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Impact of Leaflet Tethering Force on the Risk of LVOTO in TMVR

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DISCLOSURE STATEMENT OF FINANCIAL INTEREST

Within the past 12 months, I or my spouse/partner have had a financial interest/arrangement or affiliation with the organization(s) listed below

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- Research Support/Honoraria/Clinical Proctor

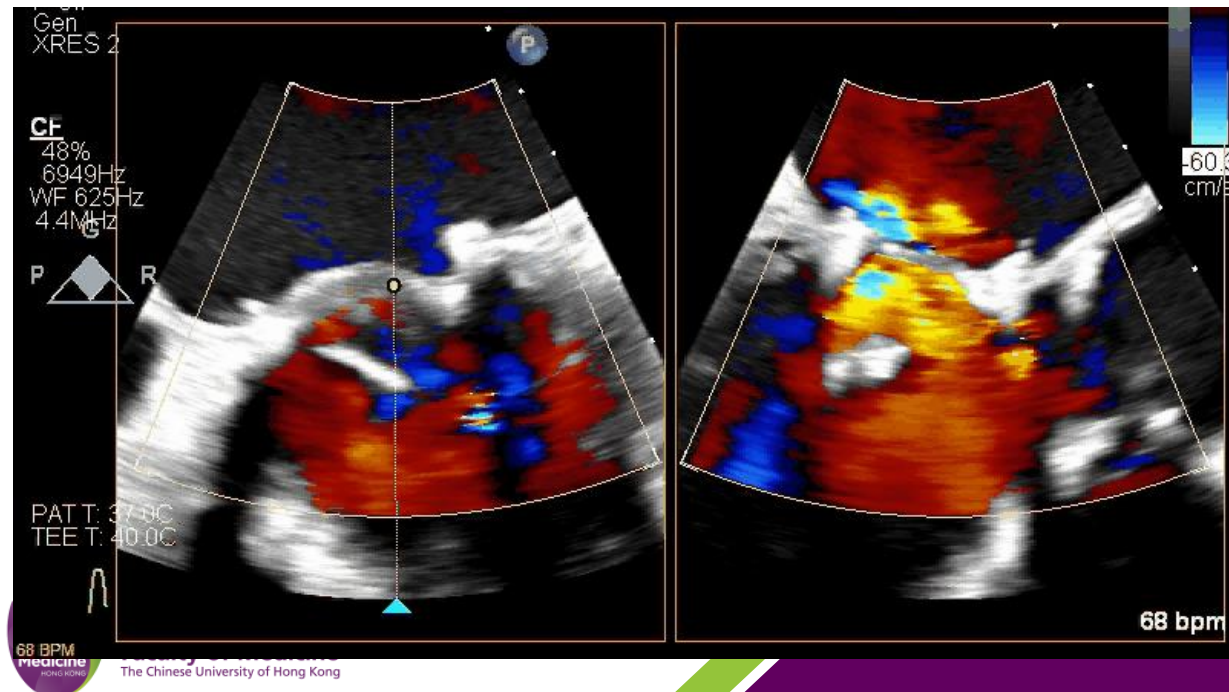
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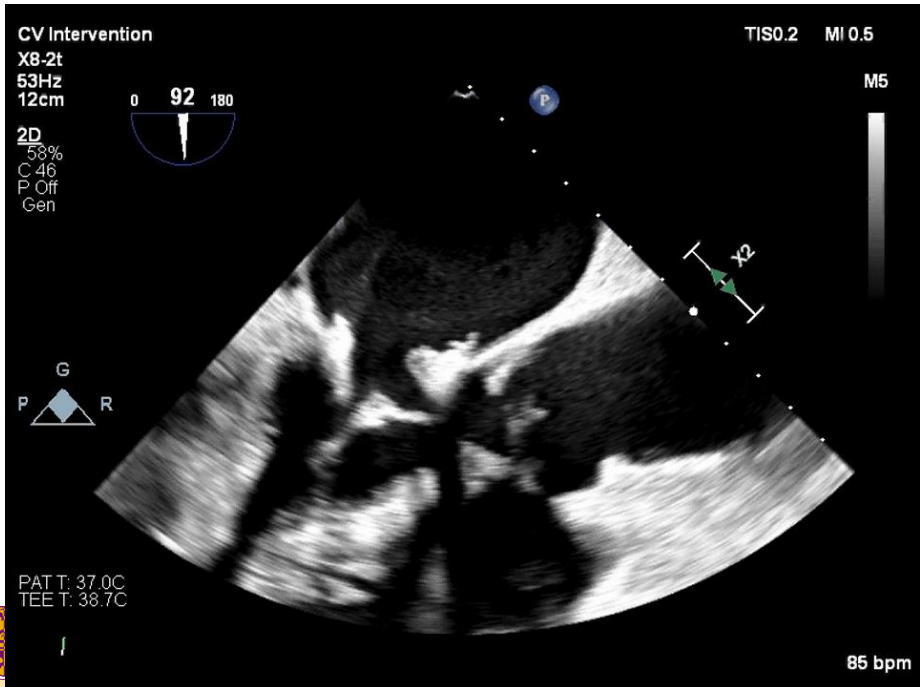
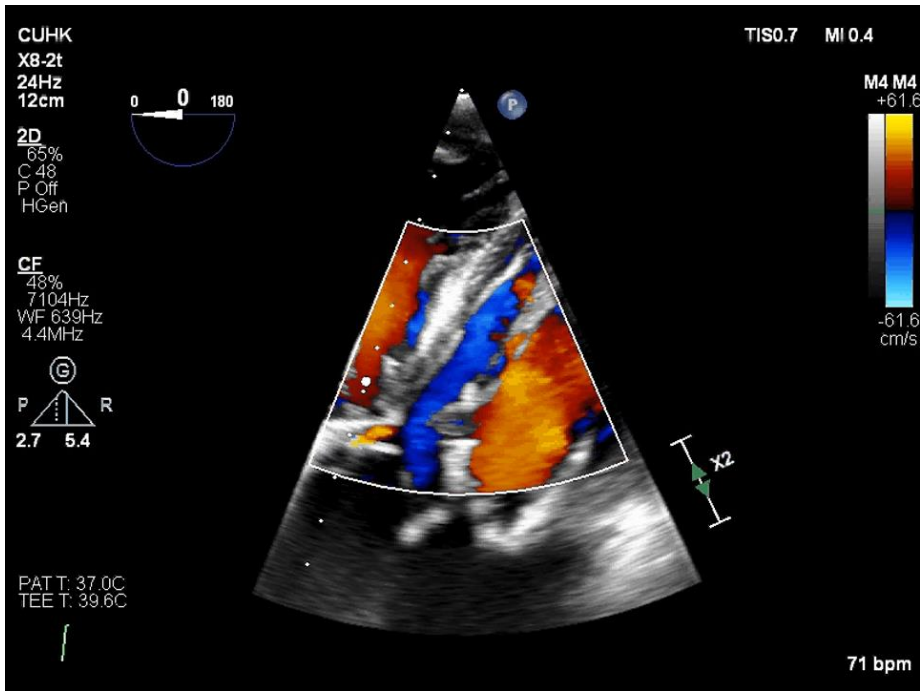
Background

- In TMVR, the transcatheter valve creates a “**neo-LVOT**” bordered by the *implanted valve stents, displaced AML, and basal-mid LV septum*
- LVOT Obstruction occurs in 7-9% of TMVR procedures and is potentially fatal
- TMVR simulation software typically measures the minimal neo-LVOT area created by a virtually implanted valve, **without considering the chordal forces that act to prevent AML displacement +/- change transcatheter valve alignment**

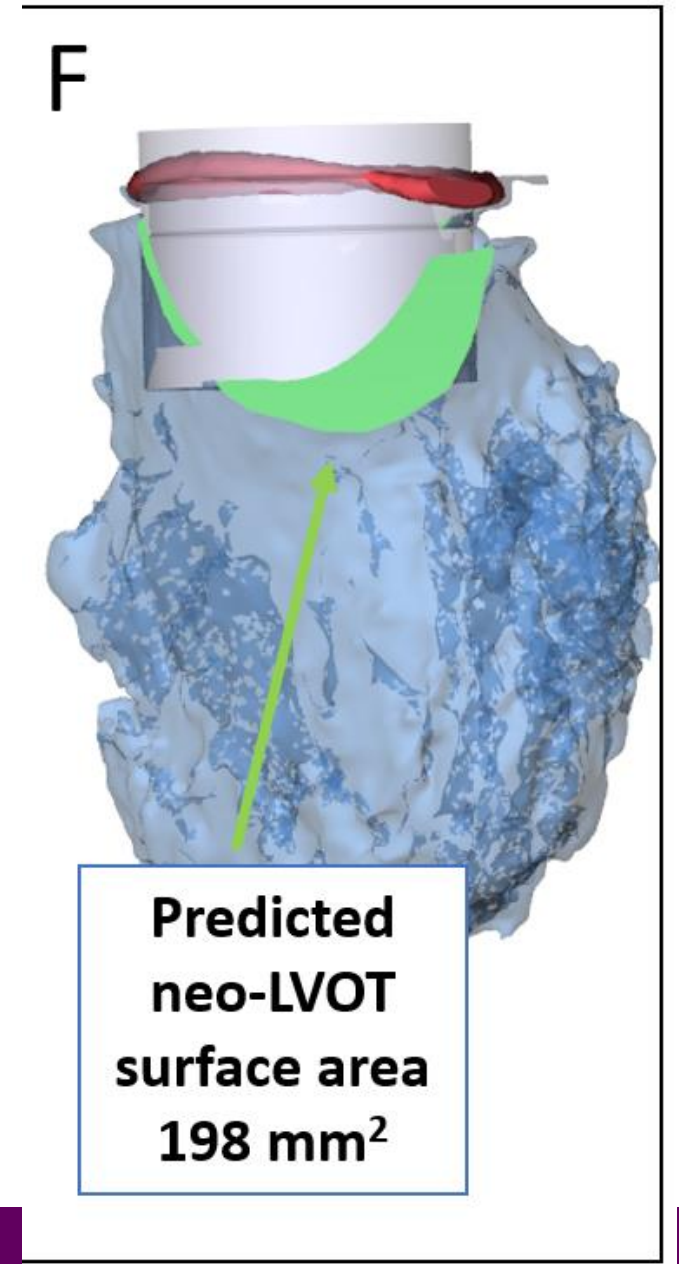
Case 1

- 79/M
- s/p MV repair with AML patch augmentation (CardioCel) and annuloplasty using 34mm 3D memo ring
- Severe recurrent MR due to partial dehiscence of AML patch and uncorrected chordal tethering of MV leaflets



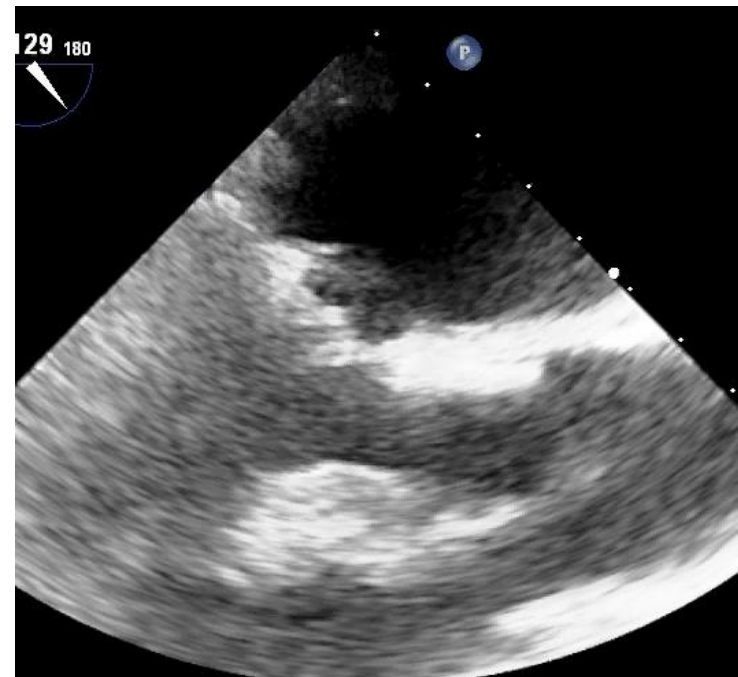
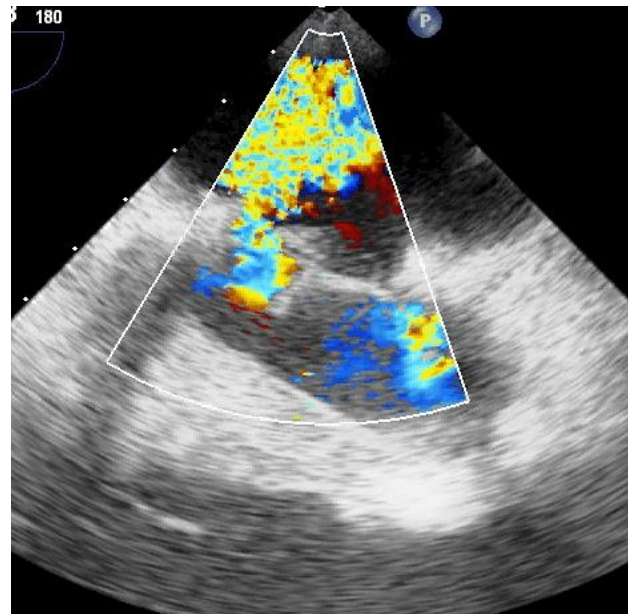


The augmented AML = 28mm



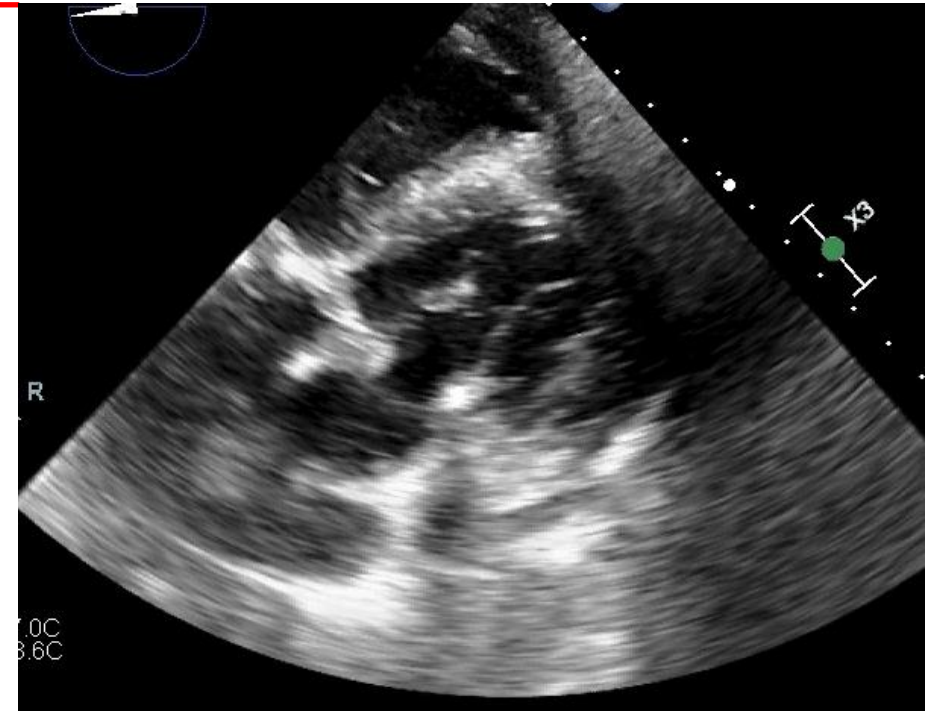
Case 2

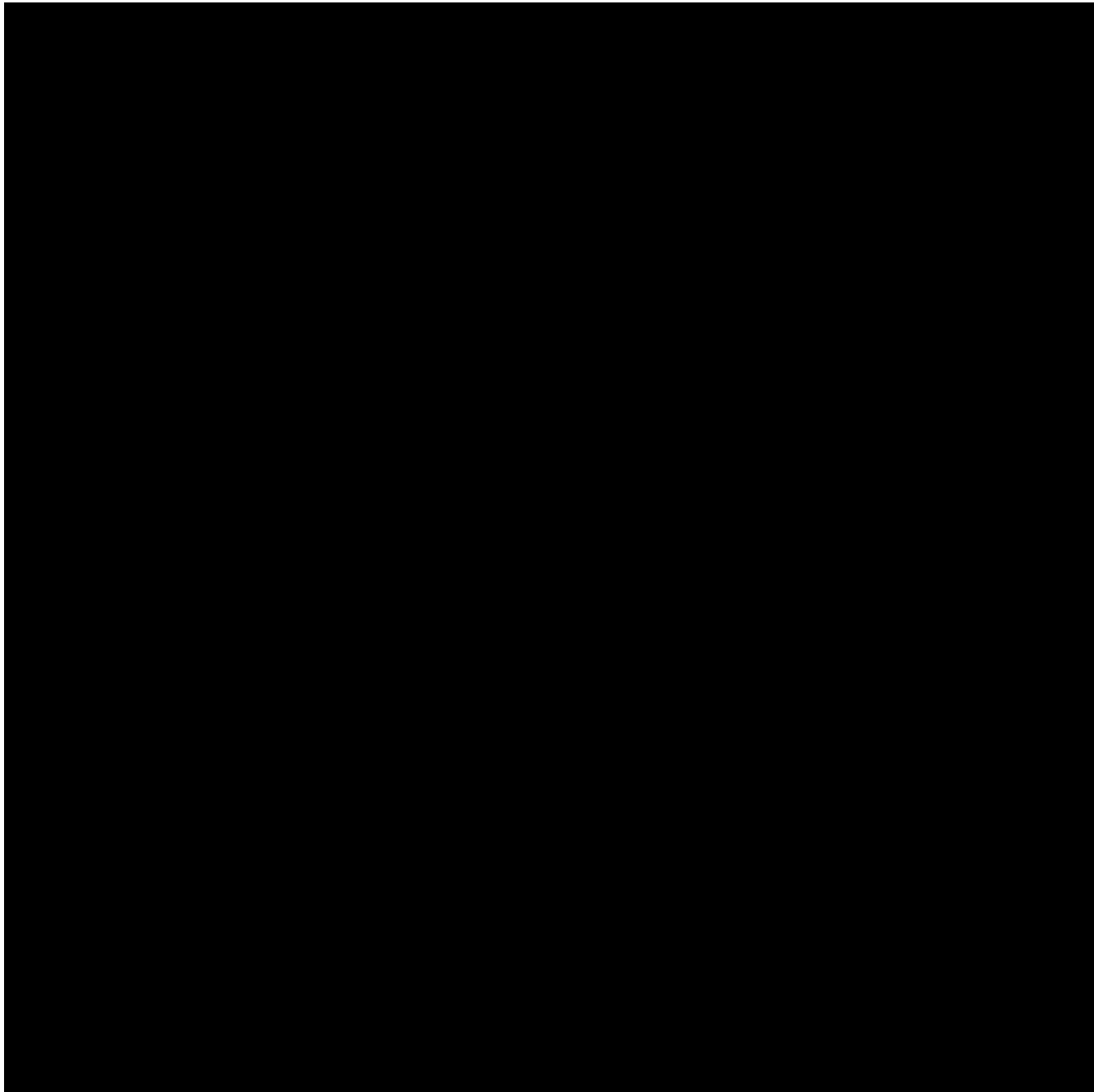
- 65/M
- History of DM, HT, AF on warfarin, CKD (Cr 300), severe MR/moderate AR/TR with tissue AVR, MV repair (3D memo 32mm) and TVA 2022
- NYHA III-IVa heart failure



Assessment

- Predicted NeoLVOT area adequate at 270mm²
- Long anterior MV leaflet 25mm

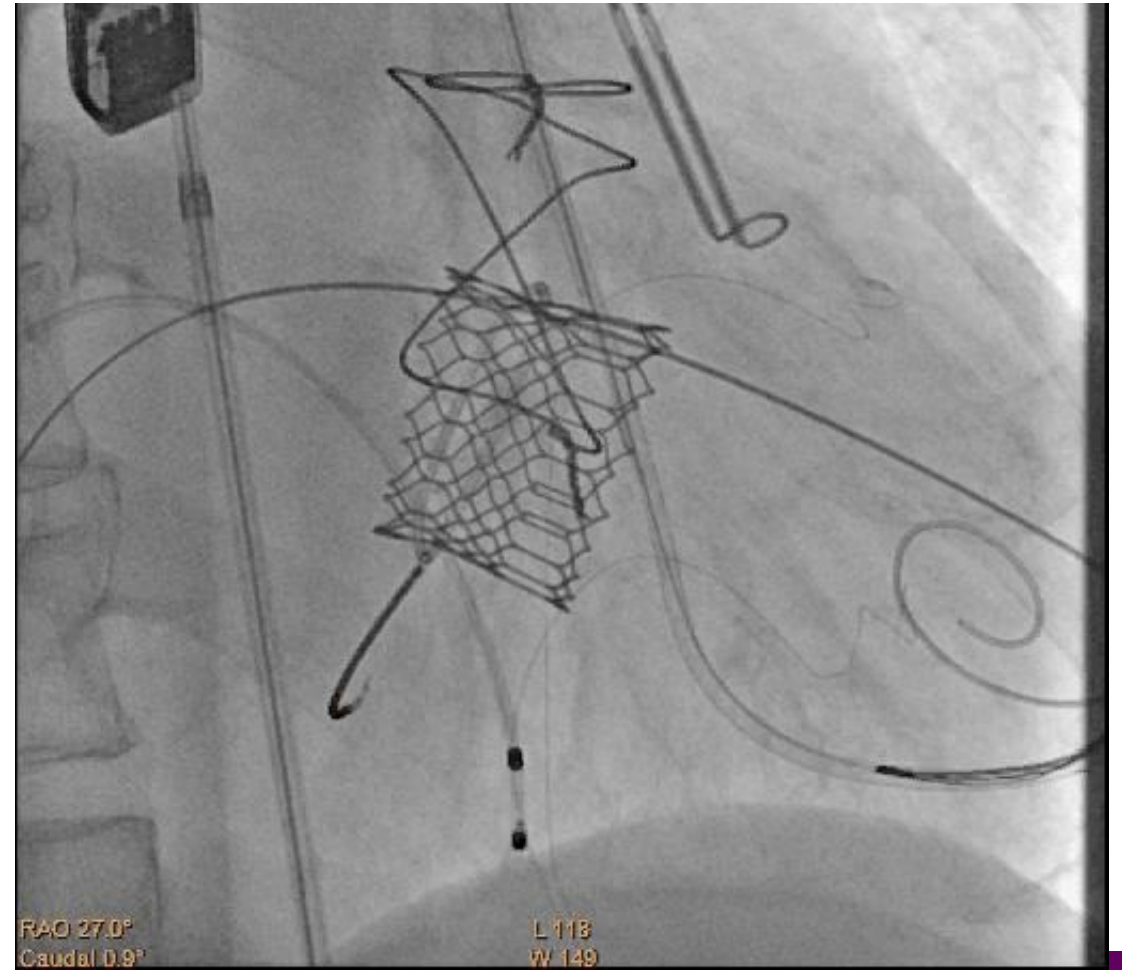


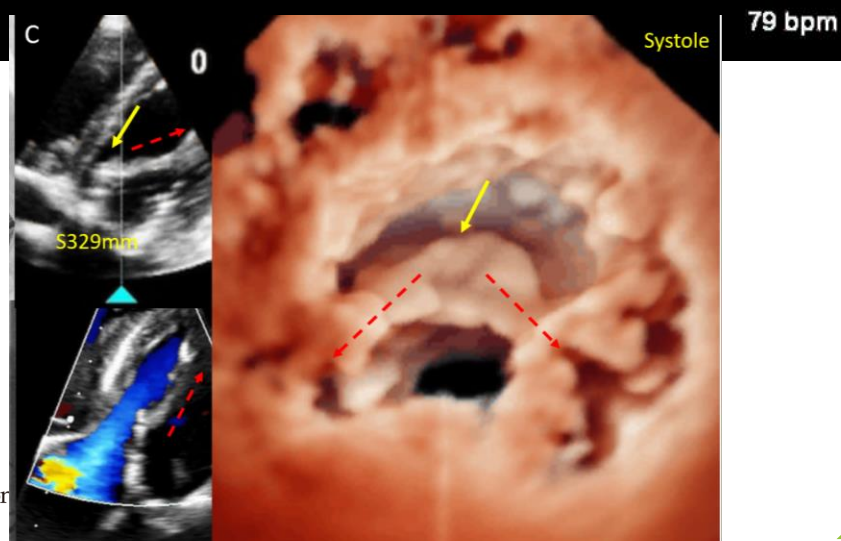
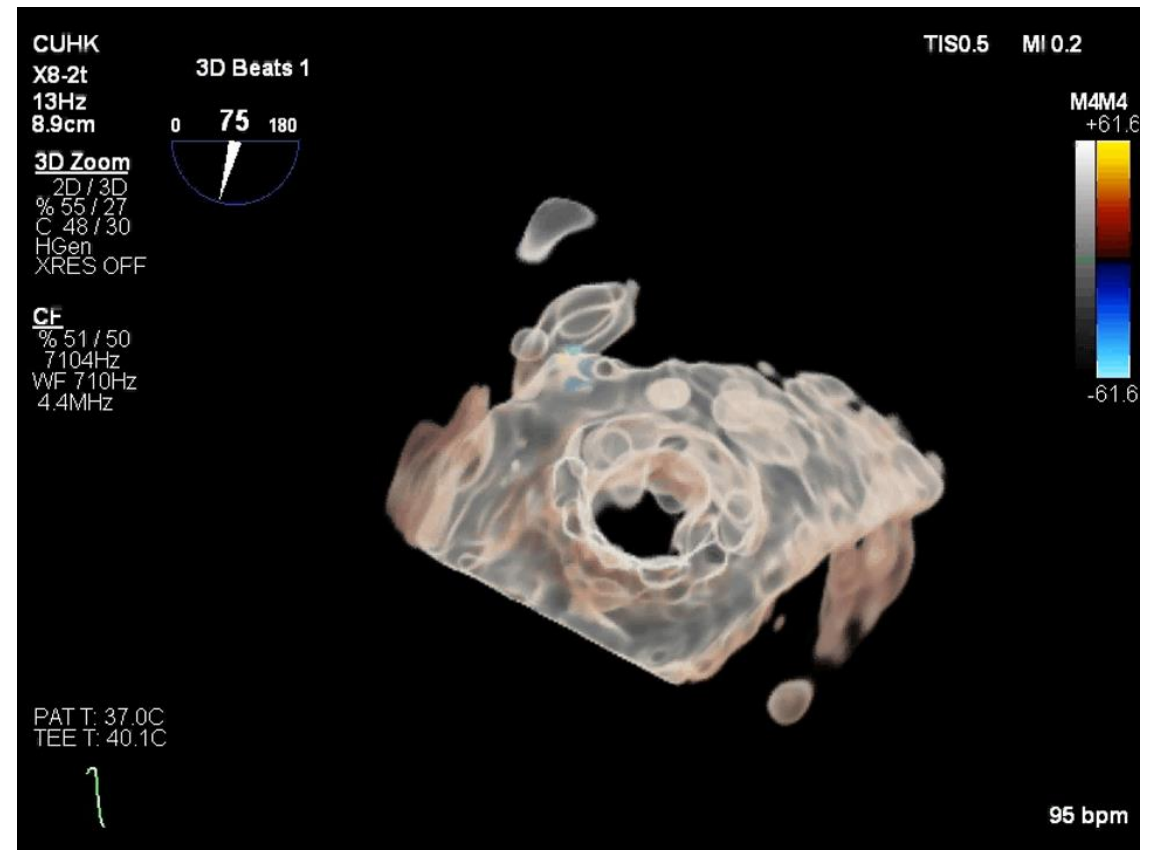
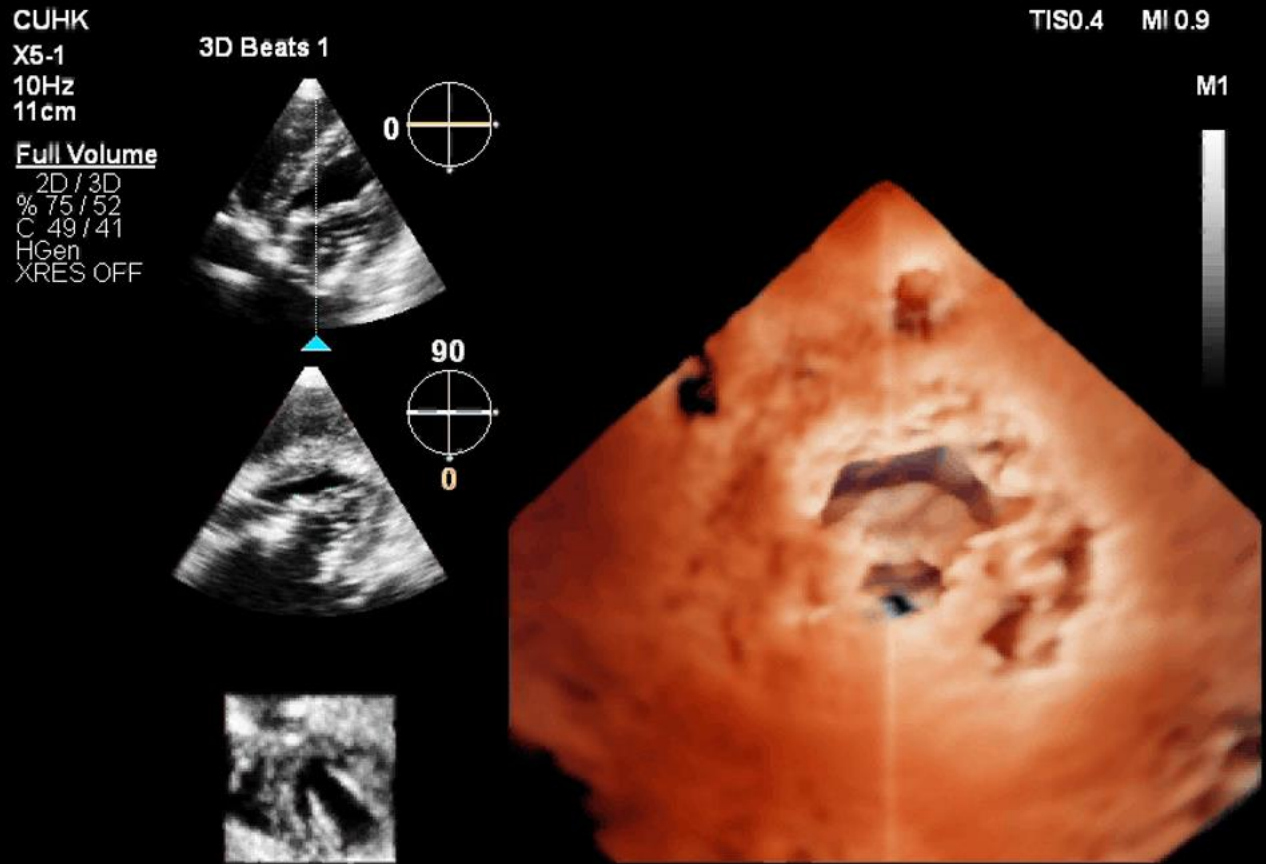


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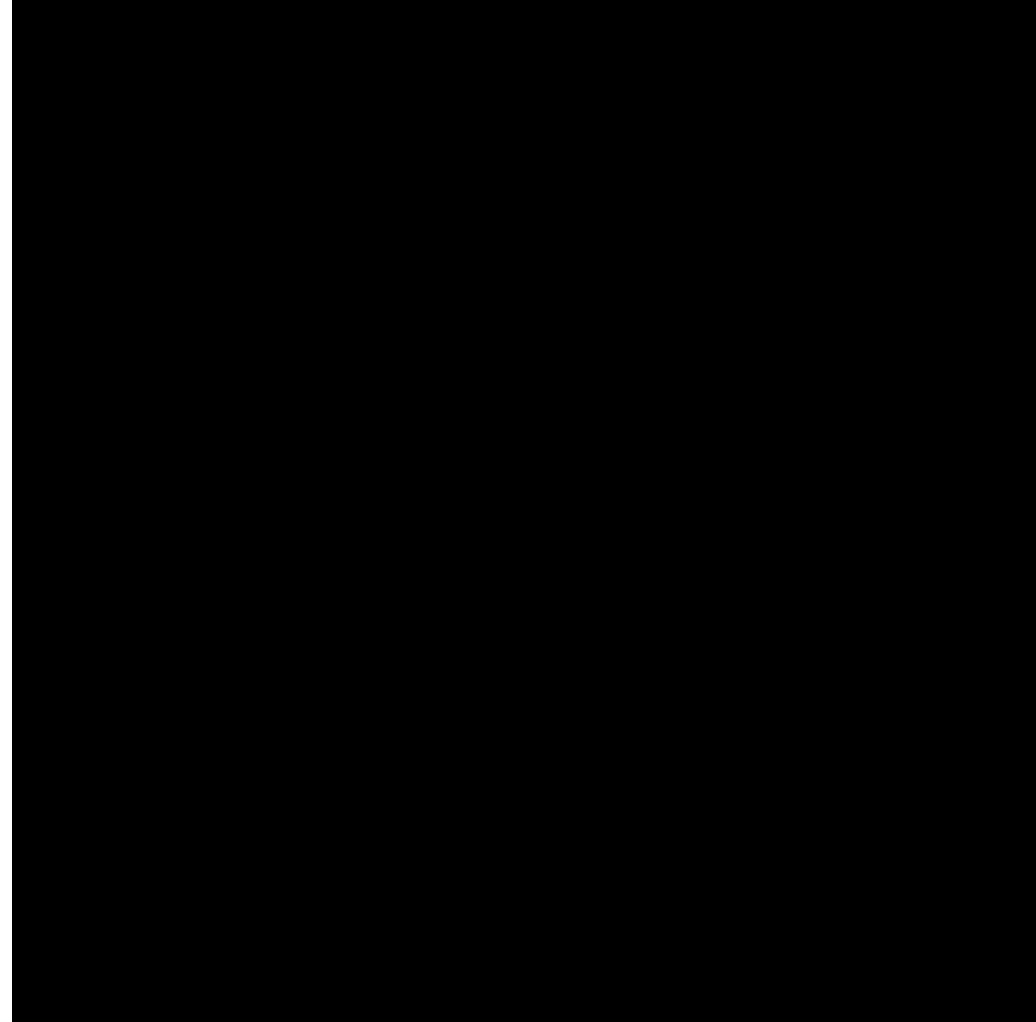
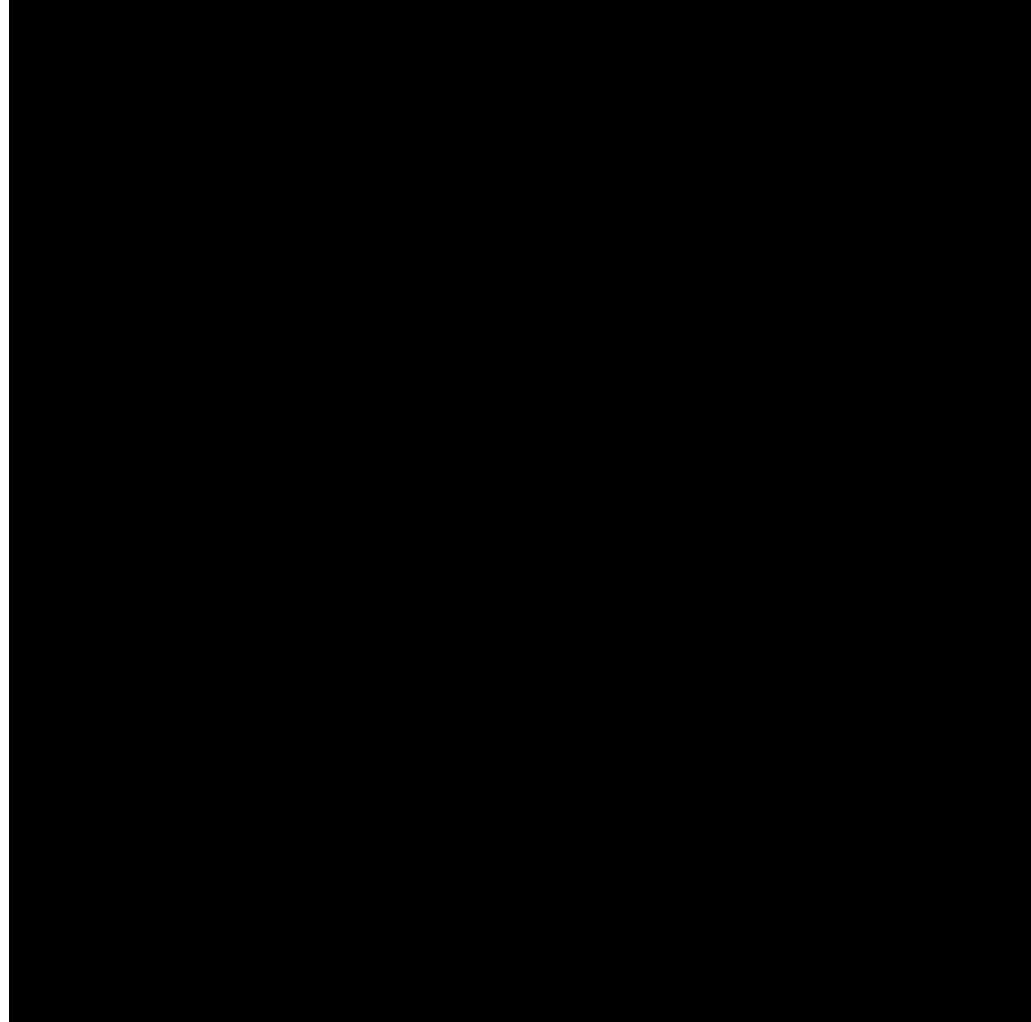


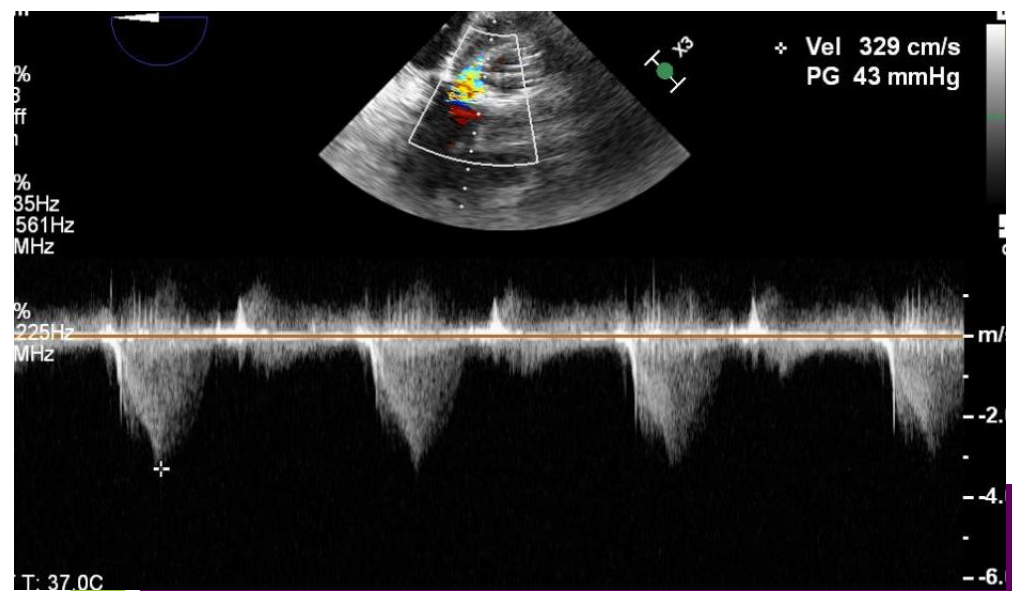
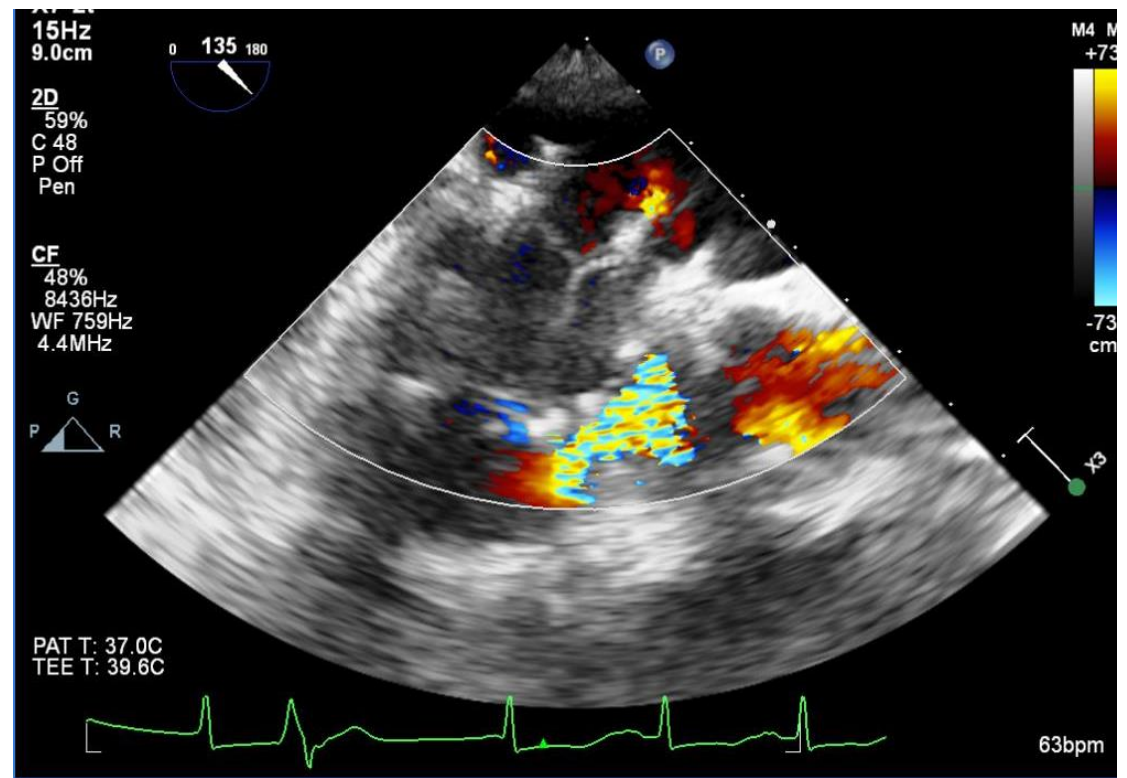
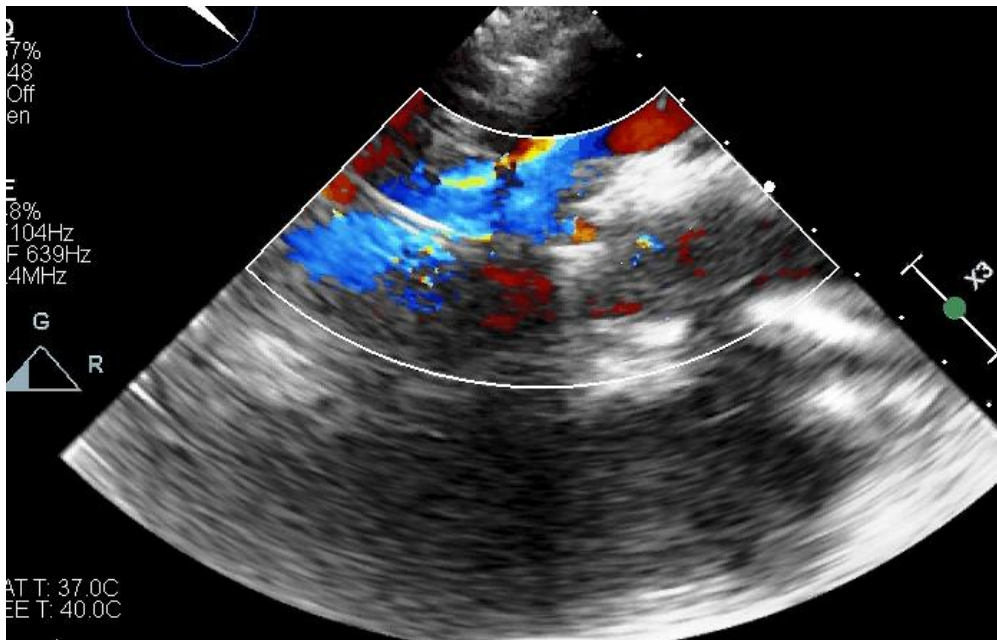
Case 1

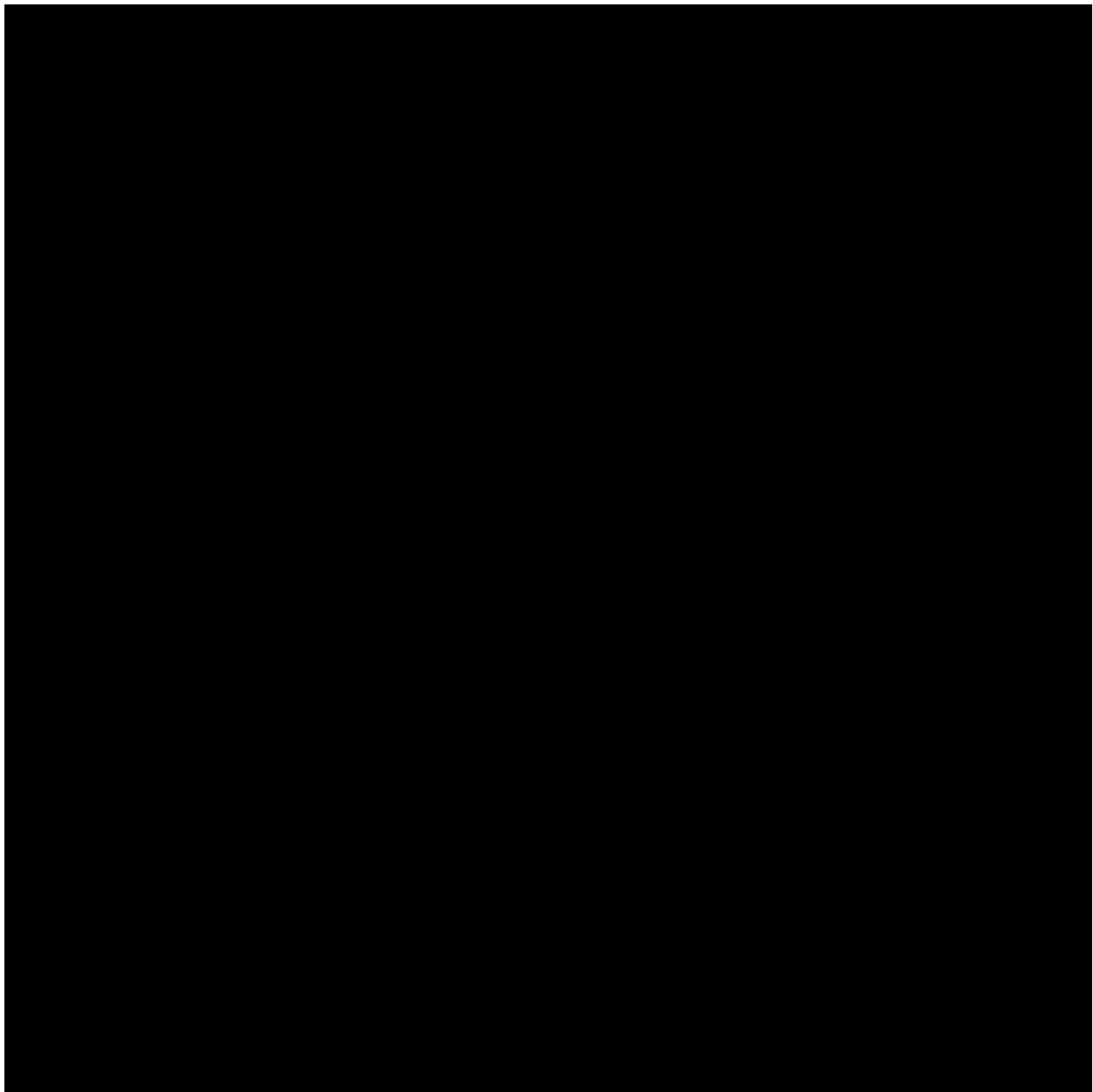




Case 2





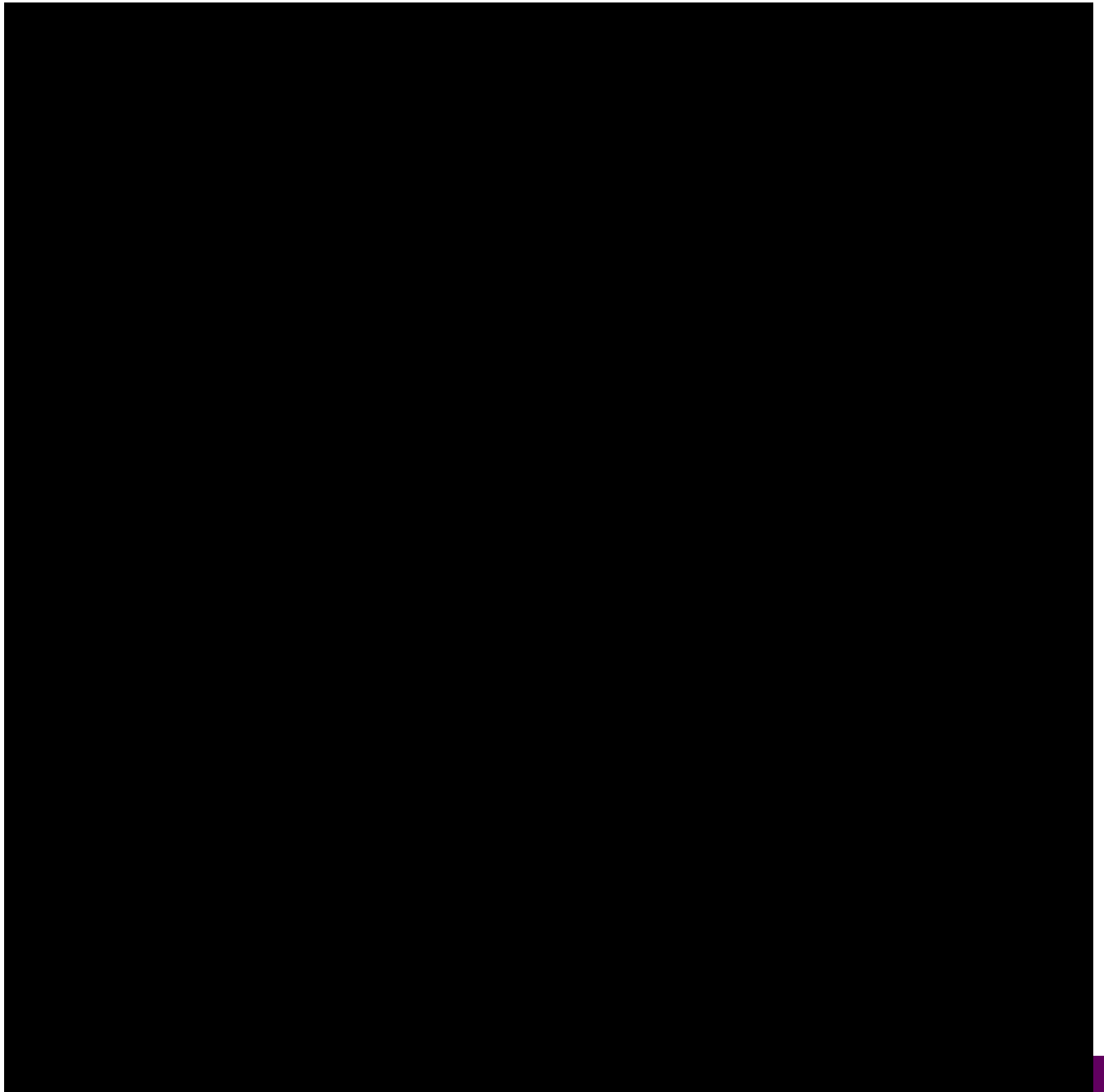
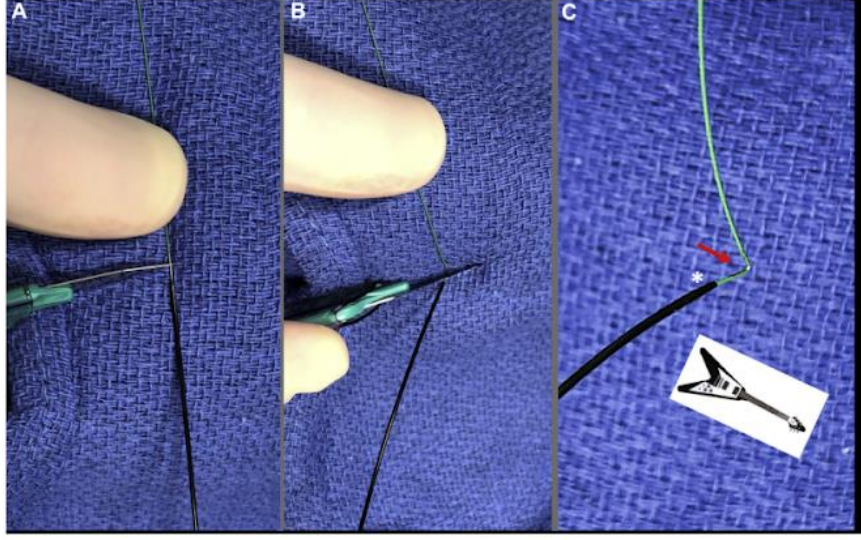


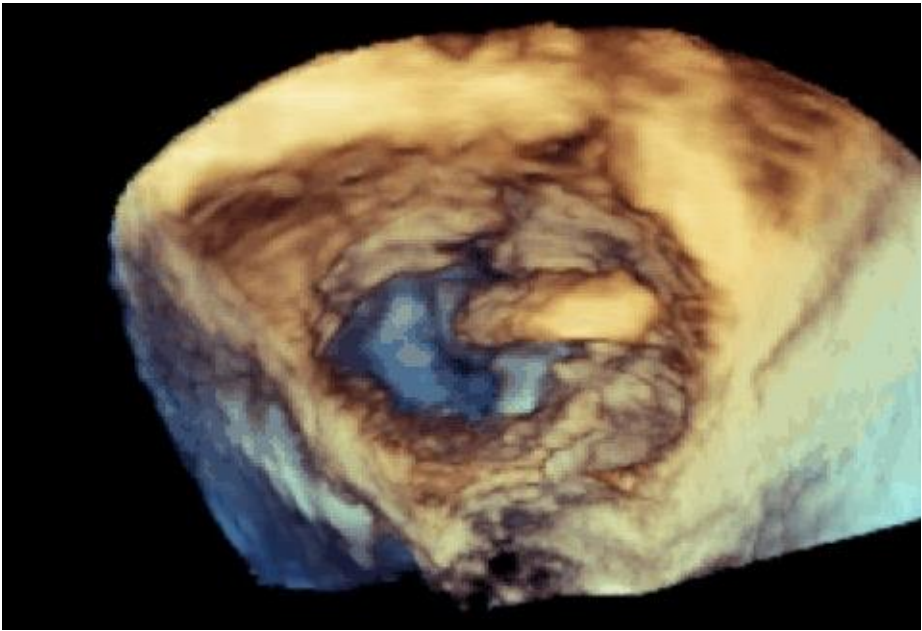
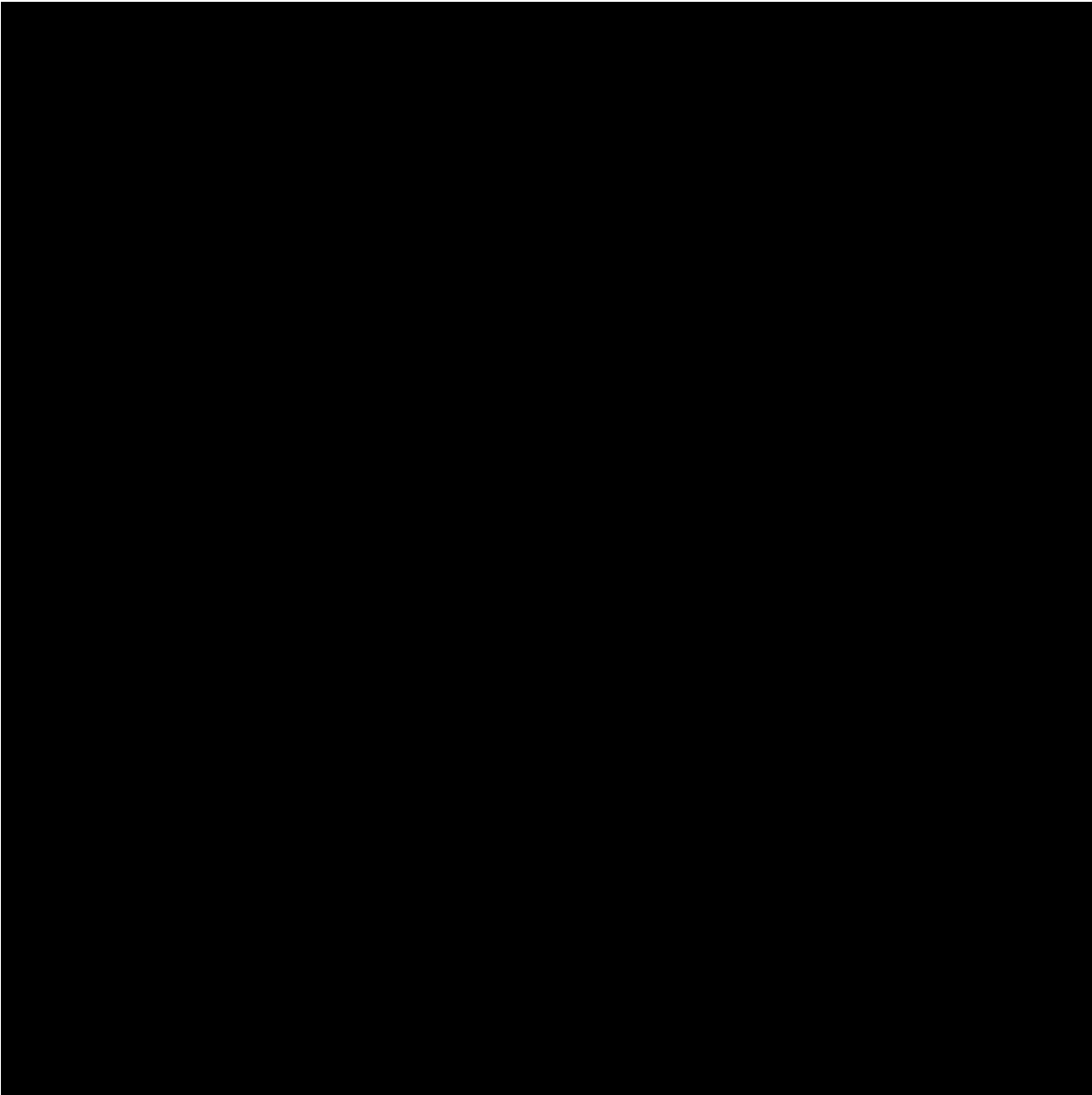
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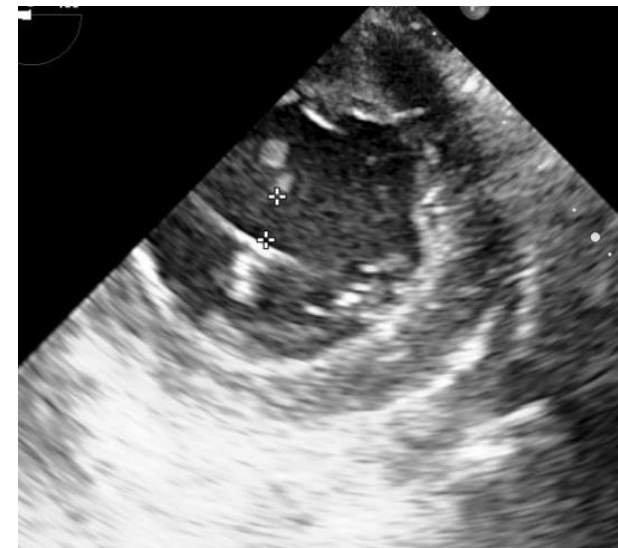
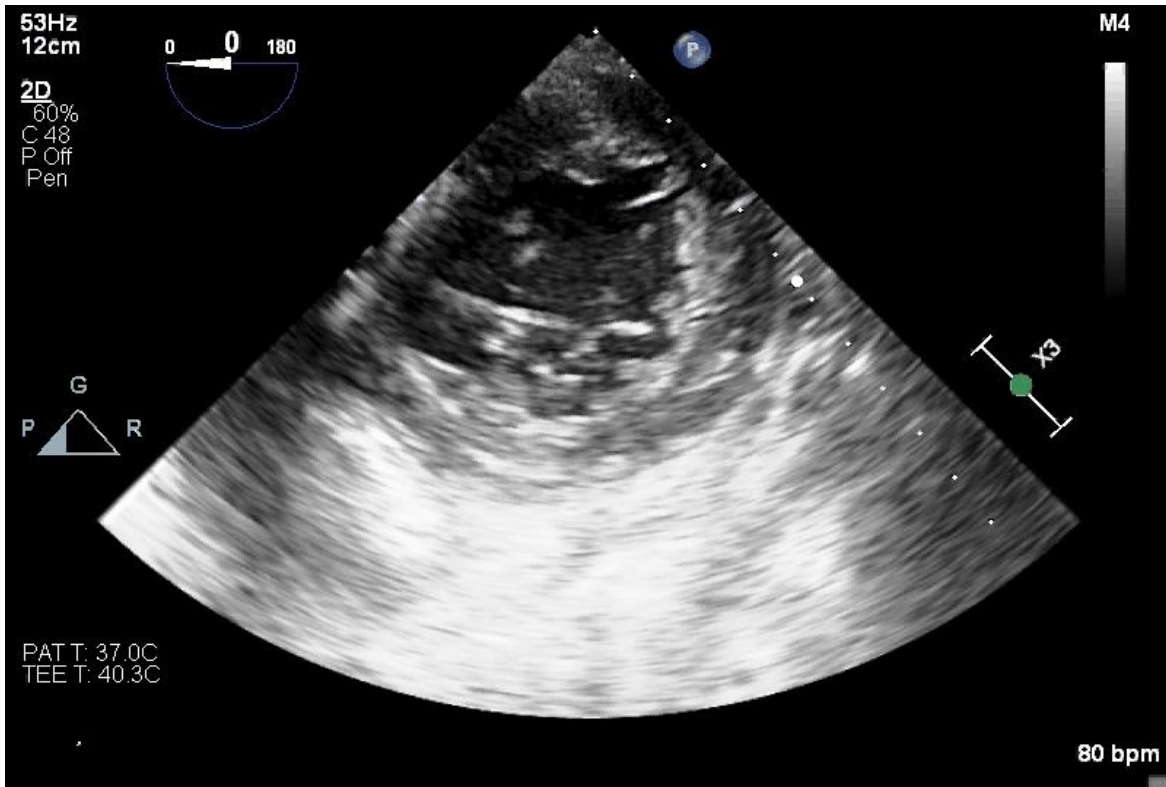
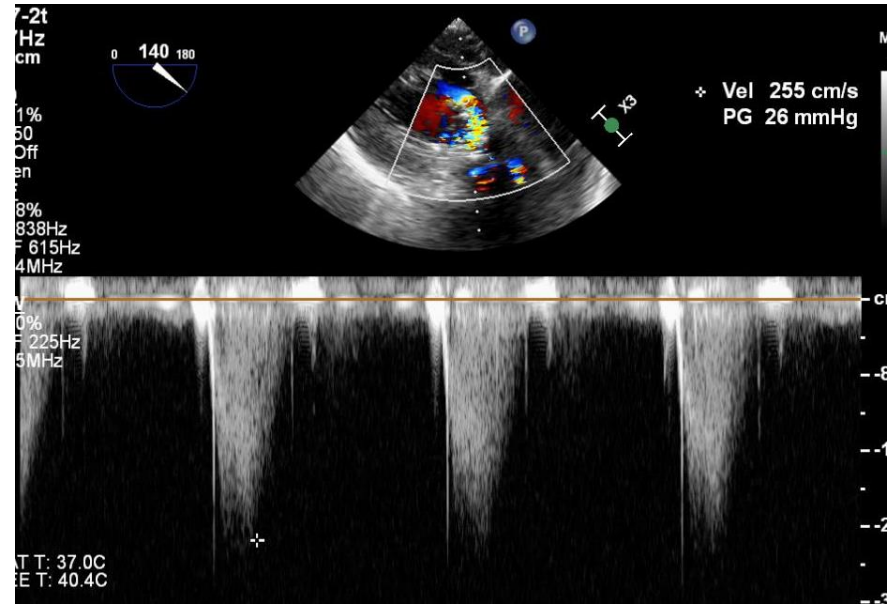


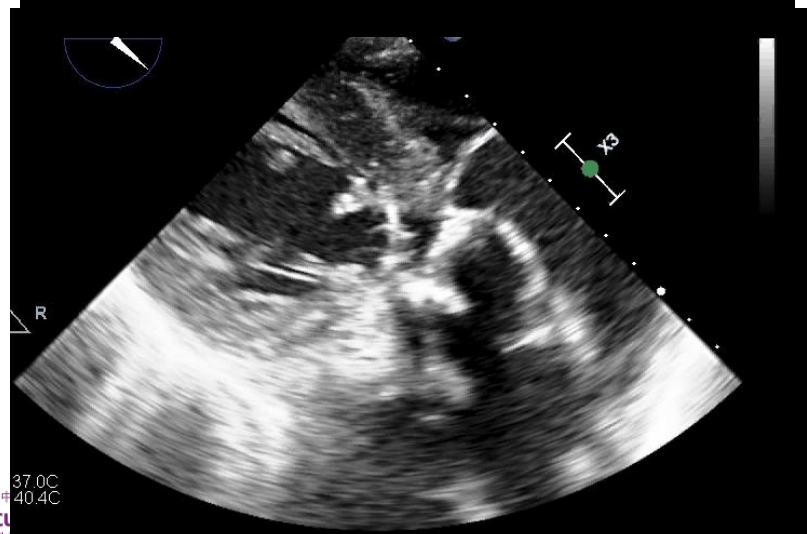
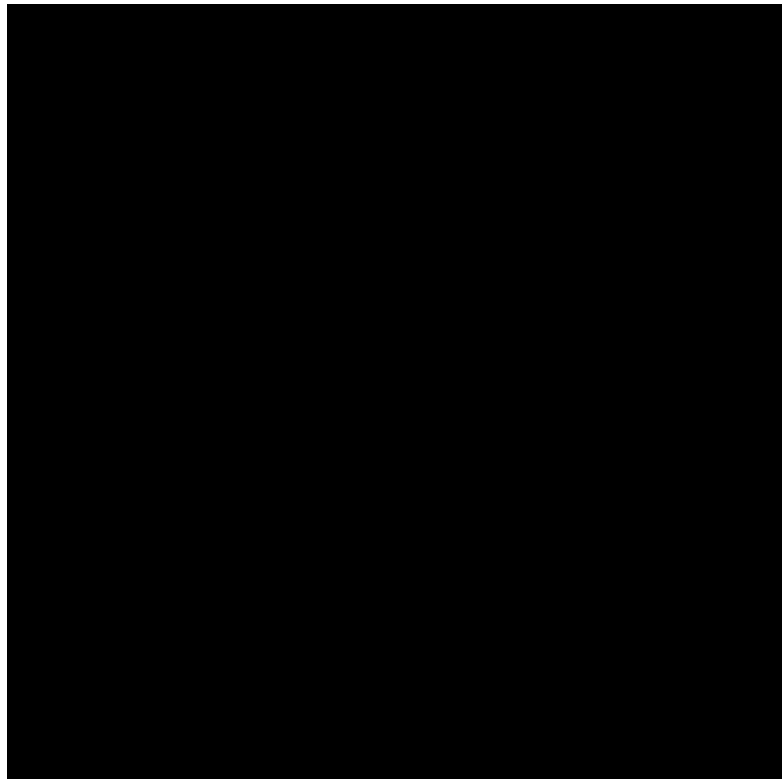
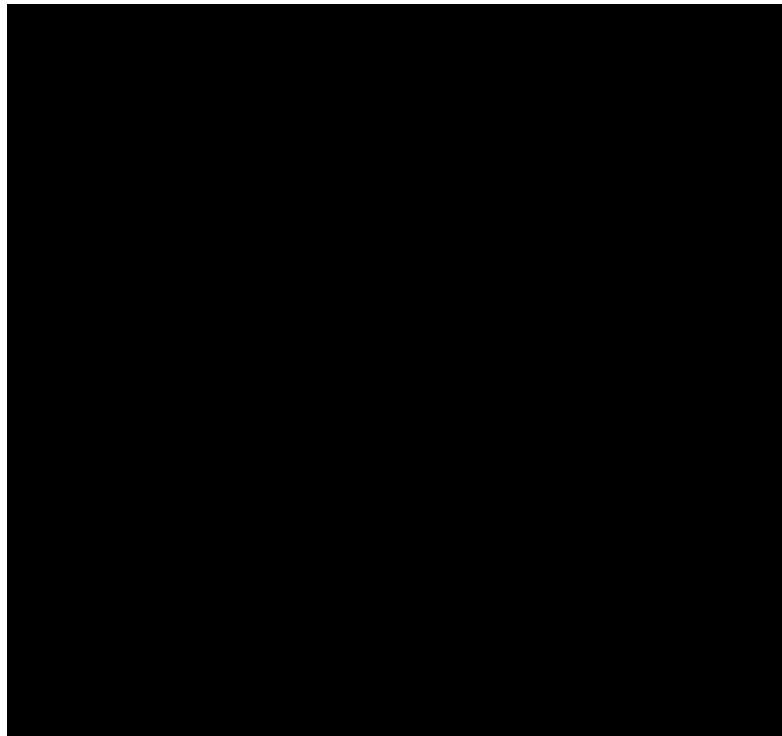
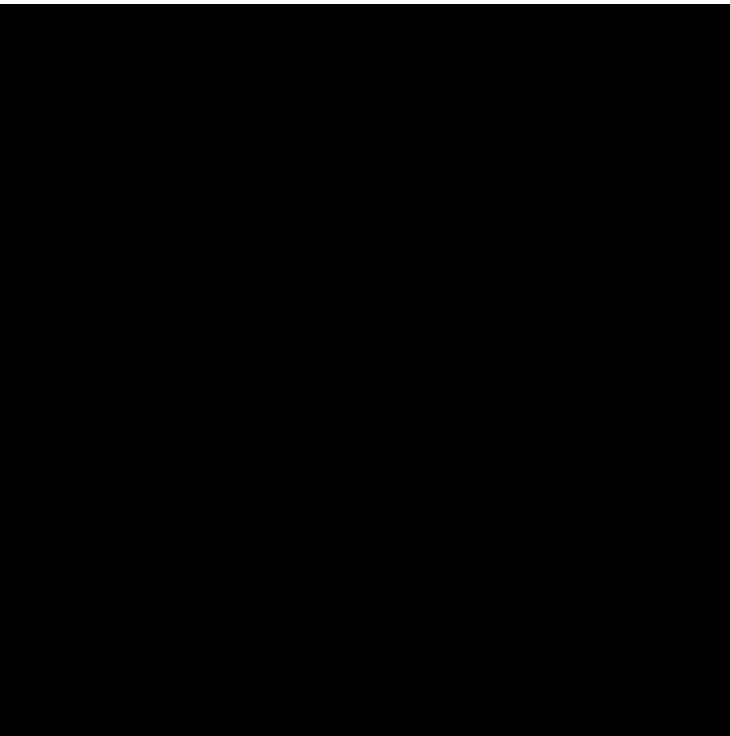
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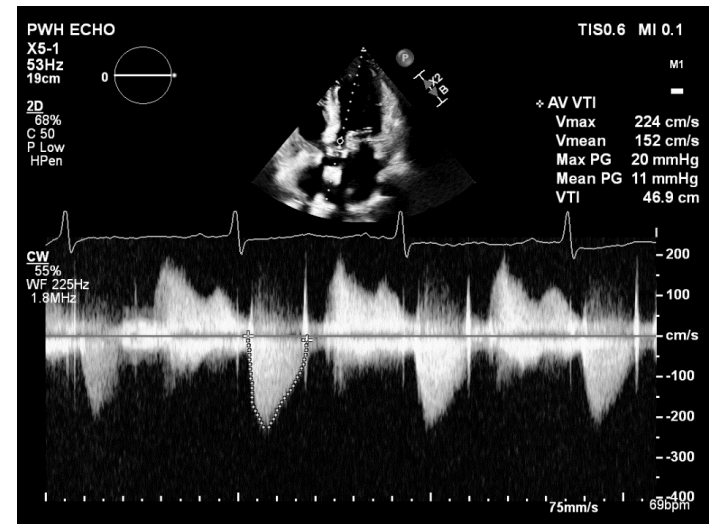
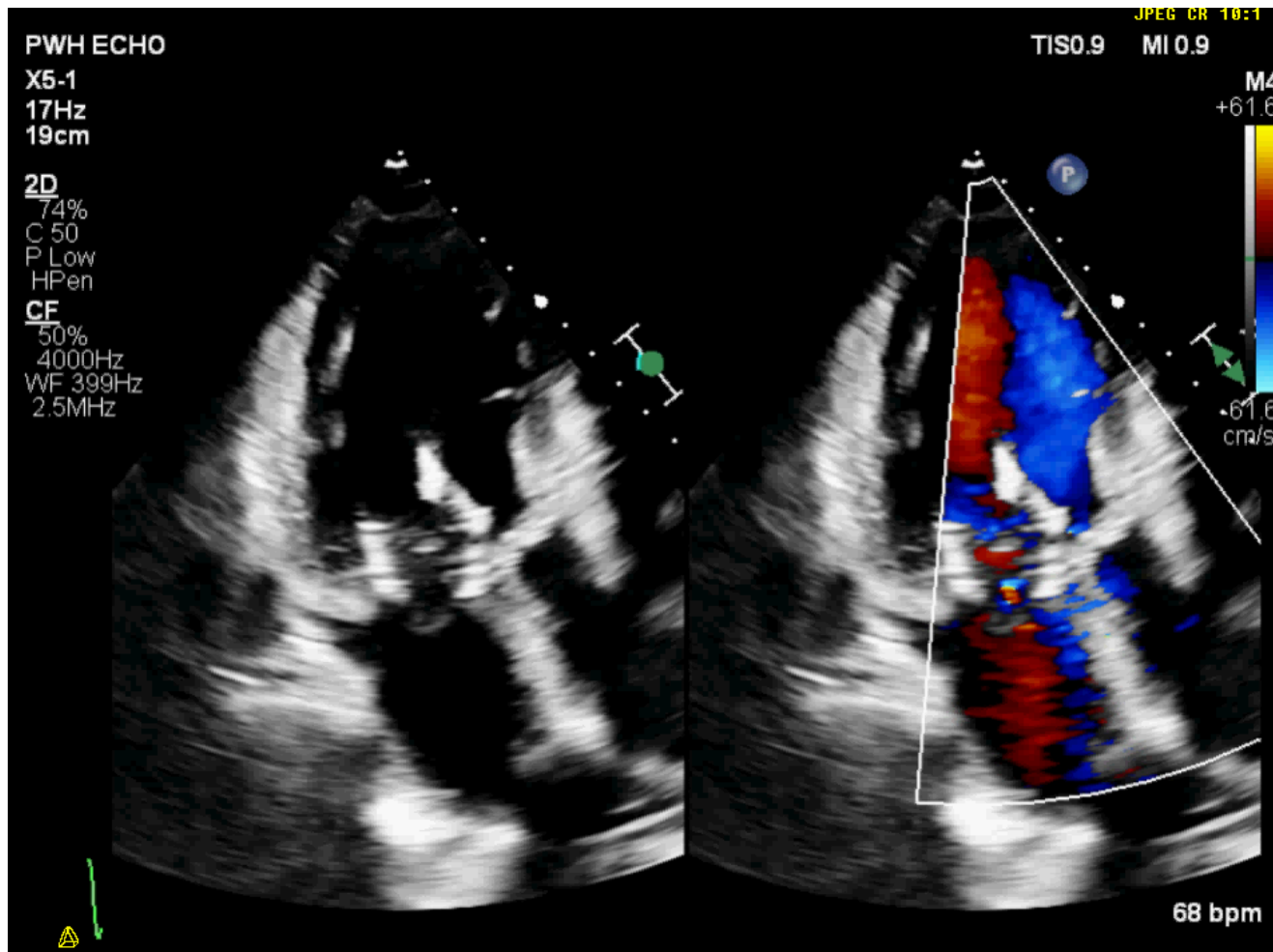












Conclusion

- The two cases illustrated the unpredictable effect of **chordal tethering** on neo-LVOT formation
 - prevent AML displacement
 - change transcatheter valve alignment
 - prevent systolic anterior motion of MV, and prevent **dynamic** LVOTO
- In performing VIR TMVR, we need to prepare with different bailouts e.g. ASA/LAMPOON/Second valve/PVL Closure
- **Electrocautery** surgery is a new tool box in SHI (e.g. transcaval, BASILICA, LAMPOON)