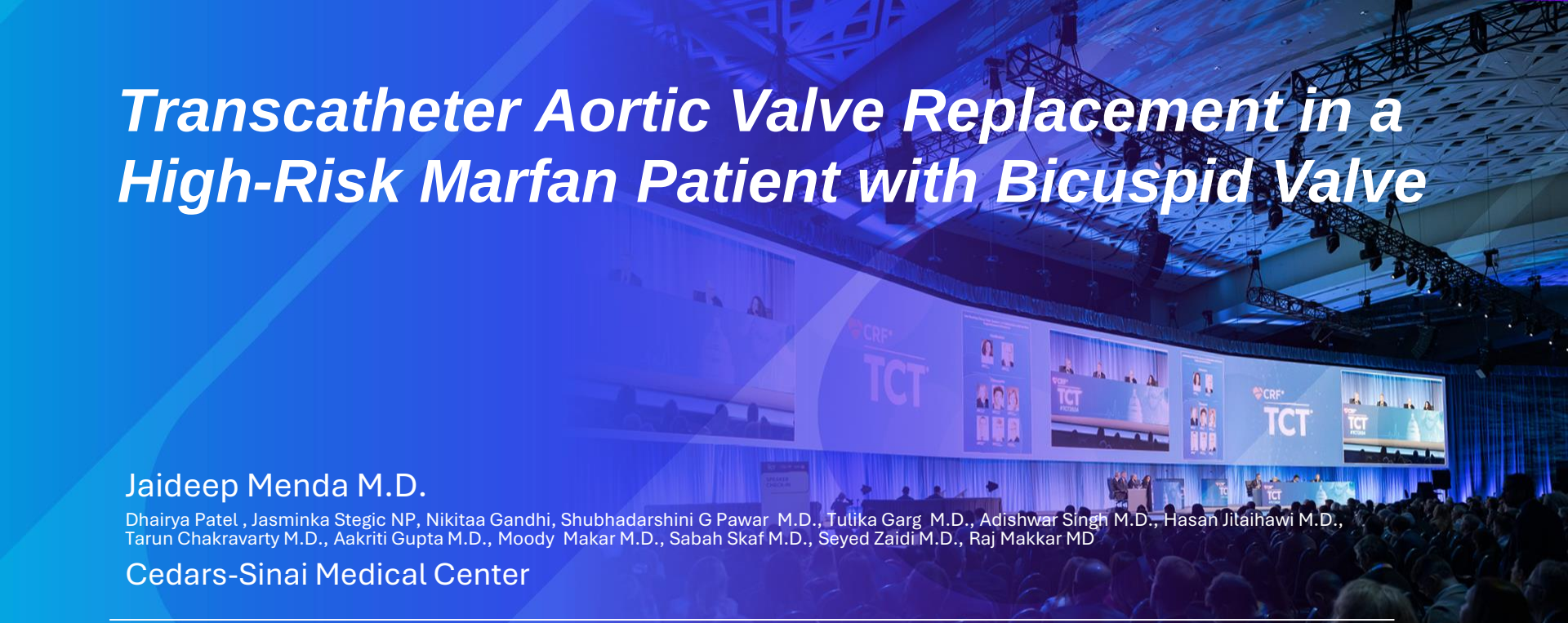
Transcatheter Aortic Valve Replacement in a High-Risk Marfan Patient with Bicuspid Valve



Jaideep Menda M.D.

Dhairya Patel , Jasminka Stegic NP, Nikitaa Gandhi, Shubhadarshini G Pawar M.D., Tulika Garg M.D., Adishwar Singh M.D., Hasan Jitaihawi M.D., Tarun Chakravarty M.D., Aakriti Gupta M.D., Moody Makar M.D., Sabah Skaf M.D., Seyed Zaidi M.D., Raj Makkar MD

Cedars-Sinai Medical Center

CRF®

TCT® TRANSCATHETER CARDIOVASCULAR THERAPEUTICS®

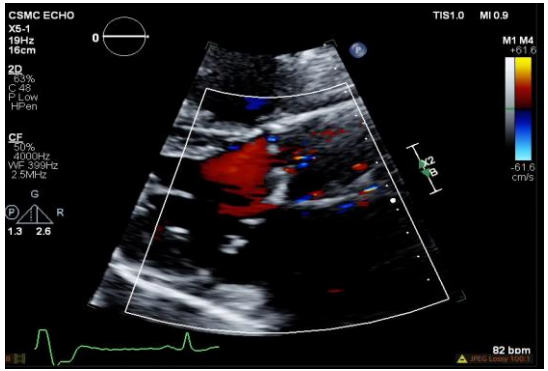
Disclosure of Relevant Financial Relationships

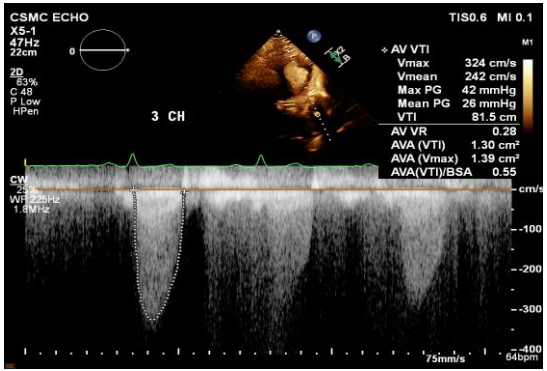
I, Jaideep Menda DO NOT have any financial relationships to disclose.

Clinical Presentation

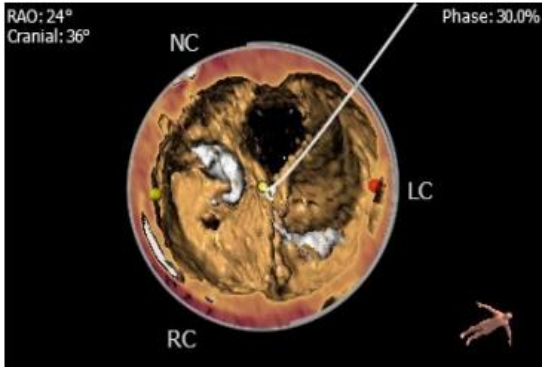
- A 42-year-old male with NYHA class III symptoms, including exertional dyspnea and fatigue
- Past Medical History is significant for
  - Marfan syndrome
  - Aortic root aneurysm → Valve-sparing root replacement (#30 Valsalva graft) in 2010
  - Ascending aorta replacement (#24 Hemashield graft).
  - Bicuspid aortic valve
  - Pectus excavatum
  - Ischemic Cryptogenic stroke → s/p PFO closure (Gore Cardioform 25mm) IN 2021

AS severity Assessment





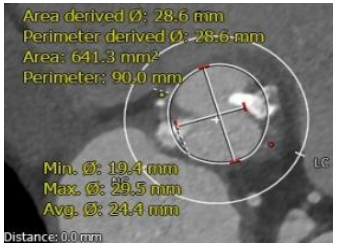
On TTE- Mean PG – 26mmHg, Vmax – 3.24 m/s, AVA – 1.3 cm^2, AoV DI – 0.3



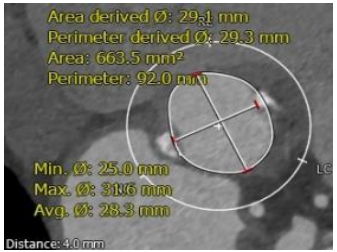
Considering the patient's severe symptomatic status and an Agatston aortic valve calcium score of 2133 on CT, intervention was deemed appropriate.

Pre- TAVR CT

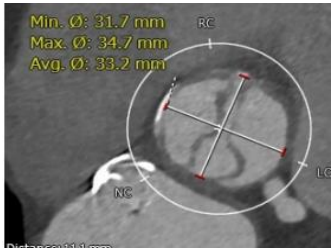
Annulus Area – 641.3 mm²

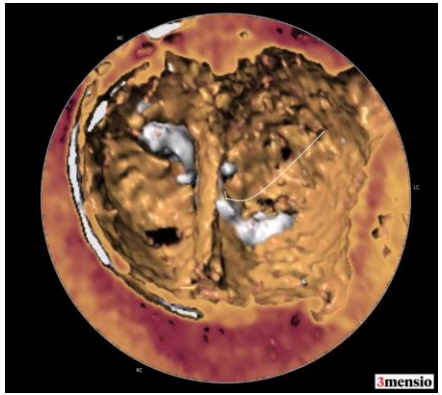


LVOT Area – 663.5 mm²

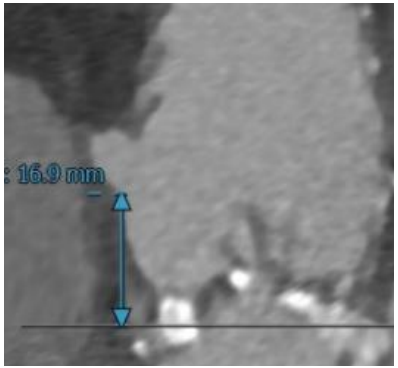


Sinus of Valsalva

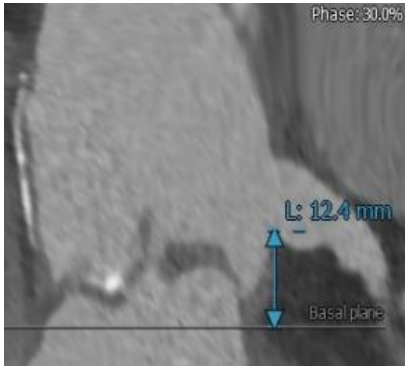




RCA height



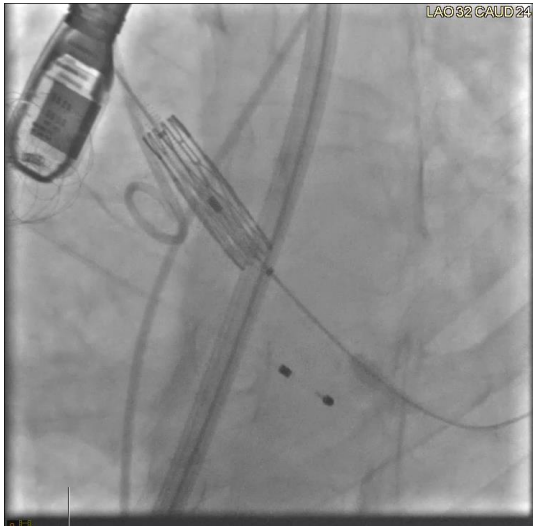
LCA height



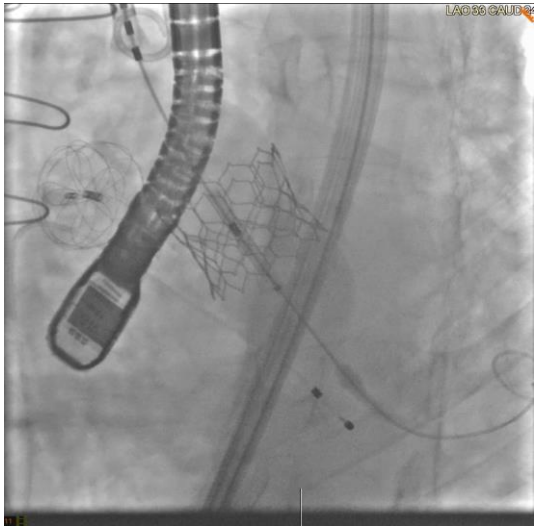
Based on an annular area of 641 mm², we selected a 29-mm SAPIEN 3 Ultra Resilia valve.

Procedure

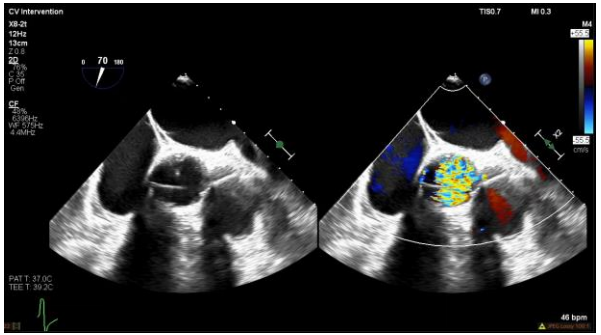
Sapien 3 Ultra Resilia Transcatheter Heart Valve 29mm deployed at nominal volume



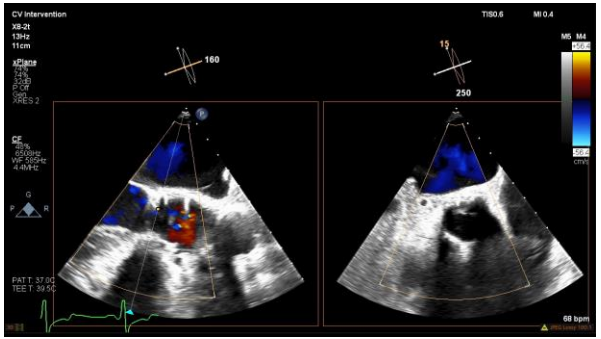
Post-delivery balloon valvuloplasty



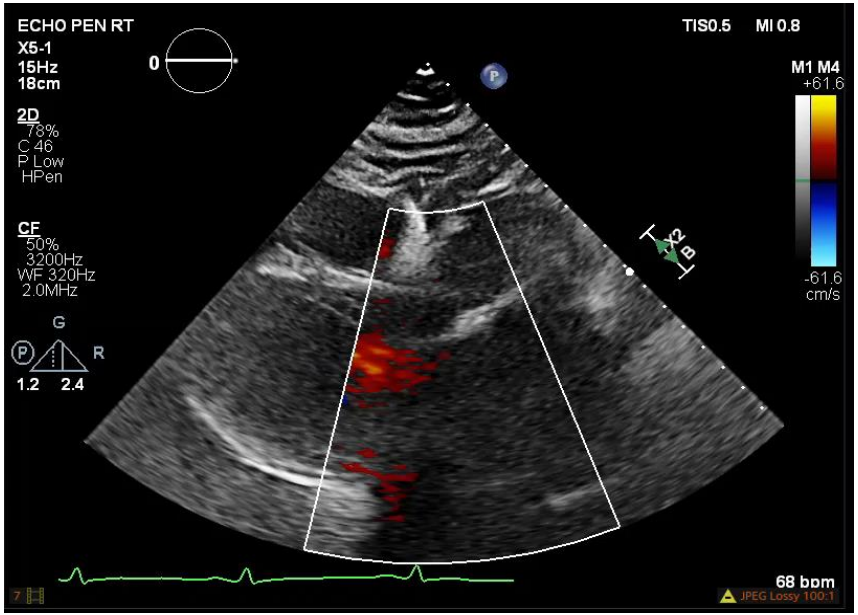
Pre deployment short axis

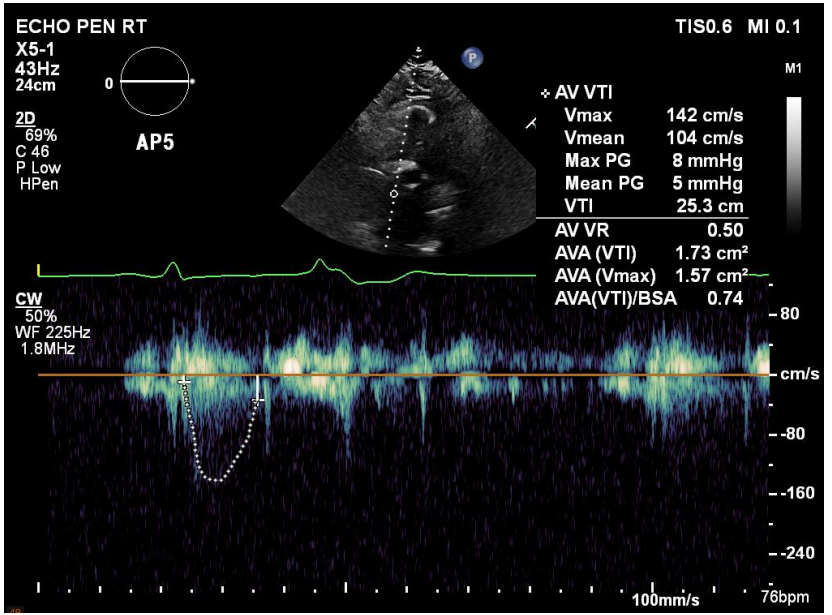


Post deployment short axis

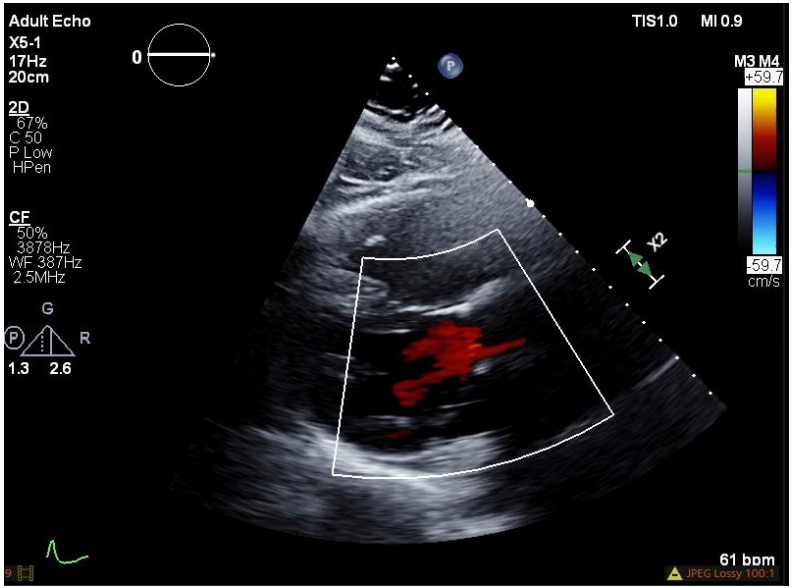


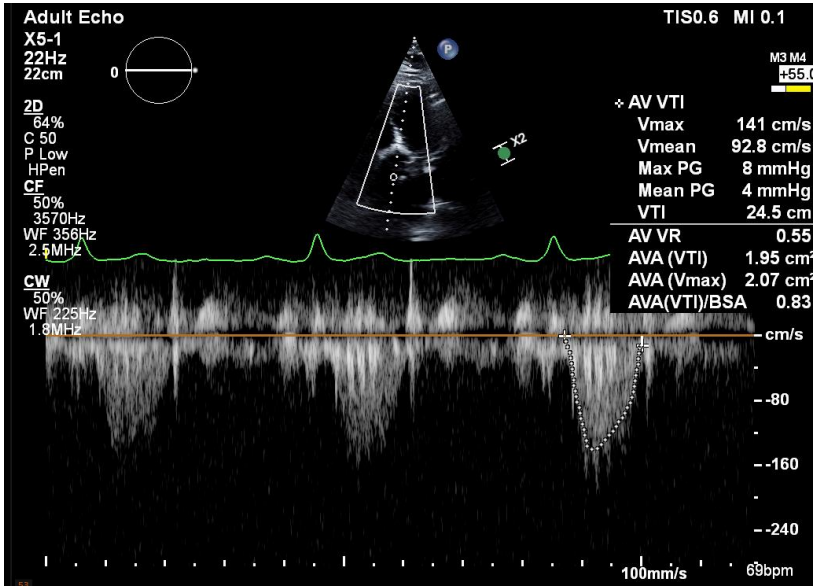
Post- procedure





30-Day Post-procedure





Conclusion

- **TAVR was successfully performed** in a young patient with Marfan syndrome, bicuspid aortic valve, and prior valve-sparing root and ascending aorta replacement.
- **Heart team decision** favored TAVR over surgical AVR due to elevated surgical risk from prior sternotomy, pectus excavatum, and connective tissue disease.
- In young patients with Marfan syndrome and a Bicuspid valve, when both SAVR and TAVR are anatomically feasible, the choice of intervention should be individualized based on overall surgical risk and anatomical complexity.