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CHAMBER



CAMBRIDGE
UNION
SOCIETY
OCTOBER
7&8, 2022



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Did CT make a difference?

Dr Harriet Hurrell

Structural research fellow, St Thomas' Hospital, UK

Operators: Professor Simon Redwood and Dr Tiffany Patterson

Professor Ronak Rajani and Dr Jane Hancock

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A patient with severe mitral annular calcification

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FACULTY DISCLOSURE

I have no financial relationships to disclose



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Case history:

- 53 yr old gentleman
 - Surgical AVR - 2012
 - 23mm Perimount bioprosthetic valve for aortic stenosis
 - PMHx:
 - Asthma
 - Non Hodgkin's lymphoma – treated with mediastinal radiotherapy (2017)
 - Social Hx:
 - Independent and fully mobile

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Current presentation:

- NYHA class II-III symptoms
- CCS class 0 symptoms
- Progressive breathlessness on exertion
- TTE- heavily calcified mitral annulus causing significant mitral stenosis
- Well functioning bioprosthetic aortic valve

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Investigations:

Hb:	129 g/L (130-170g/L)
Creatinine:	87 micromol/L (59-104 micromol/L)
eGFR	80 mL/min (70-130mL/min)
NT –proBNP:	788 ng/L (<400 ng/L)
ECG:	Sinus rhythm, LBBB
Coronary angiogram:	Unobstructed coronary arteries

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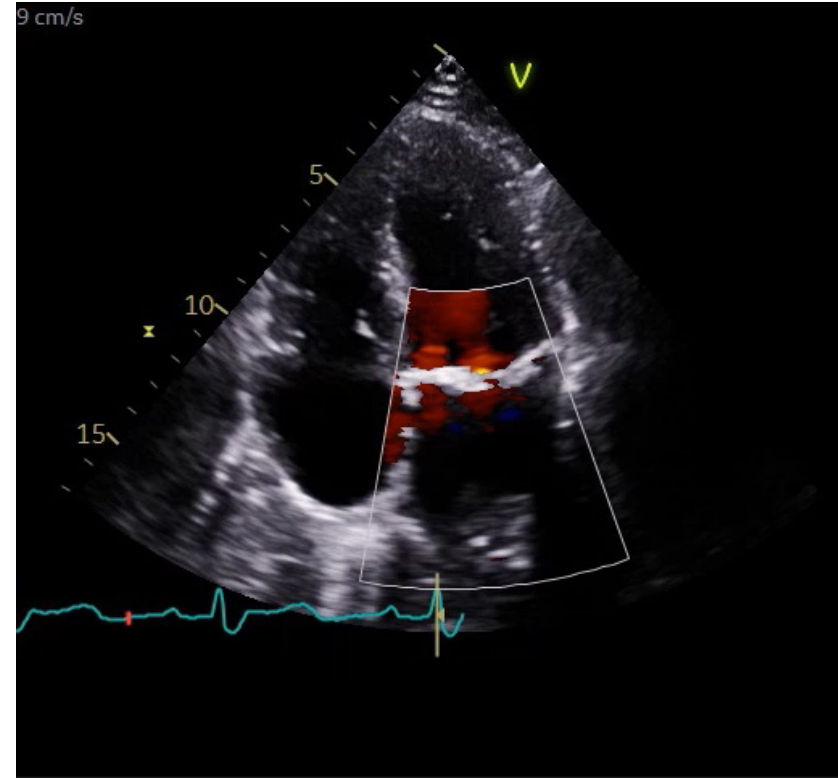
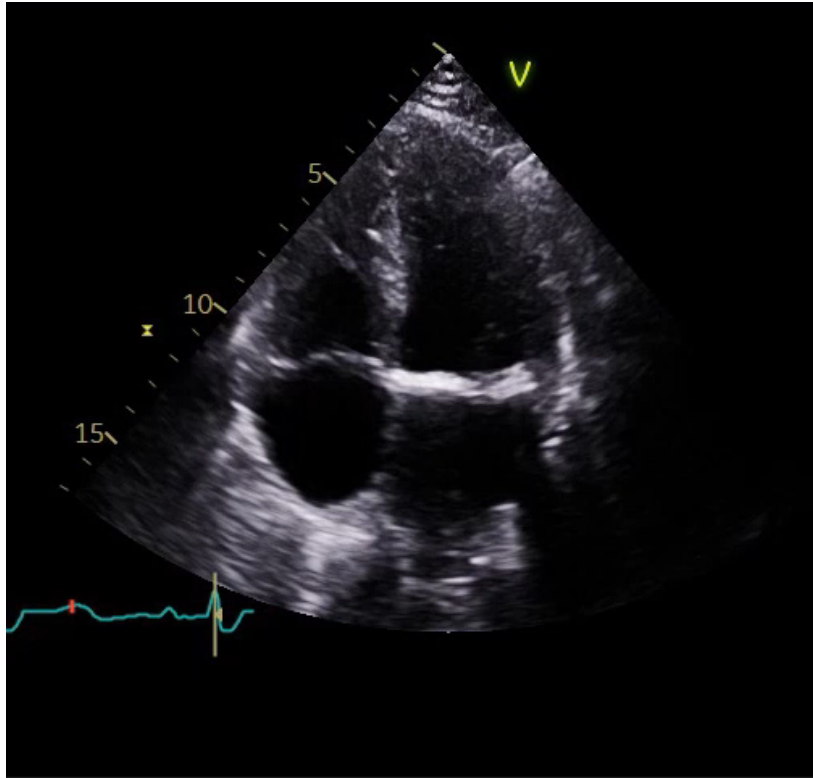
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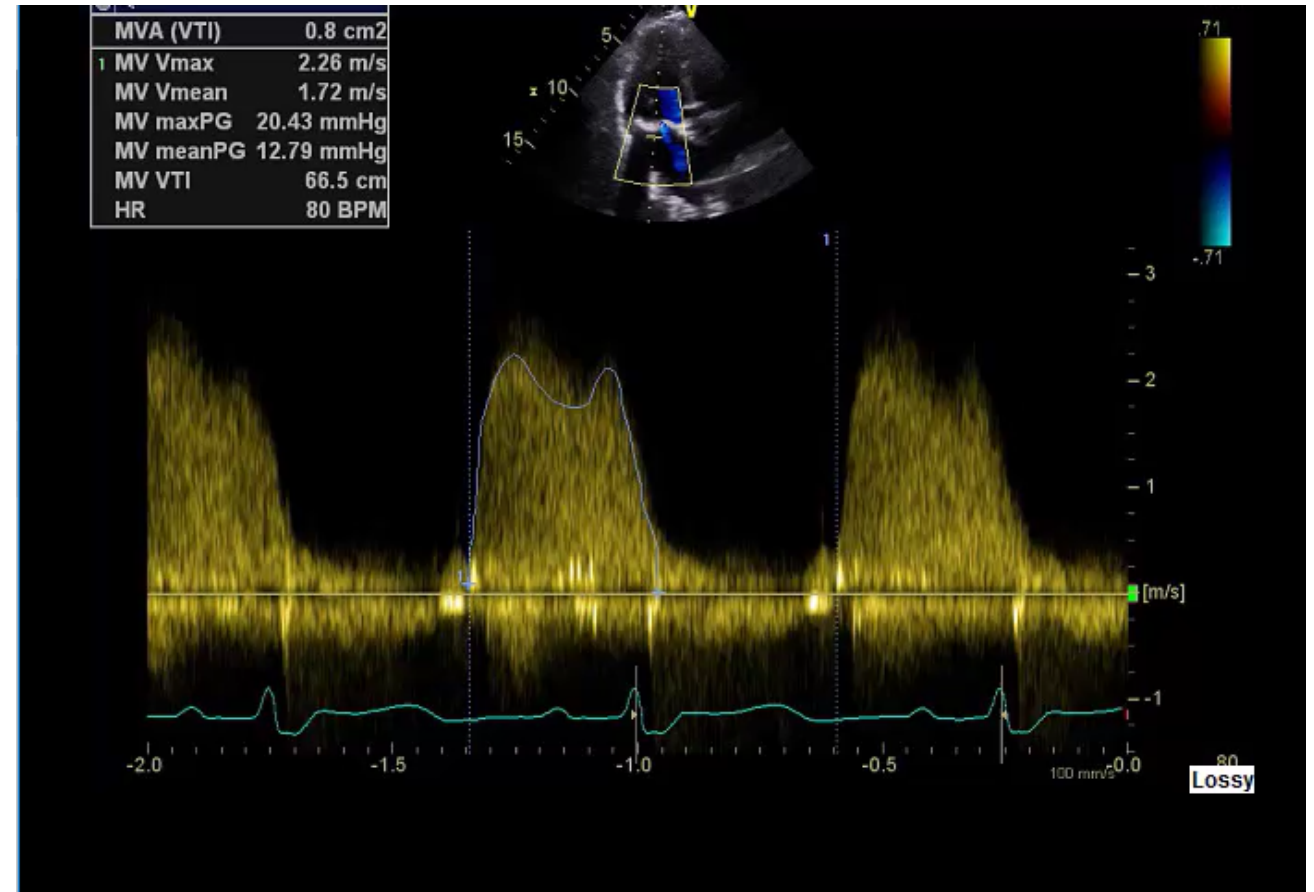
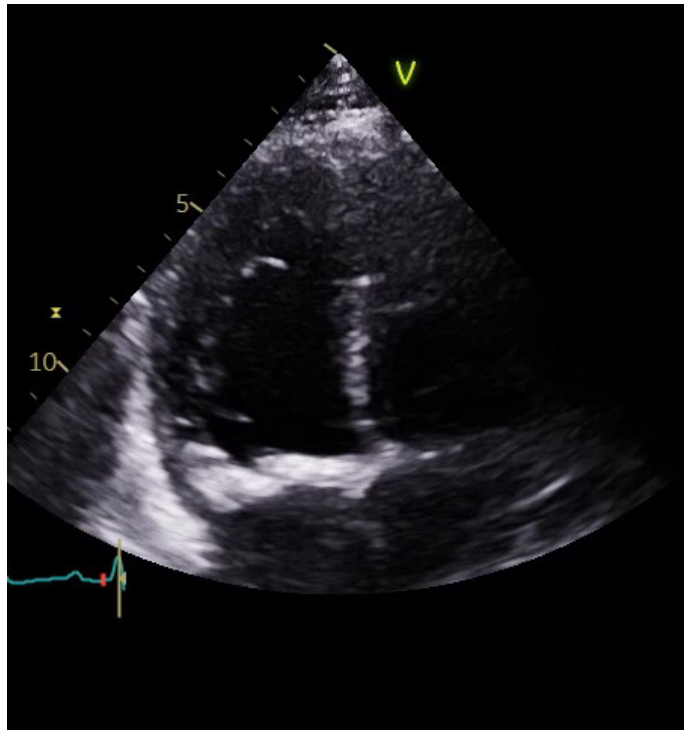
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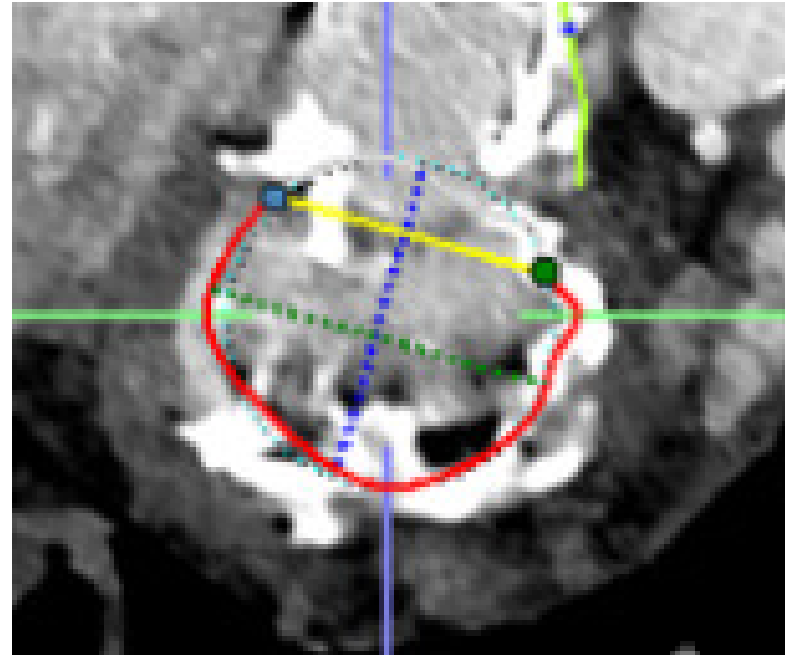
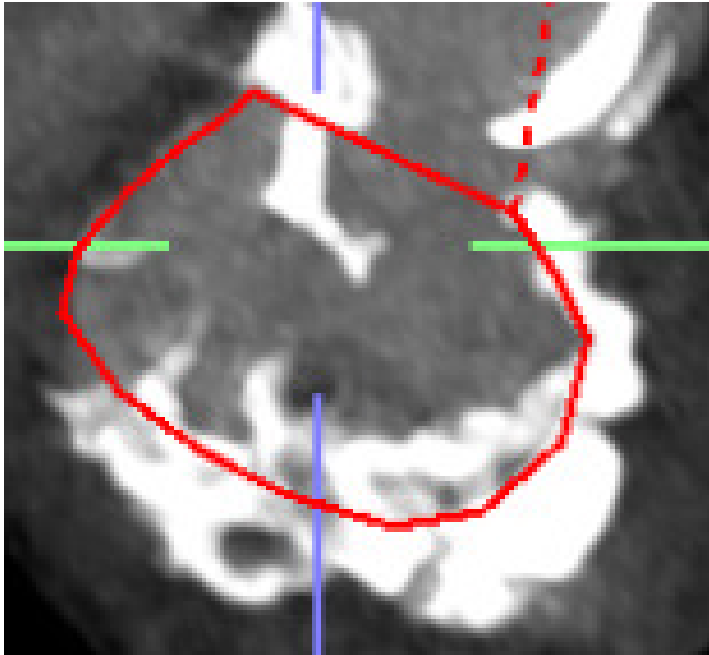
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CT:



Parameter	Value	Unit
MAC volume	3.78	cm ³
Protrusion inwards	1.19	mm
Calcium distribution	327.3	deg

CT MAC score	
9	Severe

M. Guerrero et al., A Cardiac Computed Tomography–Based Score to Categorize Mitral Annular Calcification Severity and Predict Valve Embolization. JACC: Cardiovascular Imaging. 13, 1945–1957 (2020).

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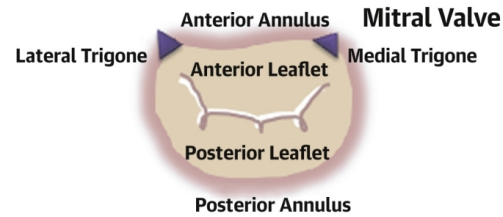
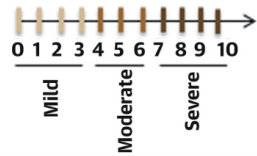
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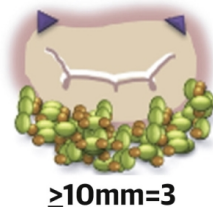
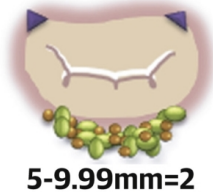
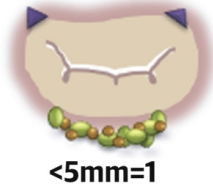
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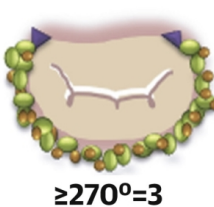
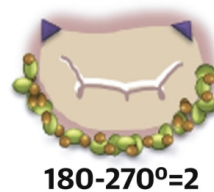
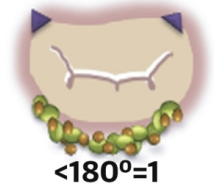
CT-Based MAC Score



I. Calcium Thickness



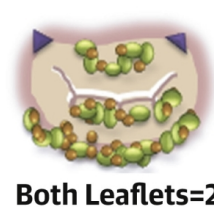
II. Calcium Distribution



III. Trigone Involvement



IV. Leaflet Involvement



Parameter	Value	Unit
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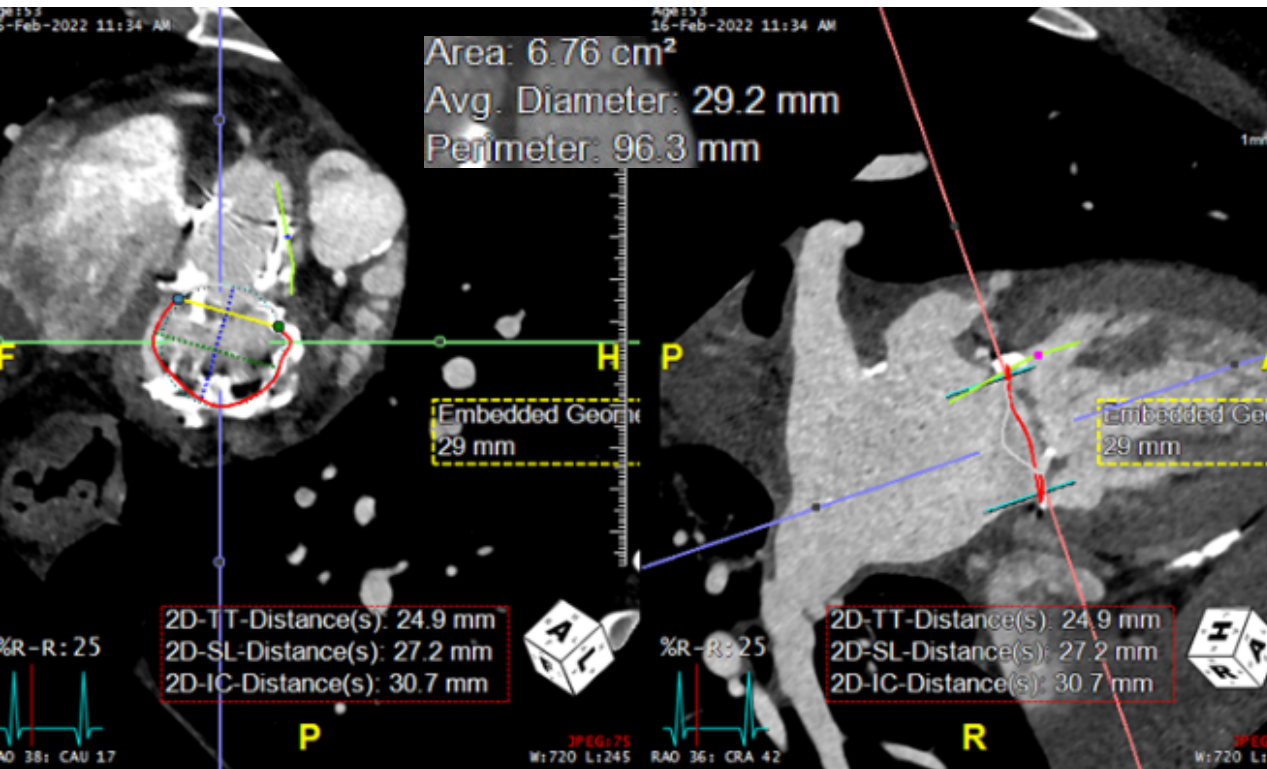
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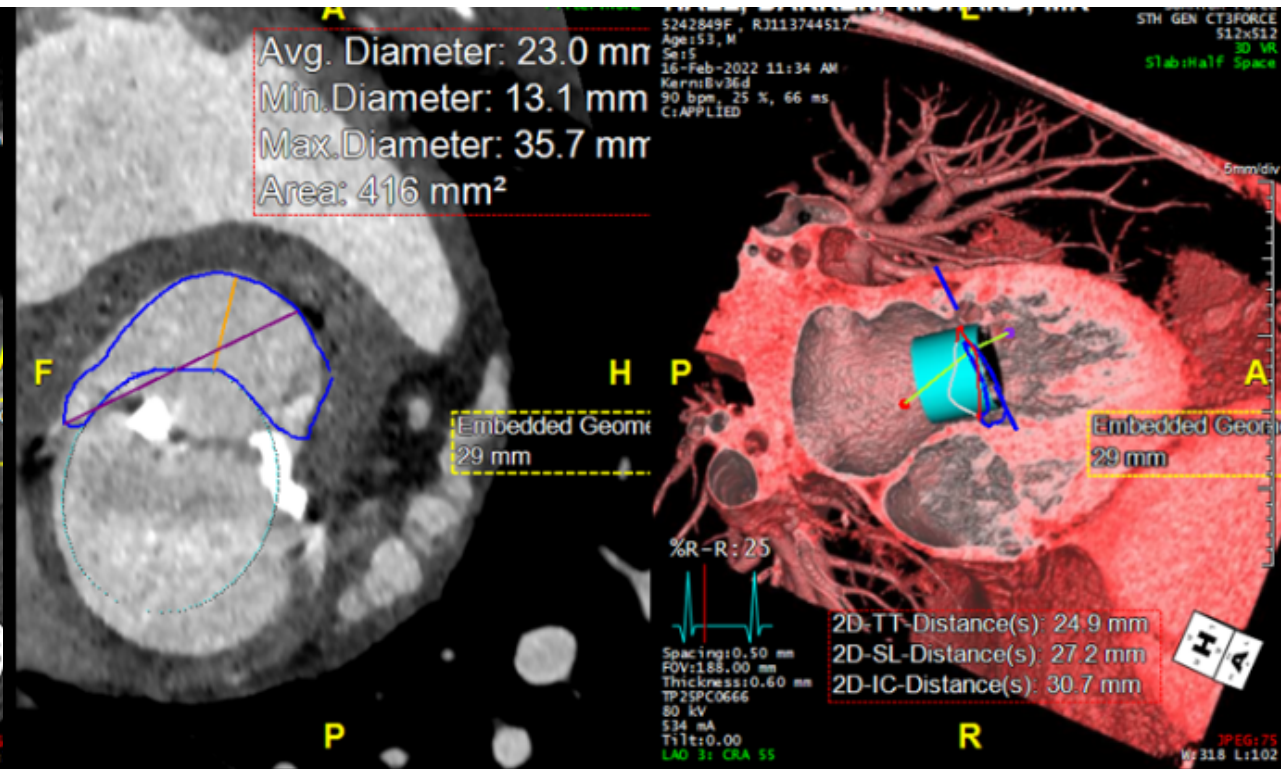
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CT:



MV annulus area 676cm²



Predicted neoLVOT area 416mm² – no significant risk of LVOTO

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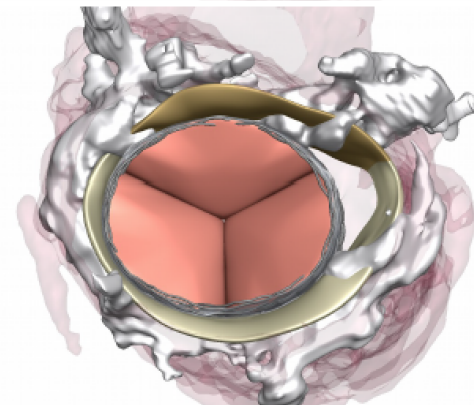
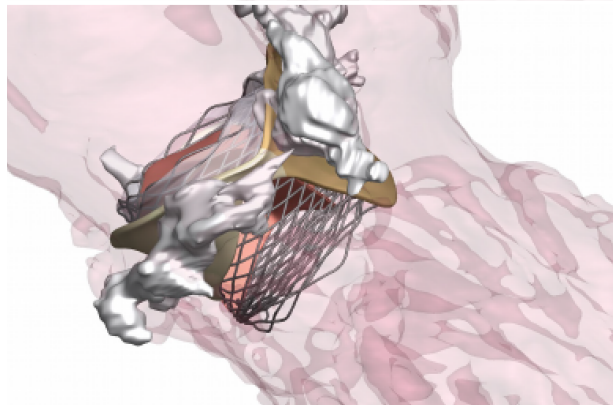
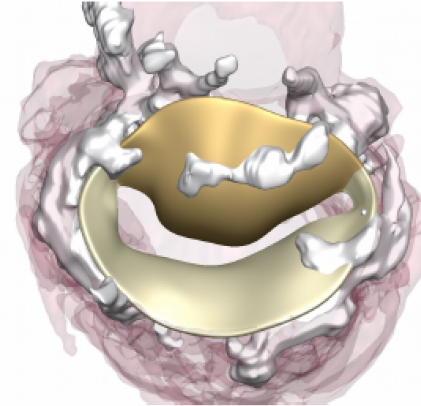
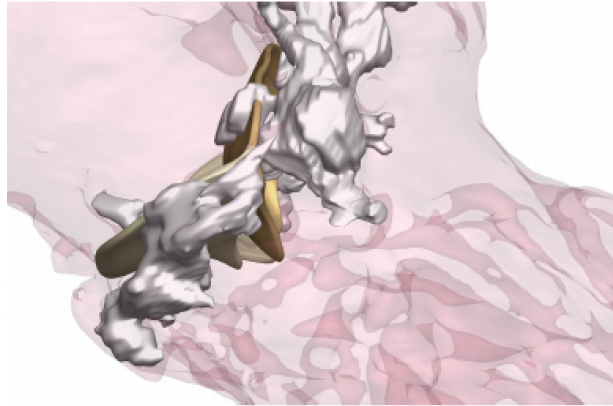
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Finite Element PVL Modelling



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MDT:

Risk Score Evaluation

STS Mortality: 9.1%

Euroscore II : 3.25%

Heart Team discussion

High risk: previous SAVR, chest radiation, severity and

anatomical distribution of MAC

Transcatheter ViMAC preferable

In line with patient preference

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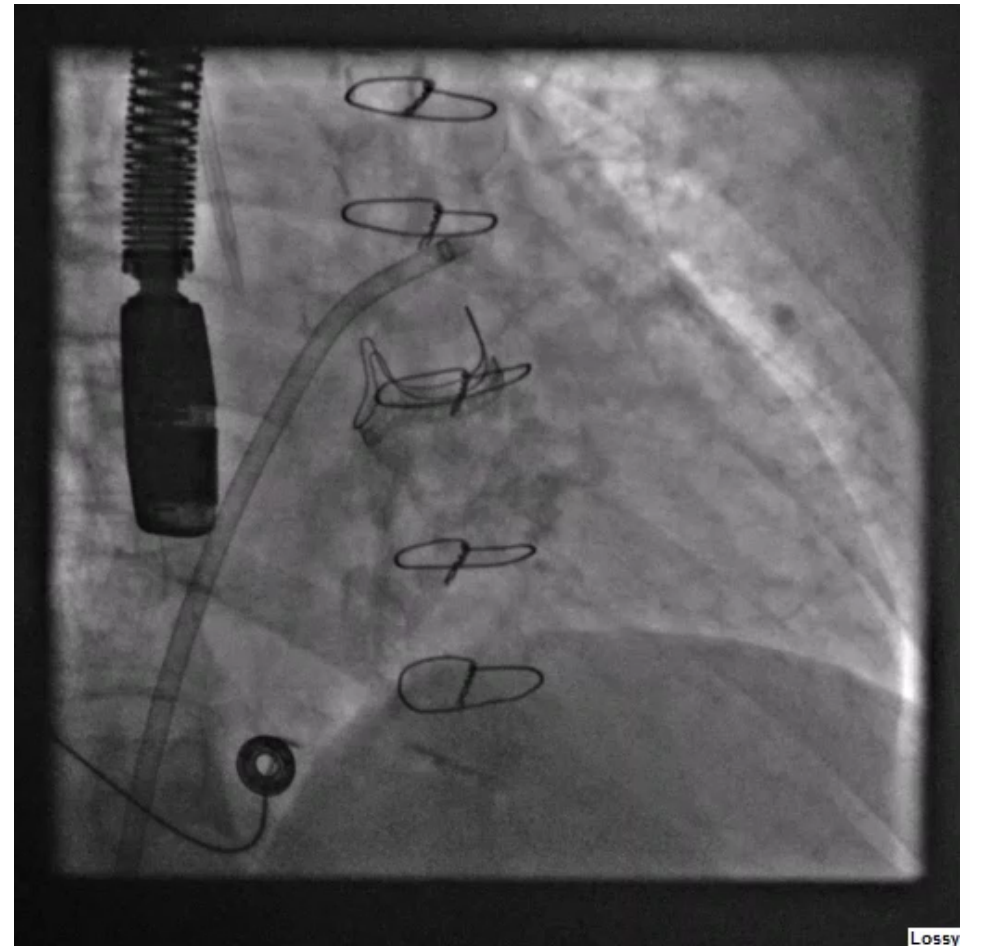
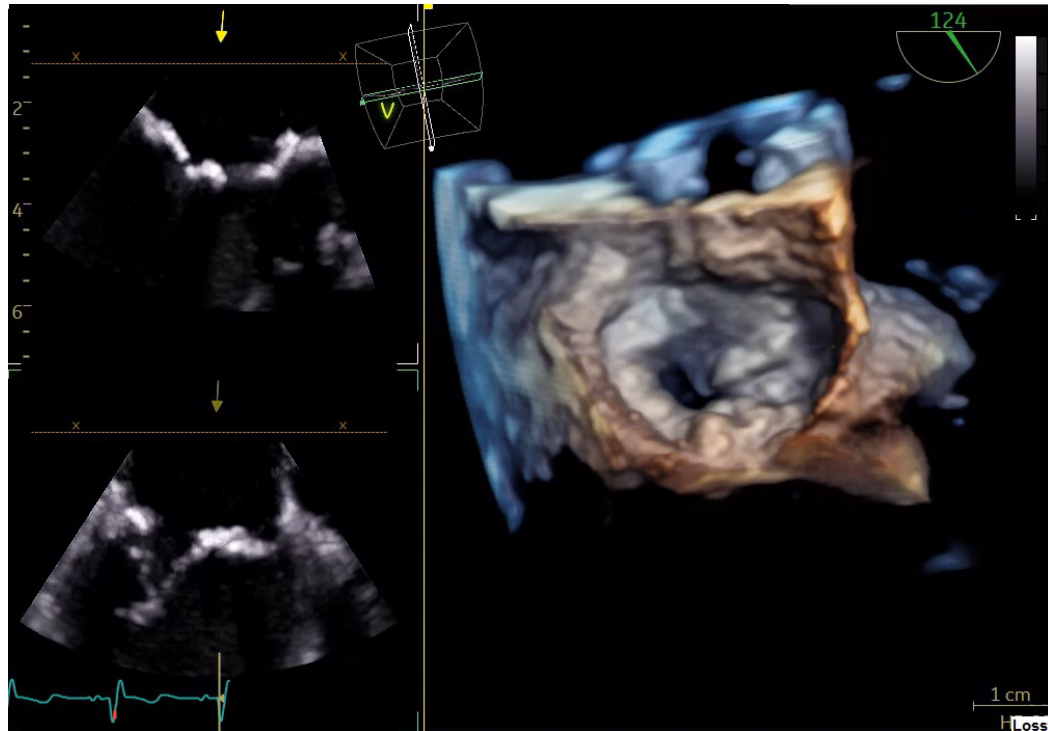
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ViMAC procedure:

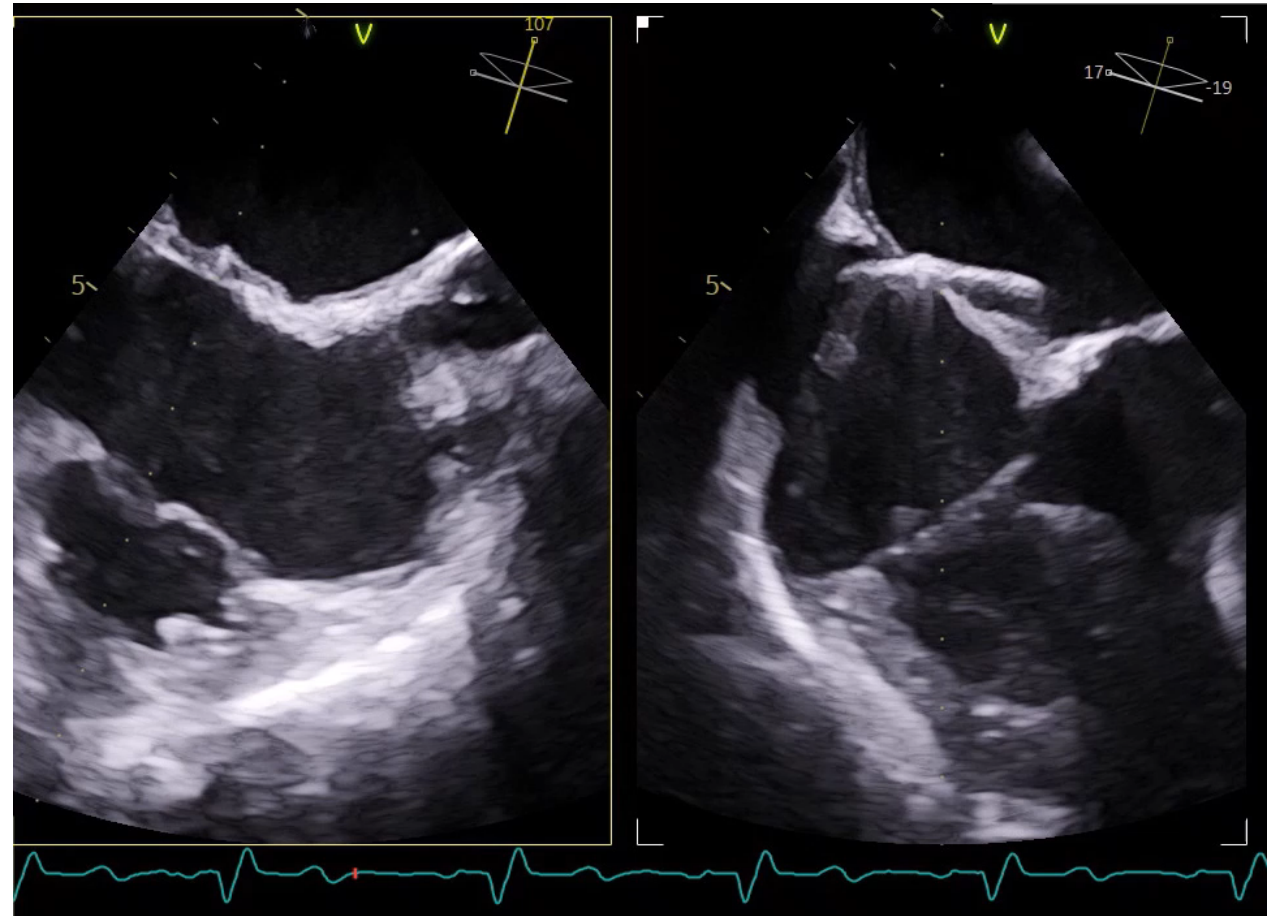
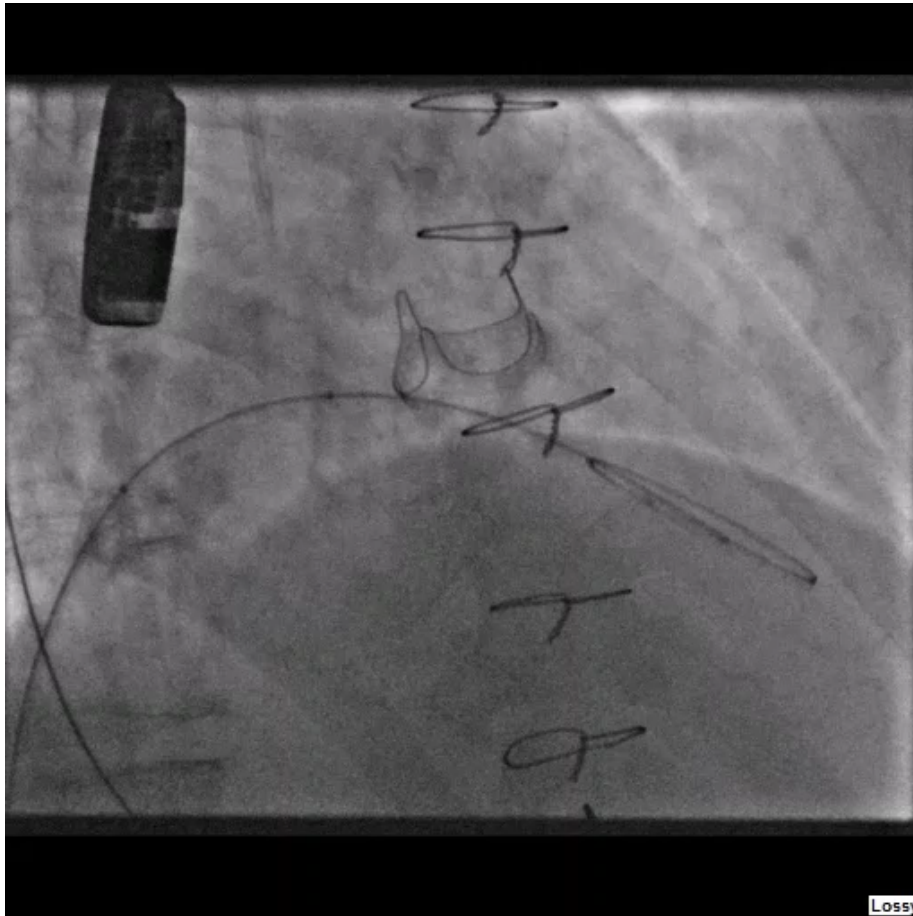


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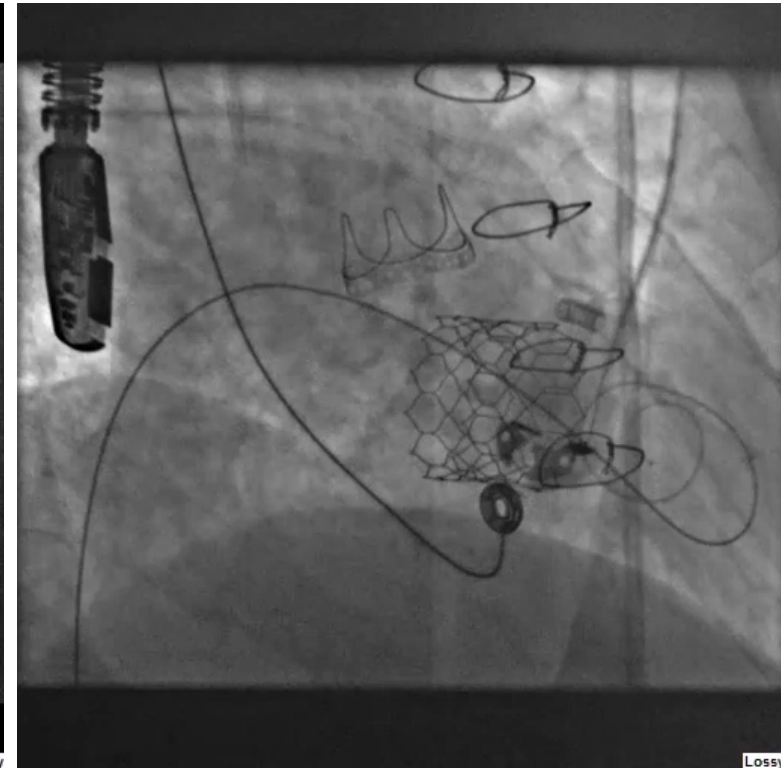
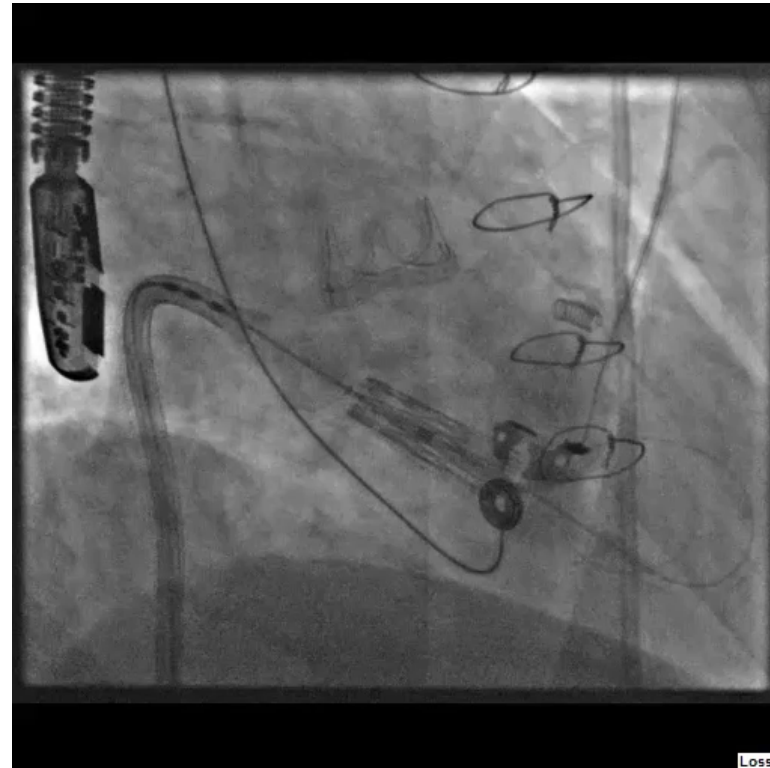
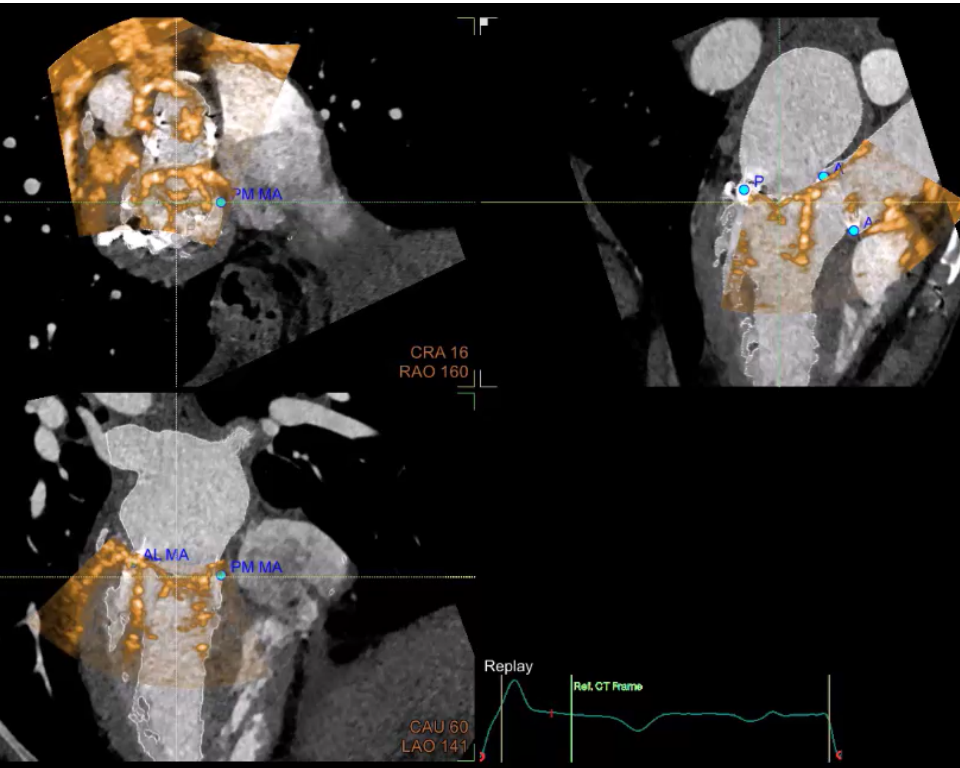


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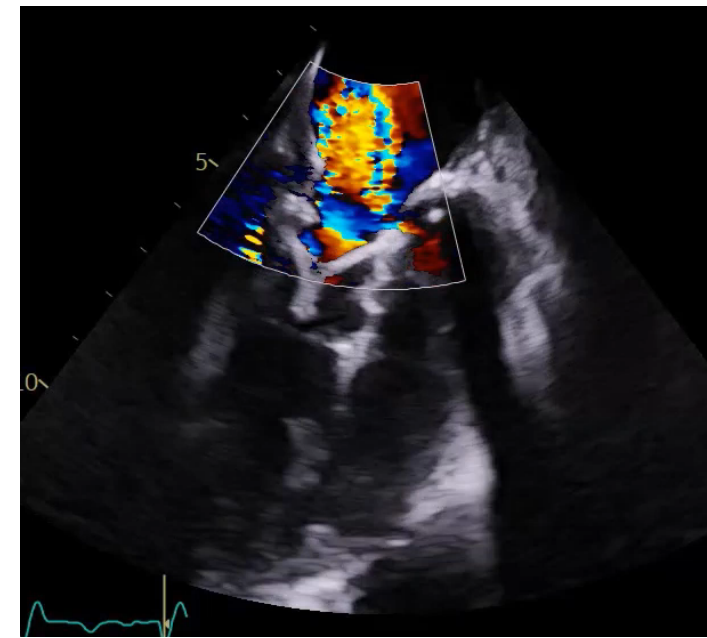
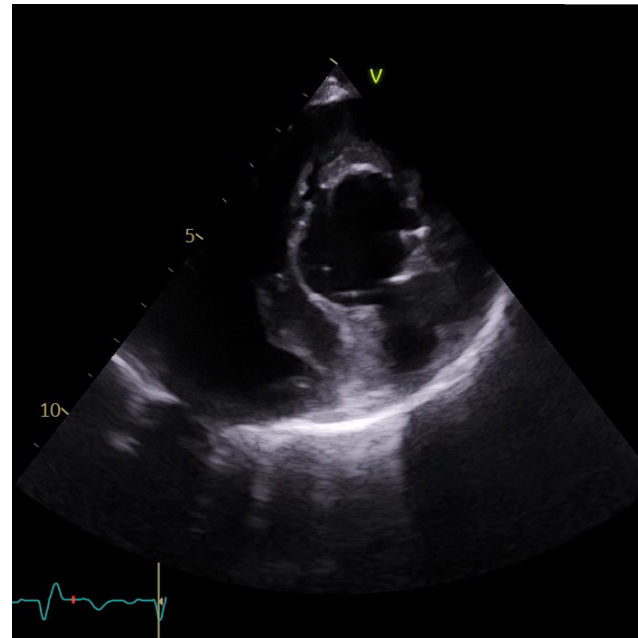
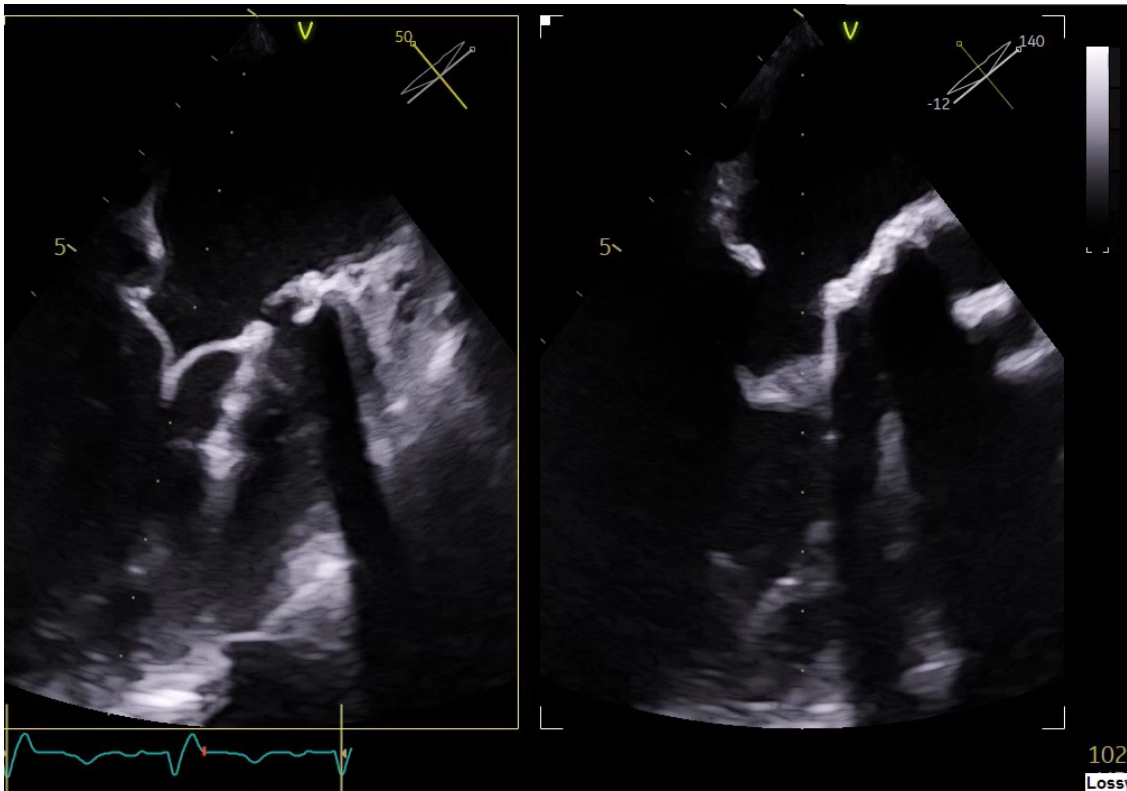


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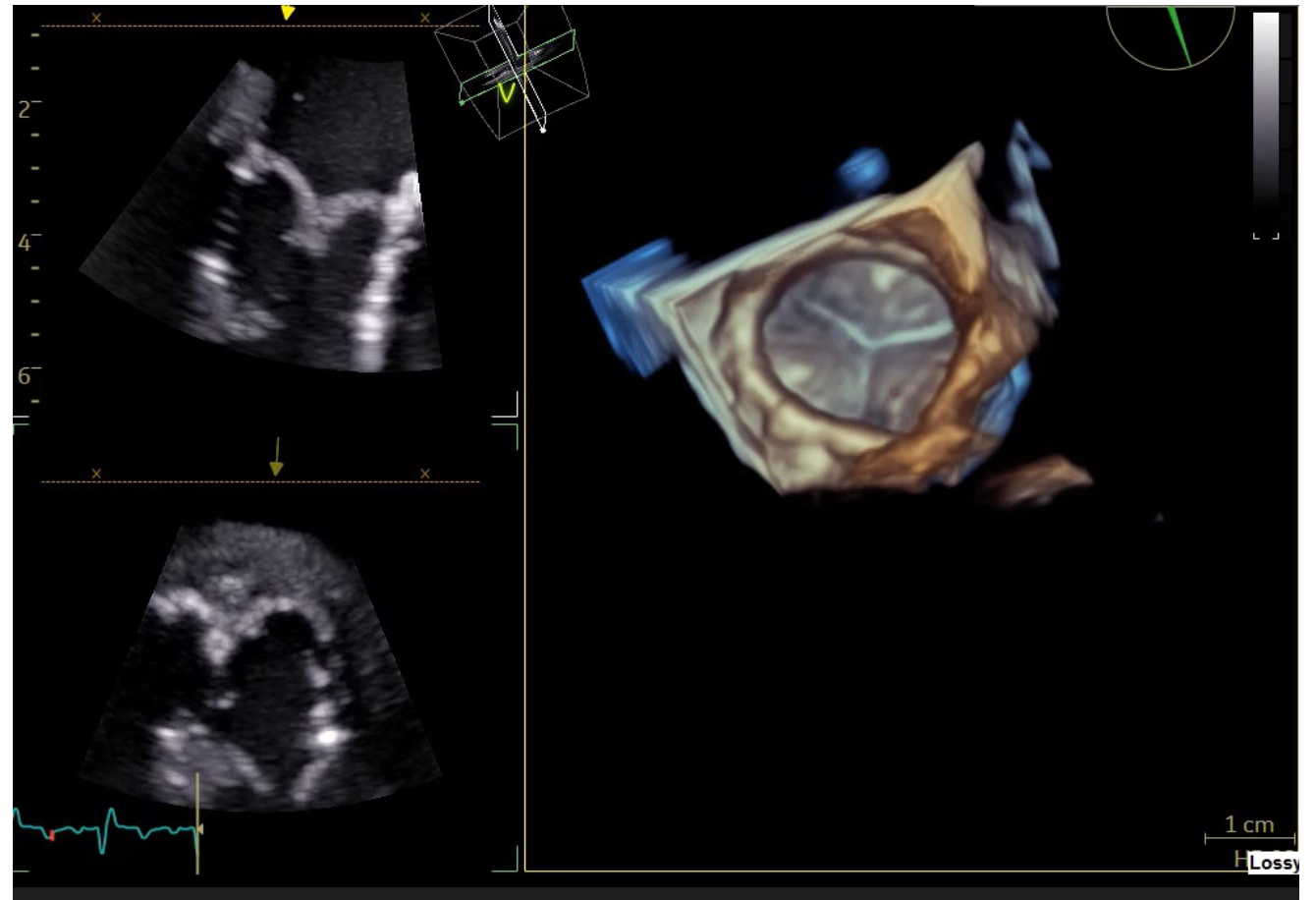
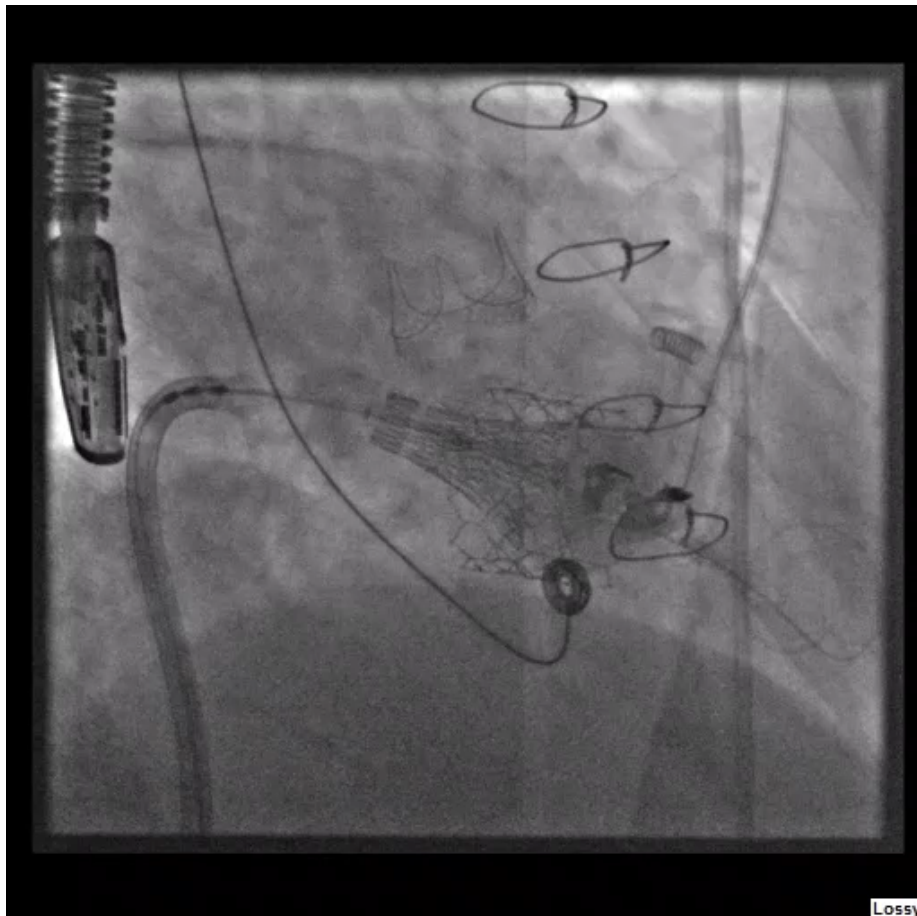


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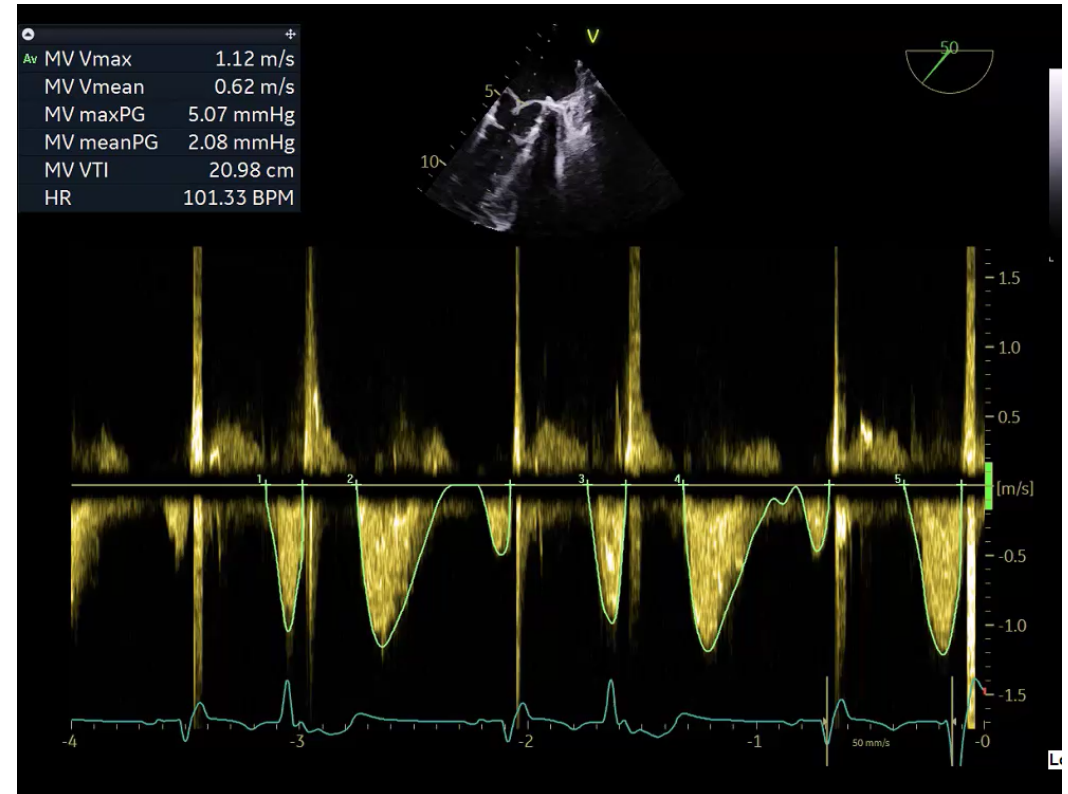
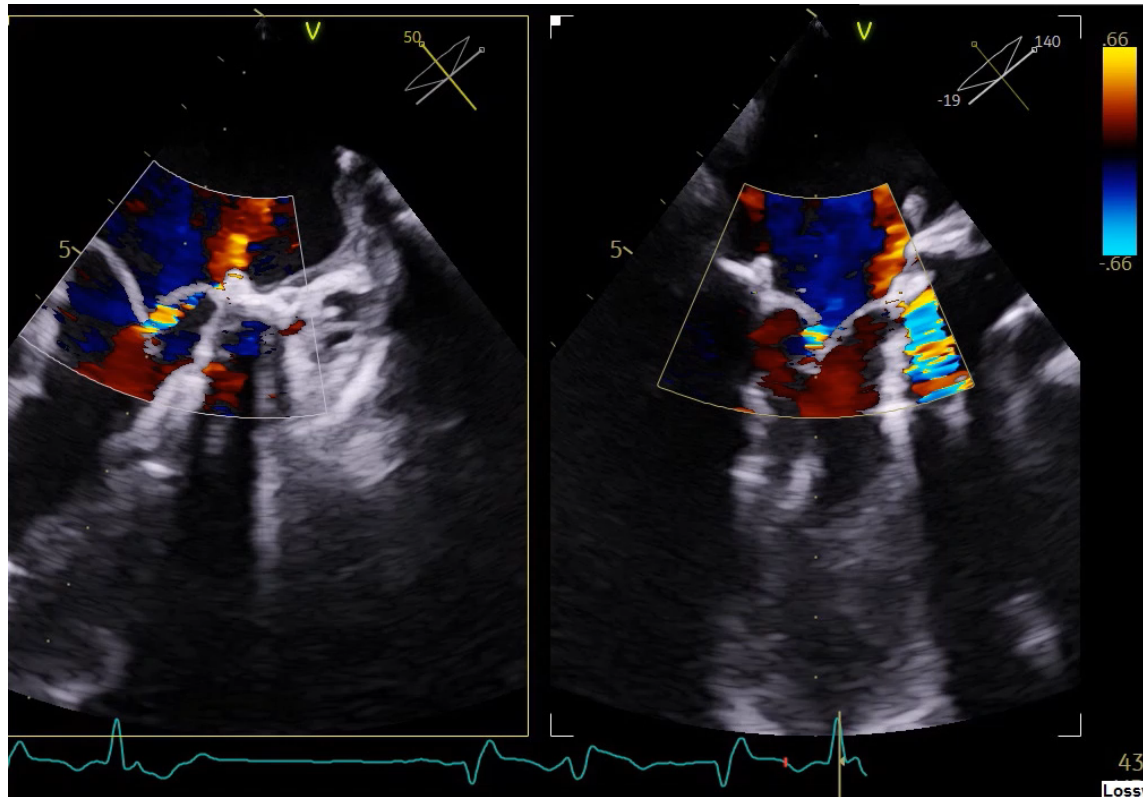


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MV peak PG 5mmHg
MV mean PG 2mmHg

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Conclusion:

- Significant symptomatic improvement at 6 months
- Remained anticoagulated with warfarin (target INR 2-3)
- Management of severe MAC is challenging
- Any discussion or questions.

