

# TAVI in a patient with severe bicuspid aortic valve stenosis

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# Background

- 68 year old male presenting with increasing breathlessness
- Significant co-morbidity which includes COPD (long history of smoking but stopped in 2008)
- Recently commenced on home oxygen although a year ago he was able to walk around New York City without such debilitating symptoms

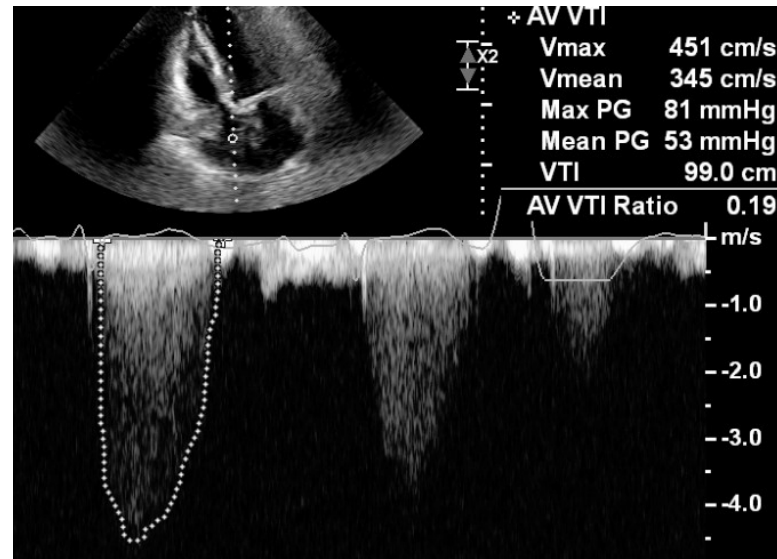
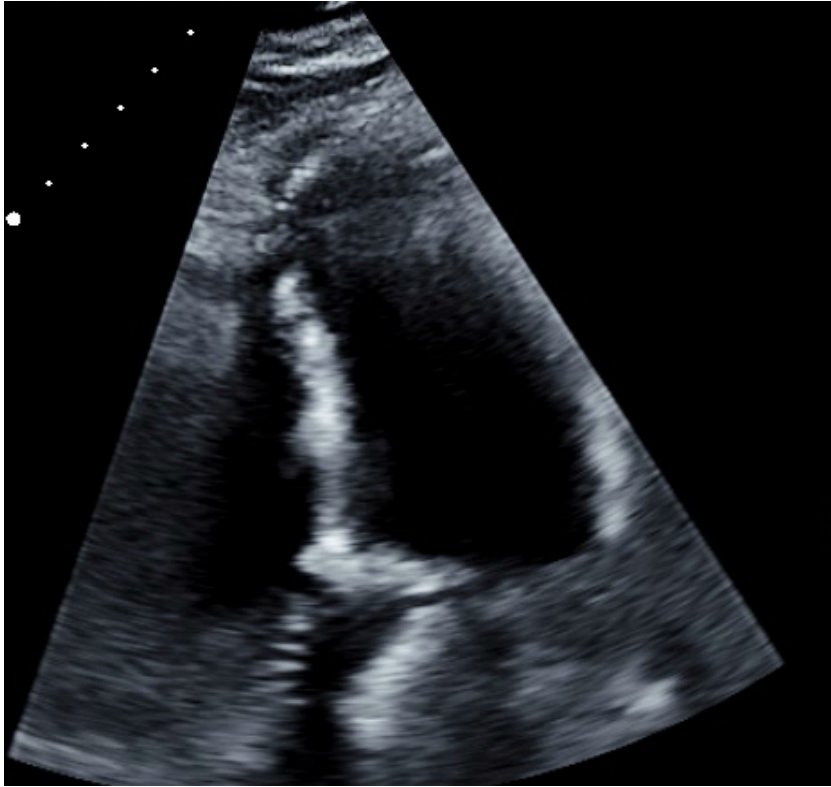
# Investigations

- Pulmonary function tests:
  - FEV1: 1.24 (38% of predicted)
  - FEV1/FVC: 44% of predicted
  - TLCO: 1.97 (22% of predicted)
  - KCO: 0.41 (30% of predicted)
- Picture consistent with severe airway obstruction and severe gas exchange impairment with the latter attributed both to combined respiratory and cardiac disease

# Investigations

- Echocardiogram
  - Heavily calcified aortic valve with severe aortic stenosis. Peak gradient of 81mmHg and mean gradient of 54mmHg. DI of 0.19. No aortic regurgitation
  - Normal size LV with at most mildly impaired systolic function
  - Normal RV size and function. No PHTN
  - No other significant valvular pathology
- ECG: SR with normal PR interval and QRS duration

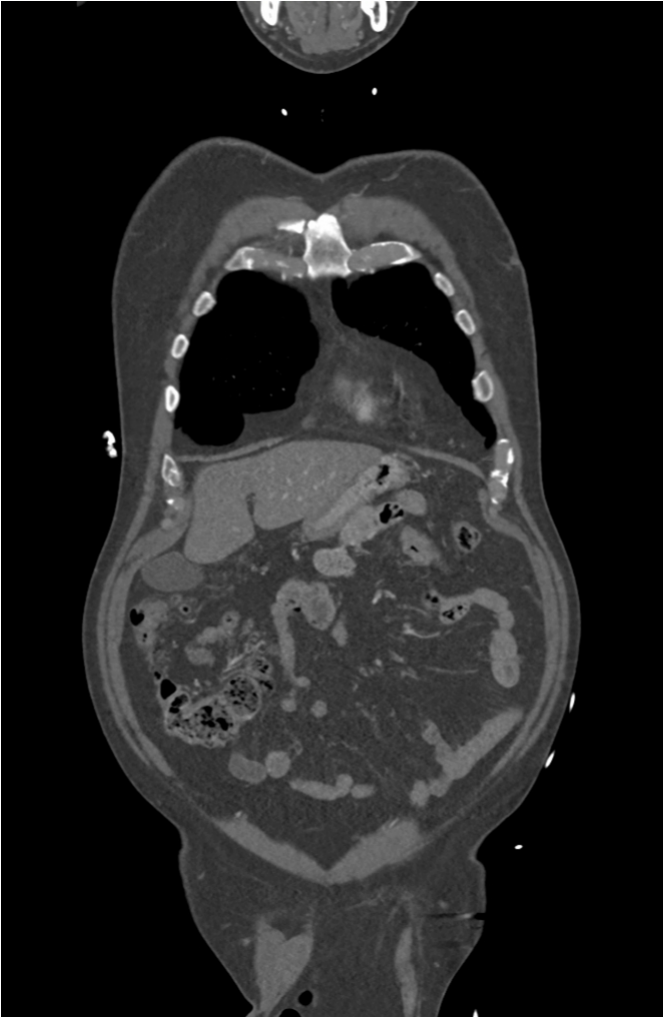
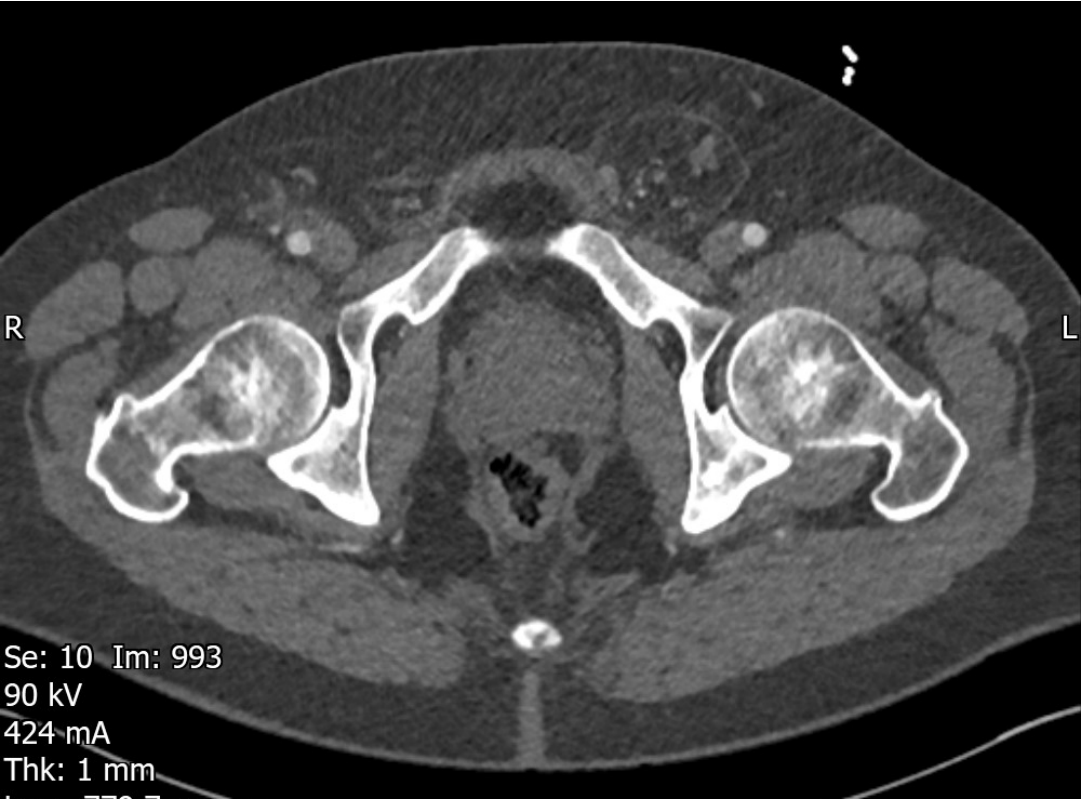
# Echocardiogram



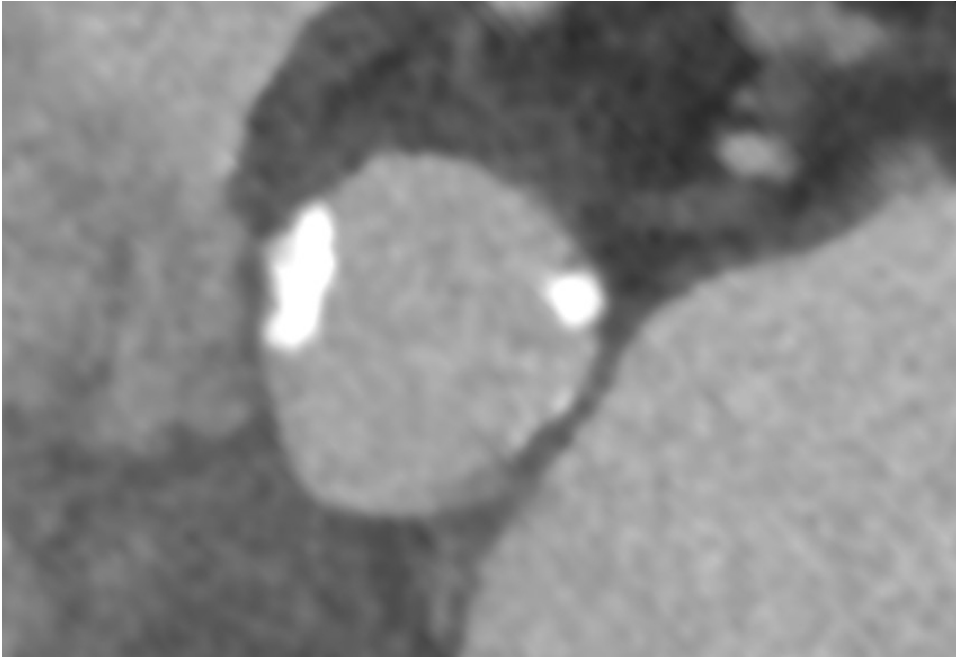
# TAVI CT

- No significant CAD
- Feasible TF access (both right and left iliofemoral arteries >6mm)
- Aortic root features:
  - Bicuspid aortic valve with an Agatson calcium score of 7219 with degree of raphe calcification
  - Severe LVOT calcium
  - Annular area: 503mm<sup>2</sup> Perimeter:81mm Annular dimensions: 23mm x 28mm
  - LCA height: 12mm RCA height: 14mm
  - SOV dimensions: 32mm x 33mm x 35mm SOV height: 20mm

# TAVI CT - access



# TAVI CT





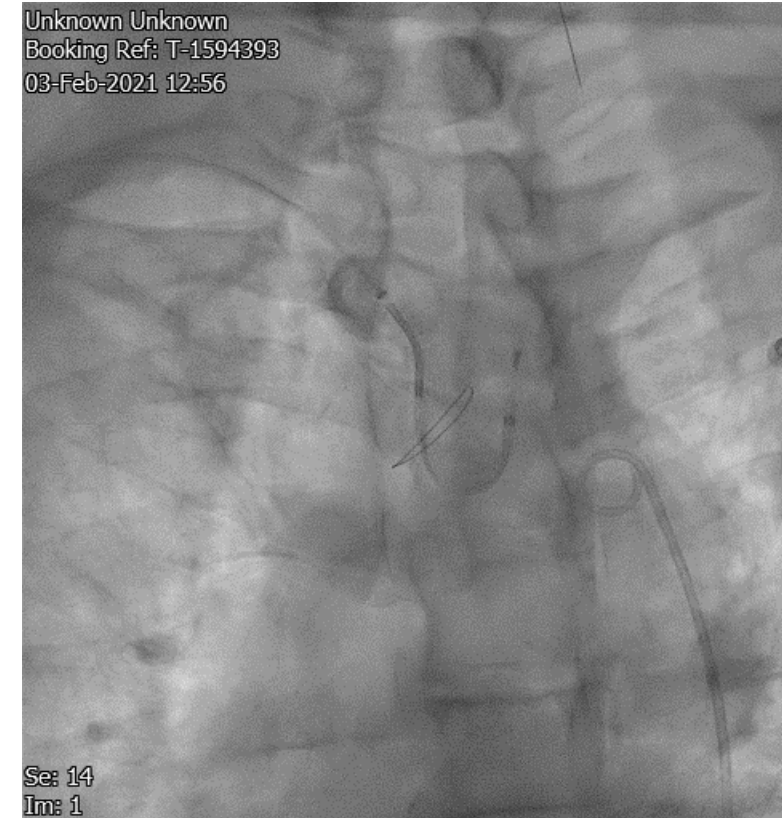
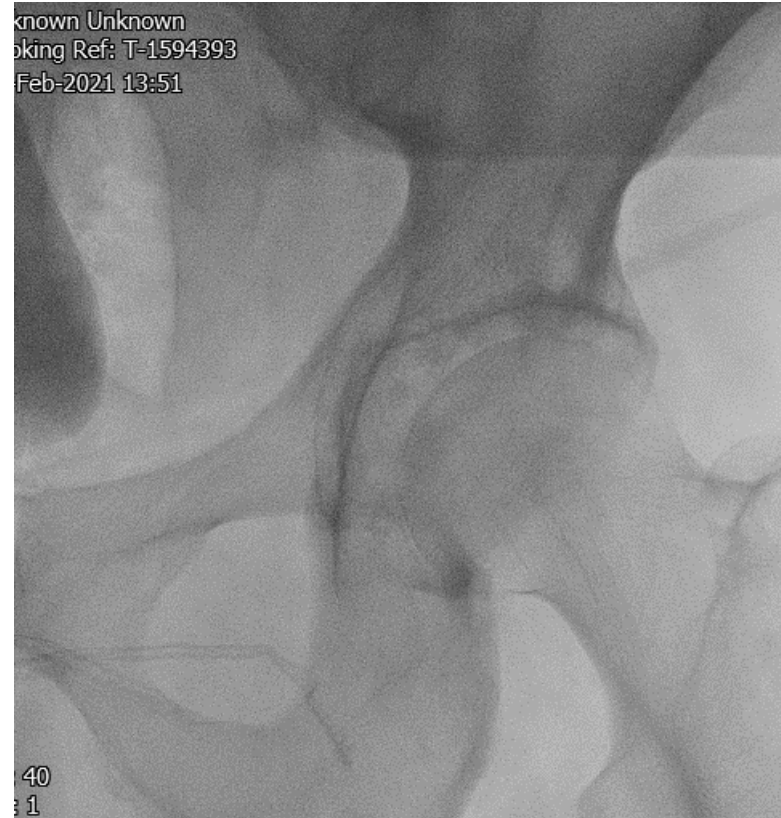
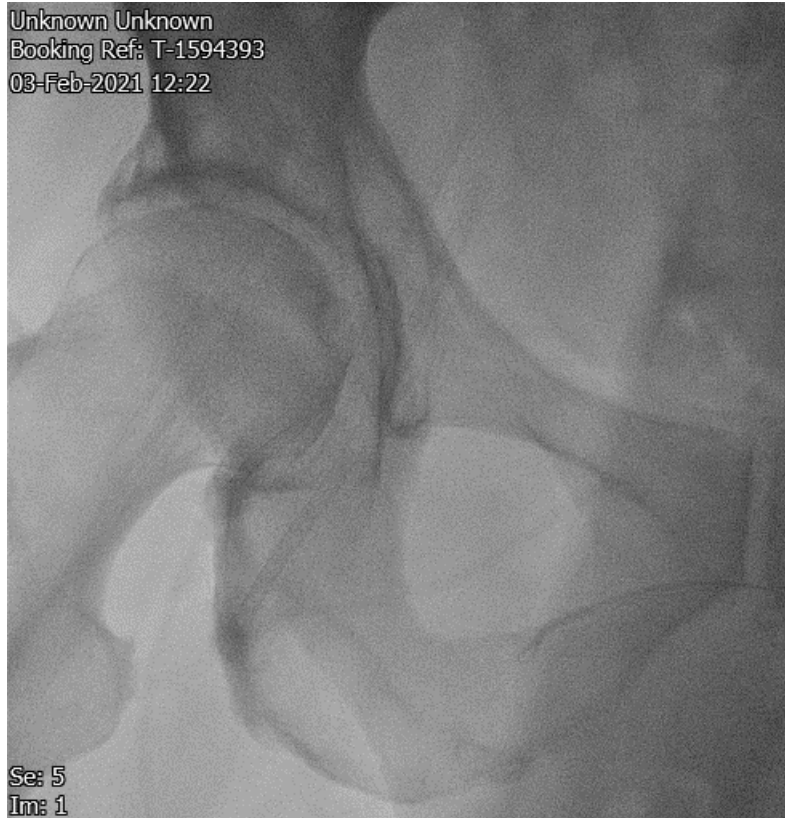
So what would you do?

**And what should you do?**

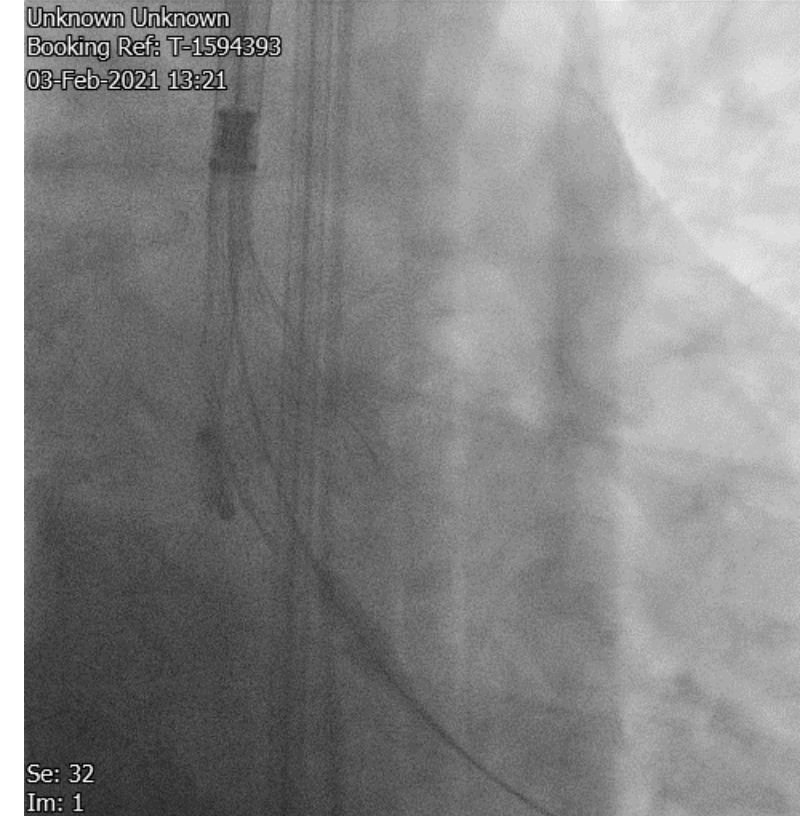
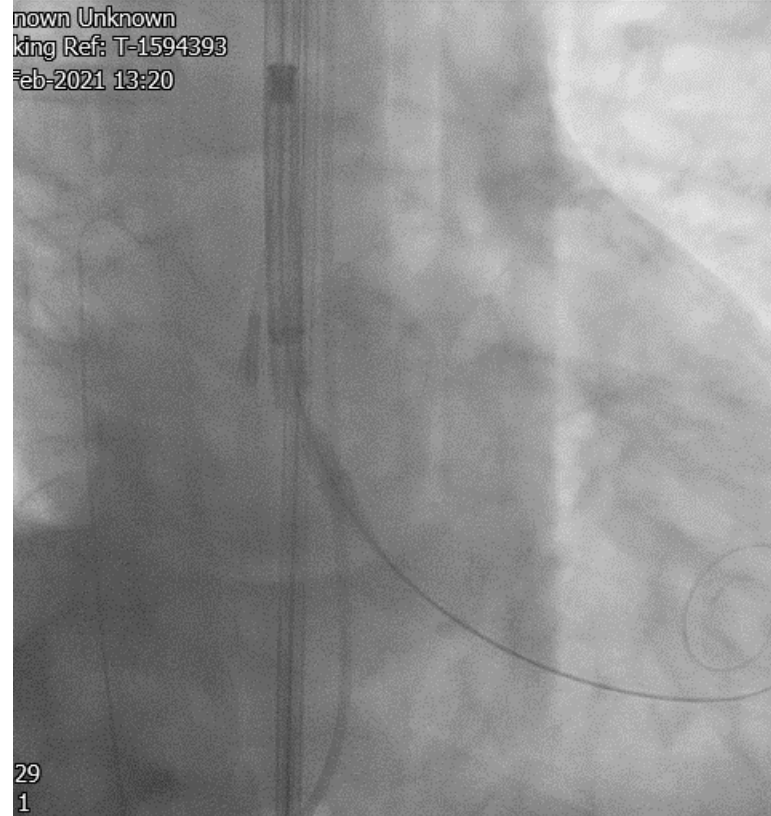
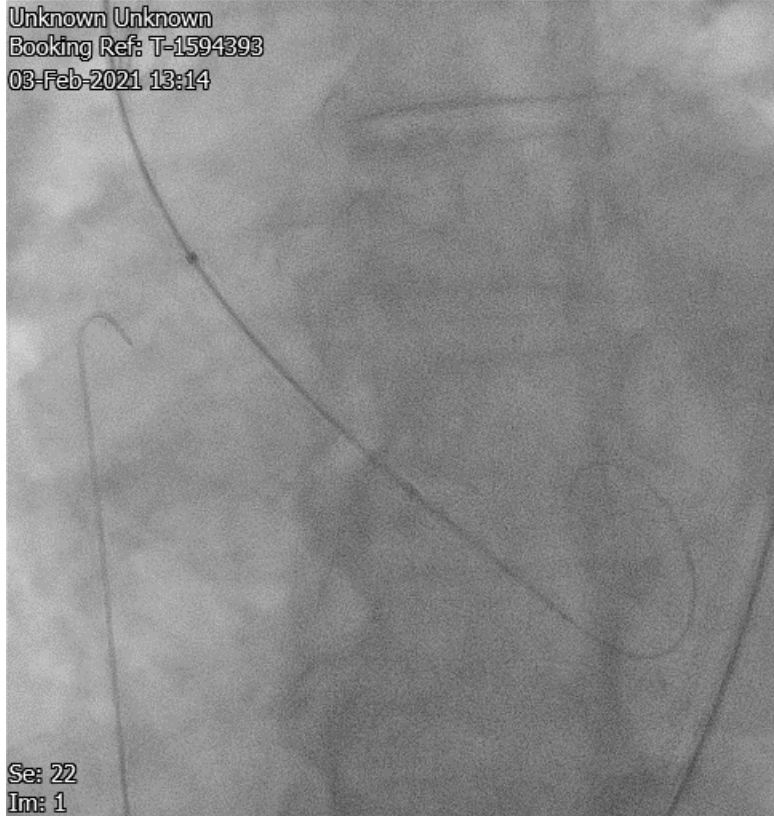
# TAVI MDT

- Seen both TAVI cardiologist and cardiac surgeon in clinic
- Discussed at MDT and deemed not to be a surgical candidate
- Procedural plan:
  - TF TAVI with 29mm Evolut Pro with pre-dilatation with 20mm Cristal balloon
  - Sentinel device for cerebral protection via RRA

# Procedure (ultrasound scan guided access and Sentinel deployment)

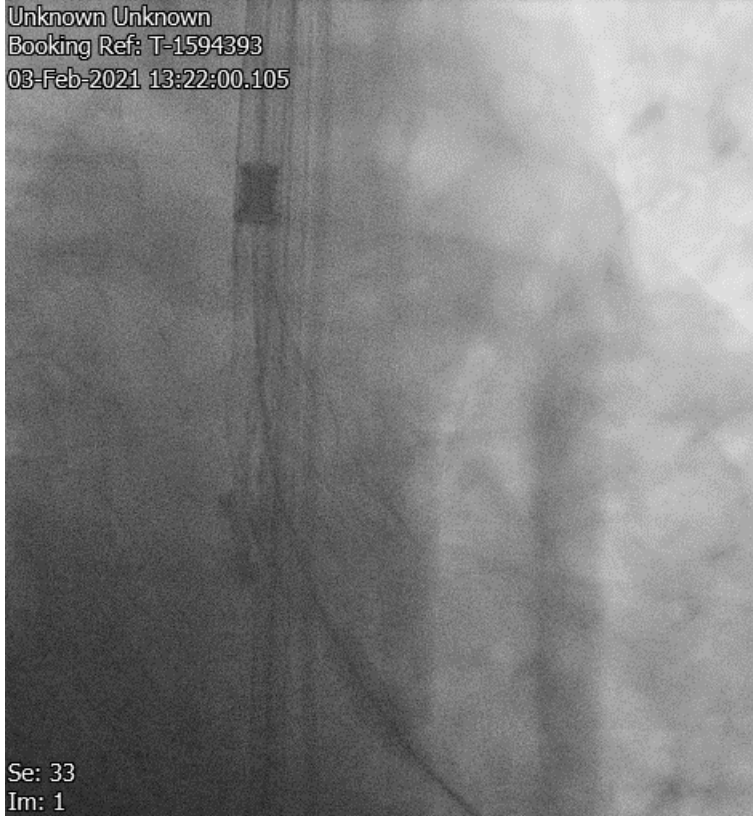


# Pre-dilatation and valve deployment

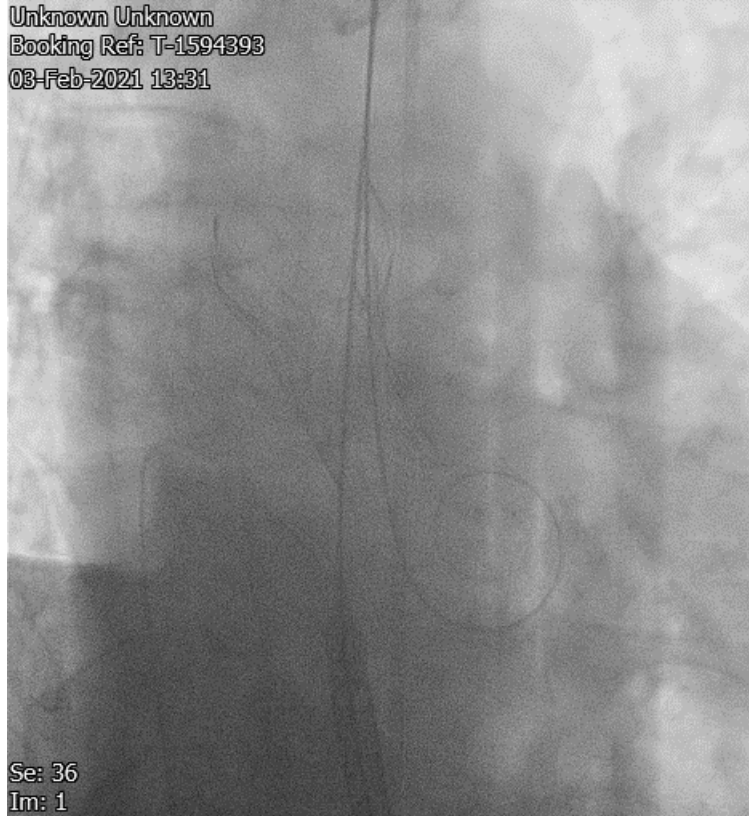


# Valve deployment and post-dilatation

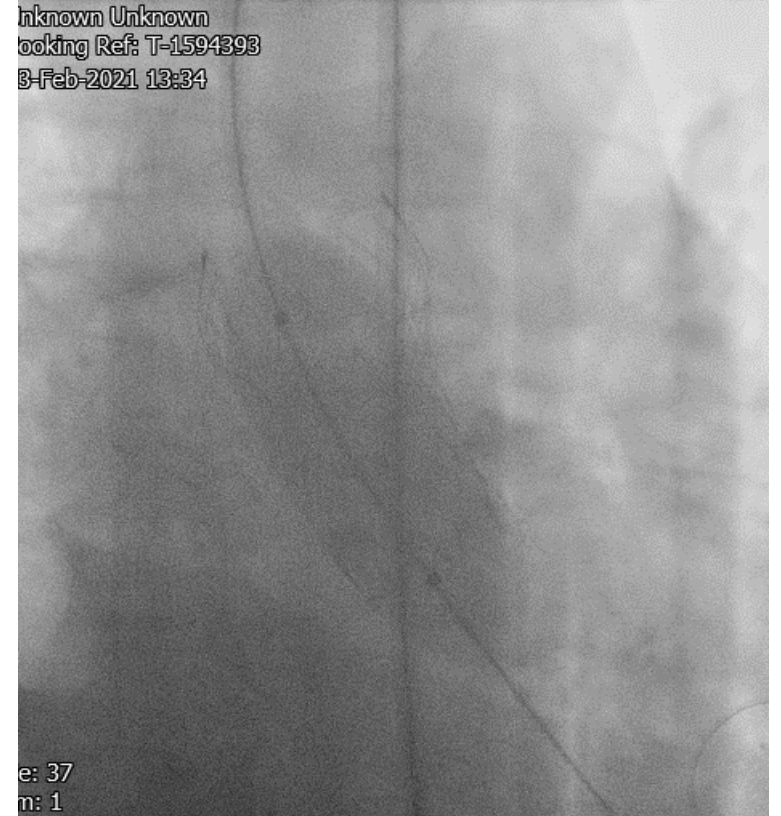
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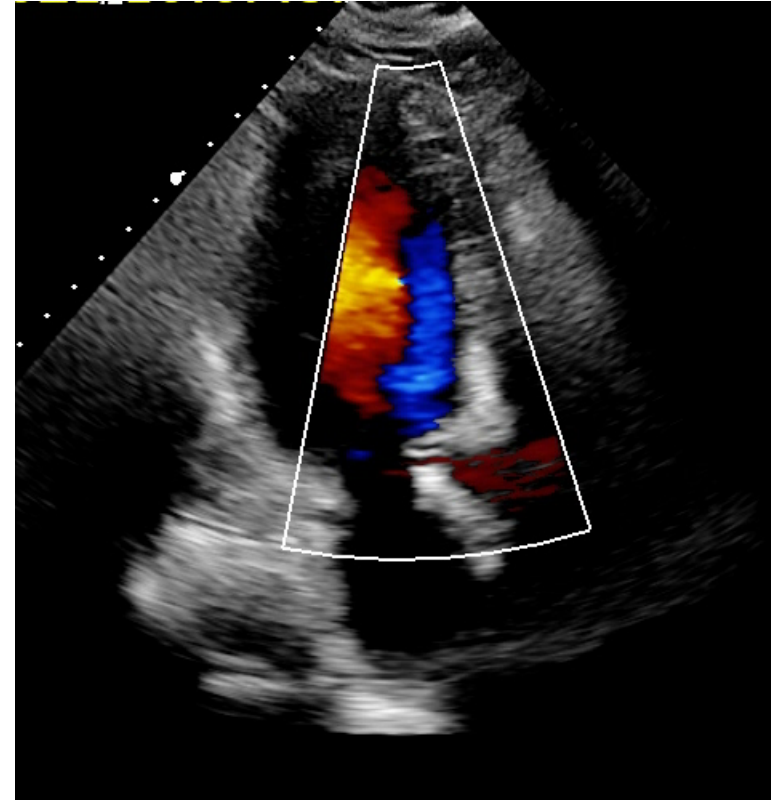
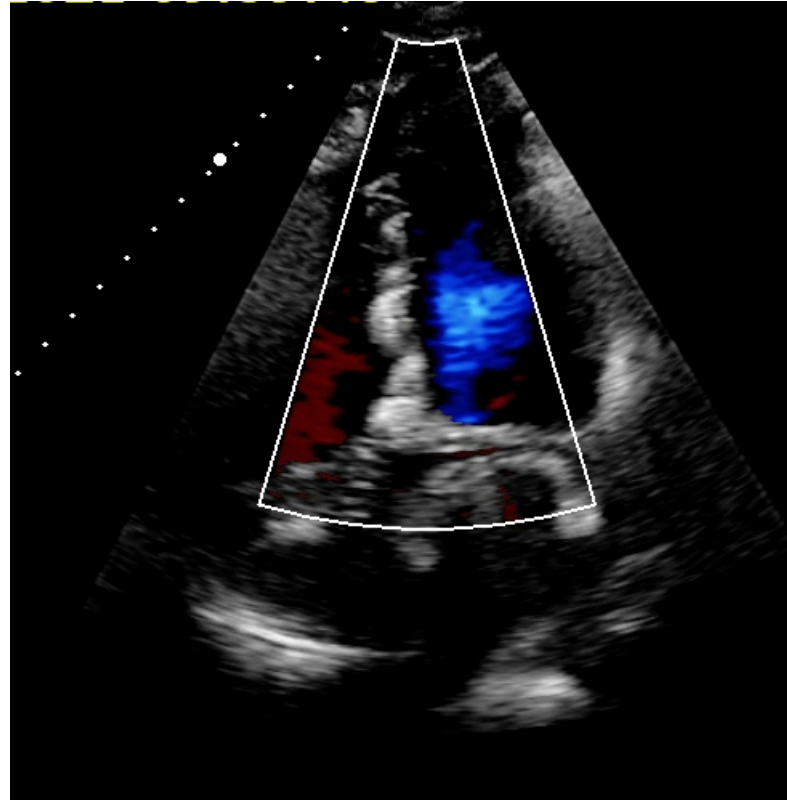
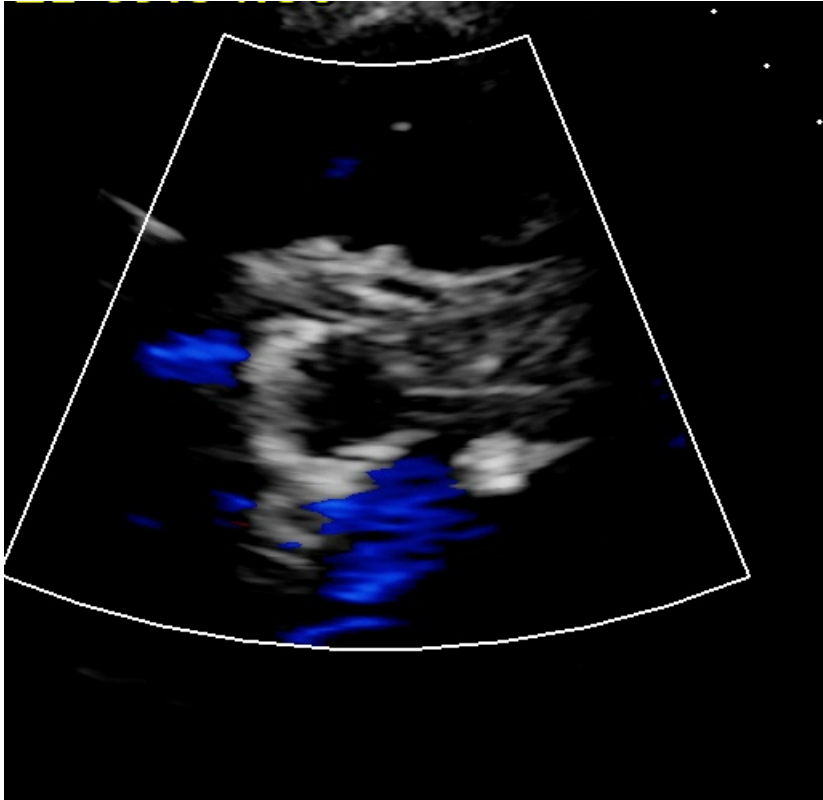
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# Clinical and echocardiographic follow-up



Thank you