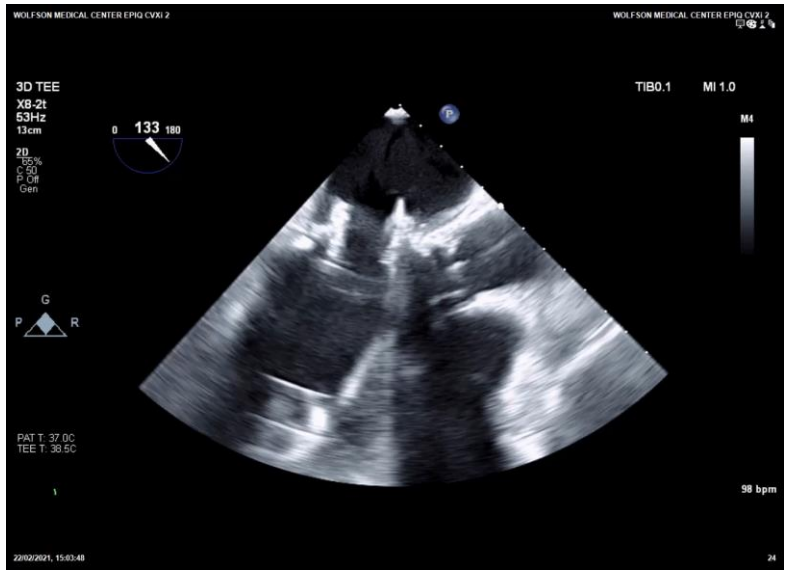
severe mitral regurgitation

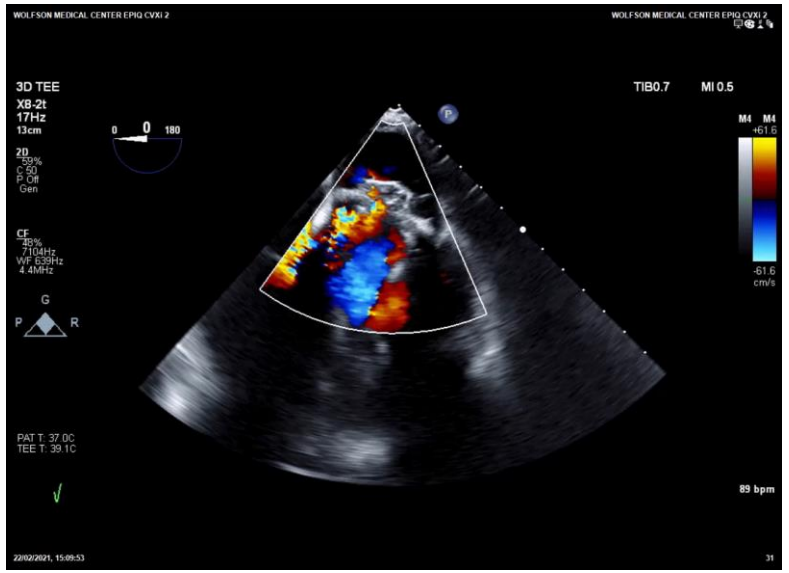
3D echocardiography revealing flail prosthetic mitral valve leaflet

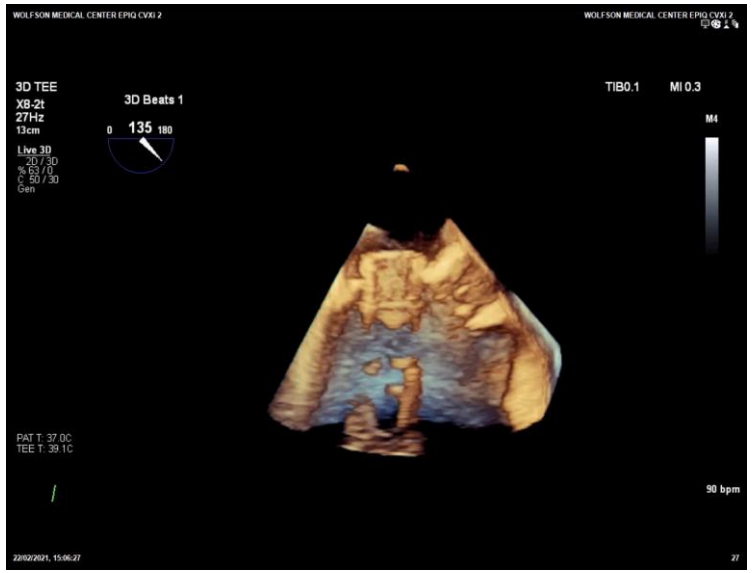


Diagnosis and Management

- The patient was in Cardiogenic shock with SBP 70 mmHg, hypoxemia and anuric renal failure requiring mechanical ventilation and insertion of an intra-aortic balloon pump.
- Urgent heart team discussion: very high surgical risk for re-do surgery/morbid obesity. Thus, percutaneous mitral valve replacement was offered.
- On admission day (18 h.) a mitral valve in valve (Sapien 3 26mm) was implanted using trans femoral (vein) trans-septal approach, guided by TEE with excellent immediate hemodynamic result.







Follow-up

- Same day extubation and prompt hemodynamic and renal recovery.
- TTE demonstrated trivial mitral regurgitation with good prosthetic mitral valve function
- Discharged home on the third post-operative day.
- One month follow-up: marked improvement in functional capacity.

Conclusions

- A patient with acute heart failure due to prosthetic valve leaflet rupture causing severe mitral regurgitation was admitted with cardiogenic shock and treated immediately by percutaneous mitral VIV implantation.
- Transcatheter valve-in-valve implantation is a valid option for the management of selected patients with bioprosthetic valve failure and should be considered in patients at prohibitive risk for conventional surgery.