

# Mitral TEER for Complex Anatomy

Shunsuke Kubo

Department of Cardiology

Kurashiki Central Hospital, Japan

# Potential conflicts of interest

**Speaker's name : Shunsuke Kubo**

I have the following potential conflicts of interest to declare:

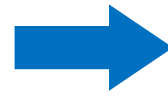
Clinical Proctor : Boston Scientific, Abbott Medical

Honoraria or consultation fees : Boston Scientific, Abbott Medical

# What is the “Complex Anatomy” in TEER ?

- **Secondary MR**

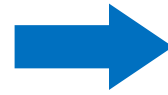
- **Large coaptation gap**



Optimal clip trajectory  
Controlled gripper actuation (CGA)

- **Primary MR**

- **Commissural lesion**



Optimal clip orientation

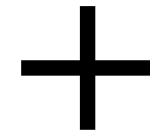
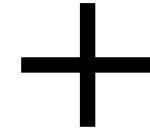
- **Huge flail**

- **Special situation**

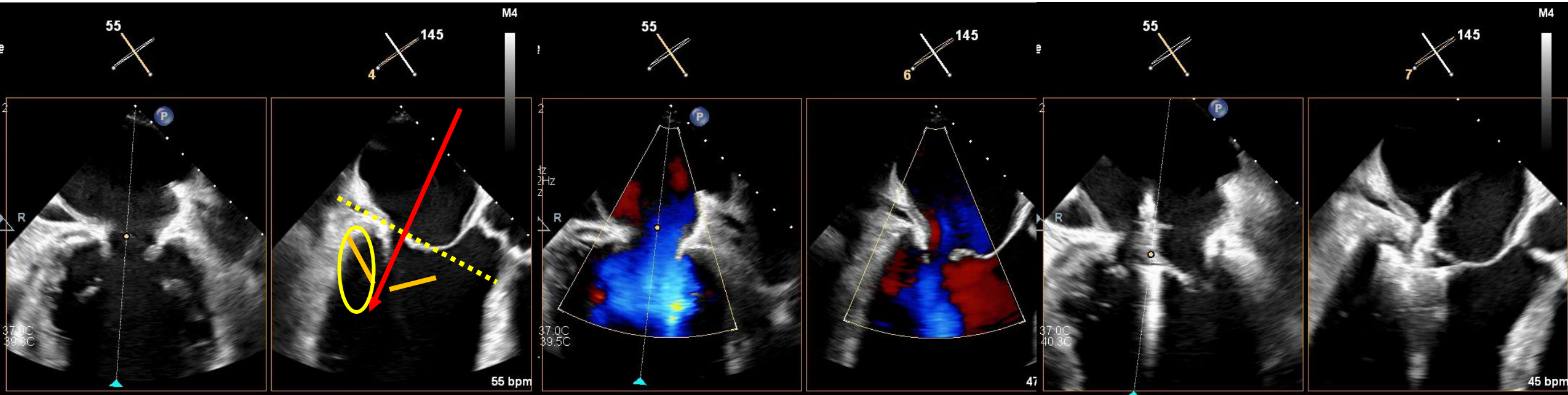
- **Post mitral annuloplasty**



Relationship of ring

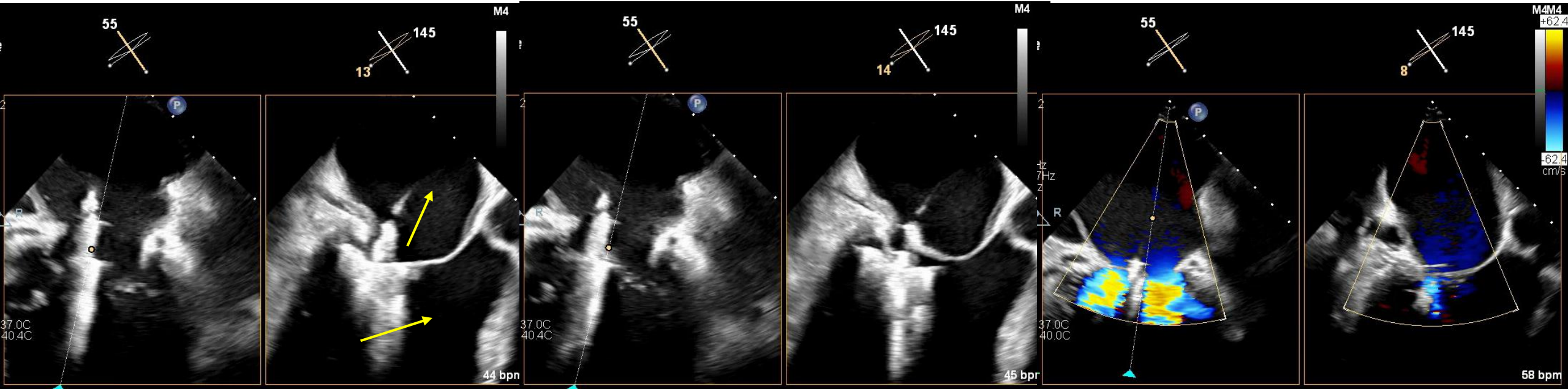


# 58 years, Female: Mixed MR (Ventricular + A2 prolapse)



Make a LVOT alignment to put posterior arm between LV wall and PML  
Both leaflet nicely on the arms  
But, anterior is not enough after gripper down...

# Regrasping using CGA



CGA is useful in this situation

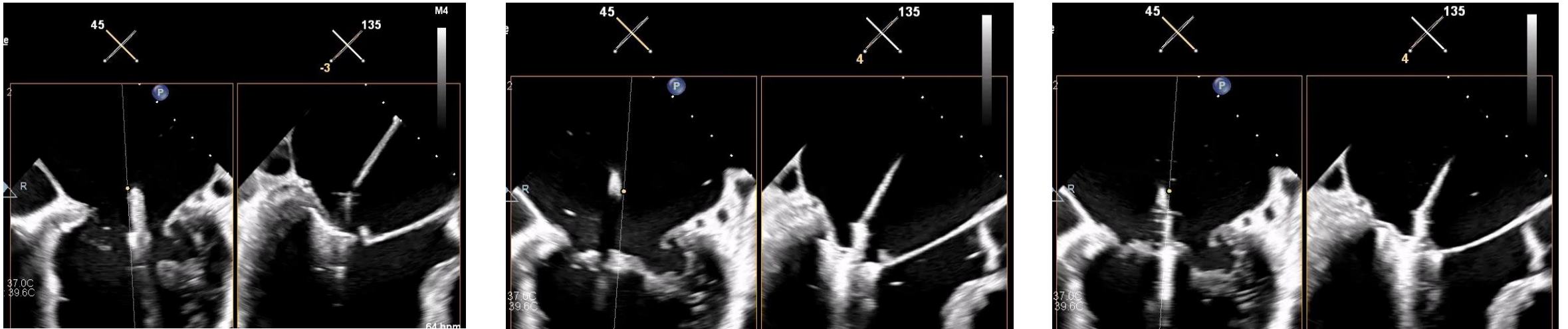
Pull the anterior gripper up

Turn the SGC counter clockwise to move the clip more anterior

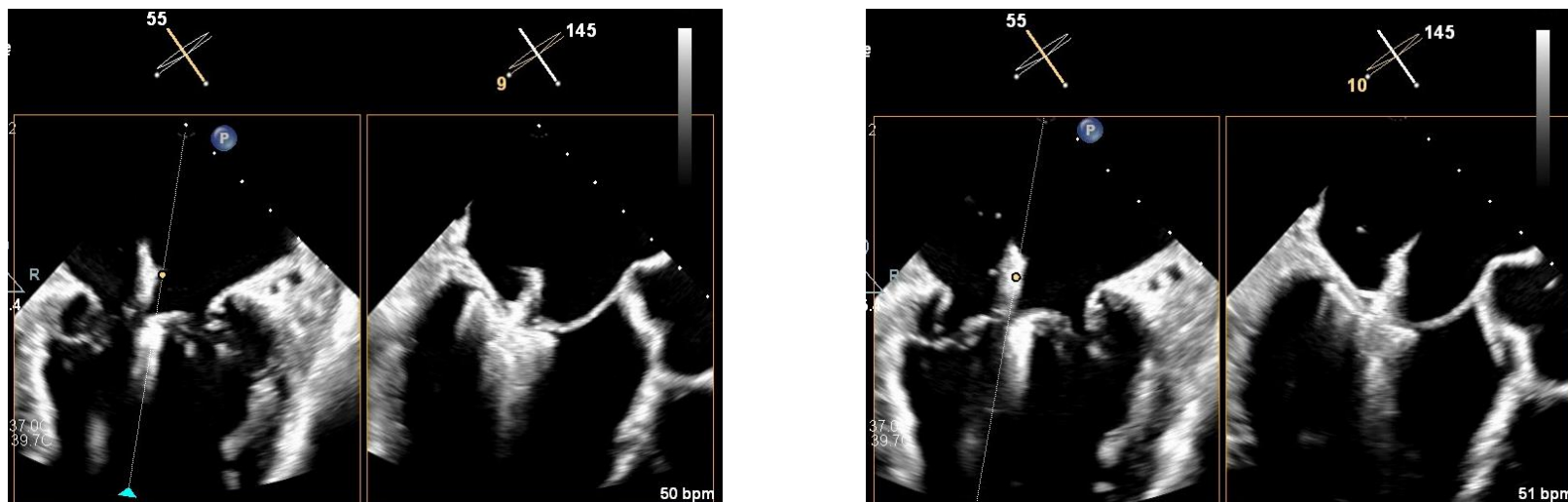
Then, drop the anterior gripper down again

# What is situation to use CGA ?

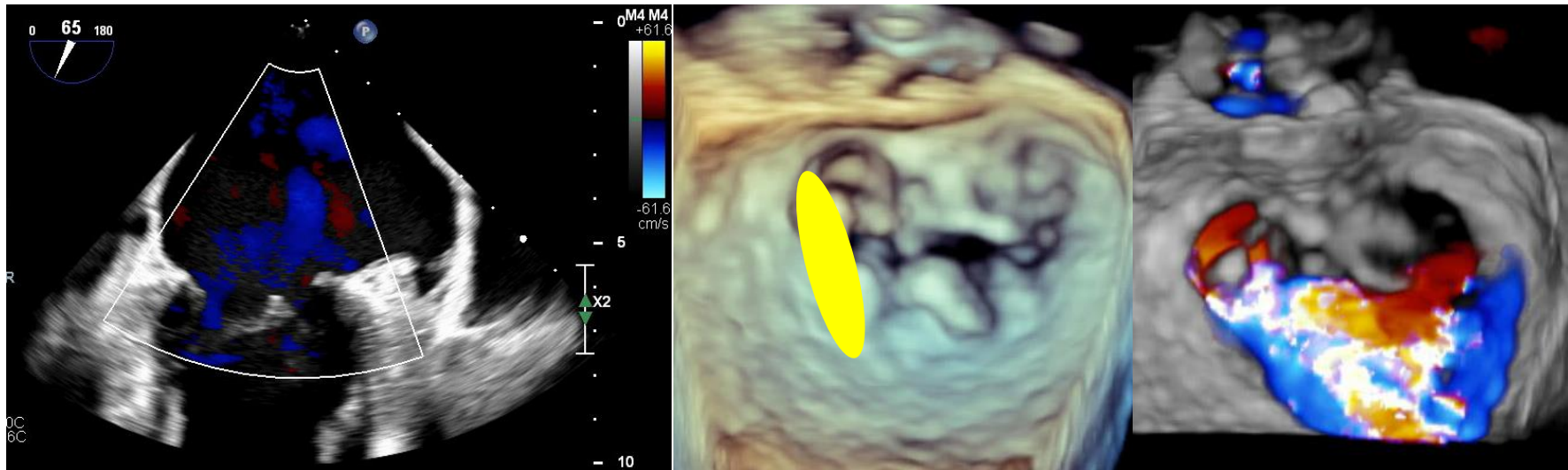
- Grasp one side of leaflet  $\Rightarrow$  Move the other side  $\Rightarrow$  Grasp another leaflet



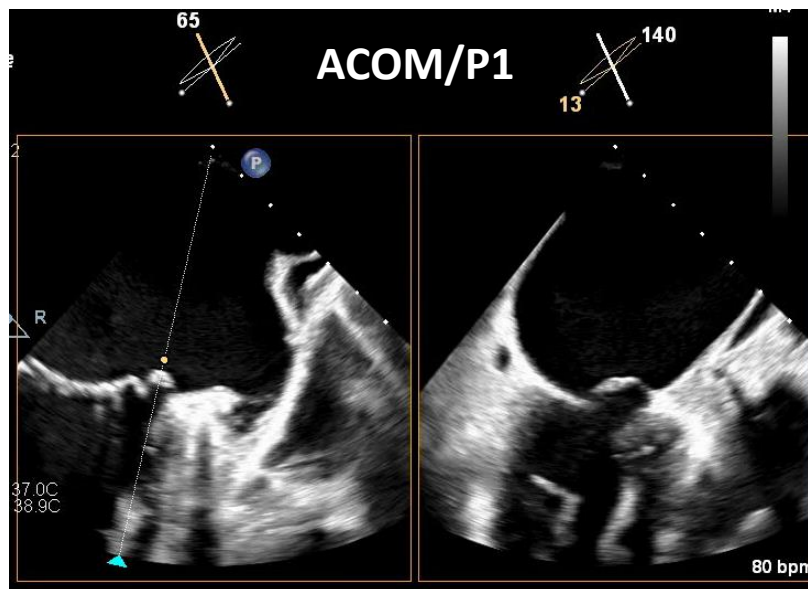
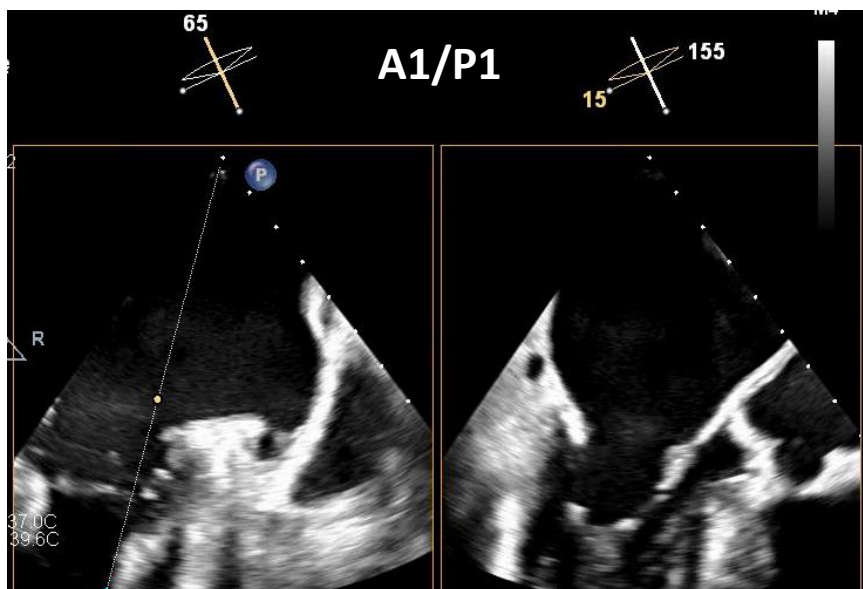
- Grasp one side of leaflet  $\Rightarrow$  Confirmed leaflet insertion  $\Rightarrow$  Grasp another leaflet



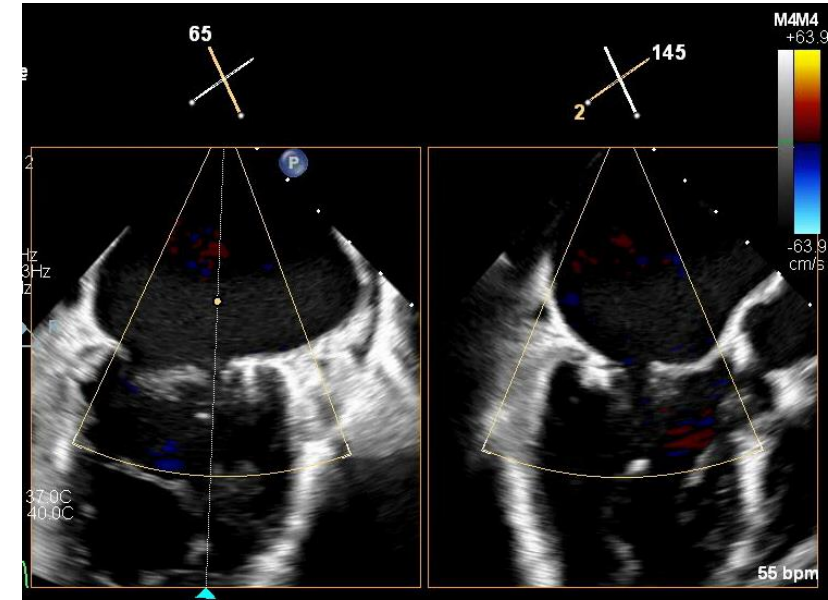
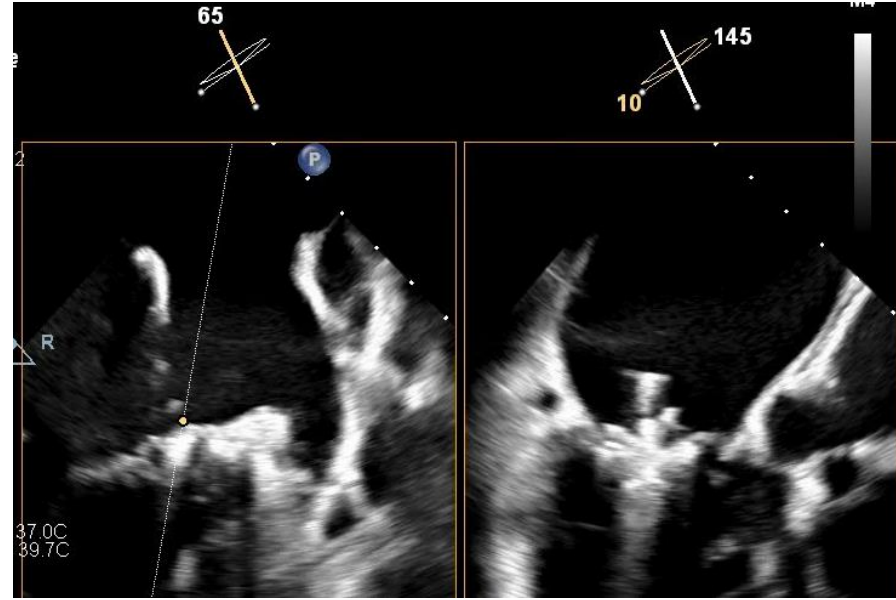
# 91 years, Female : ACOM/A1 Prolapse



Discuss orientation to cover ACOM prolapse. Use NT clip.



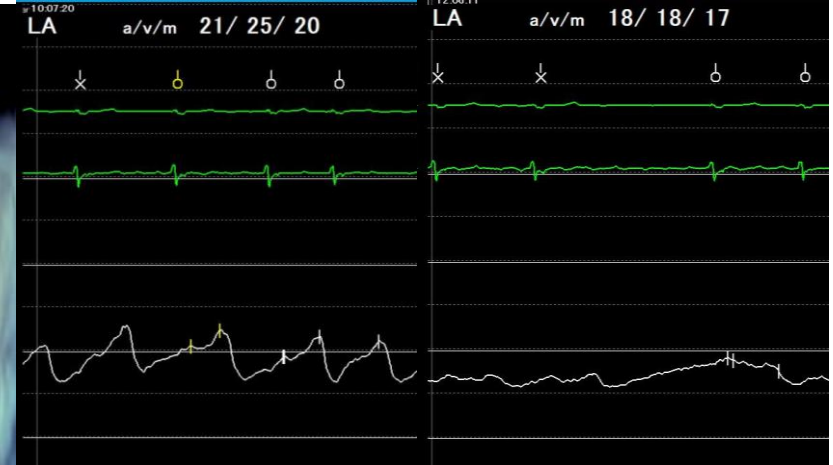
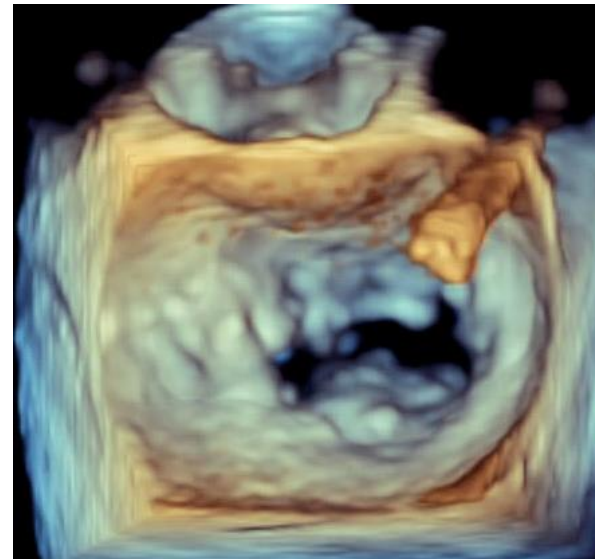
# Grasping



NT clip implantation with 11-5 o'clock in 3D image

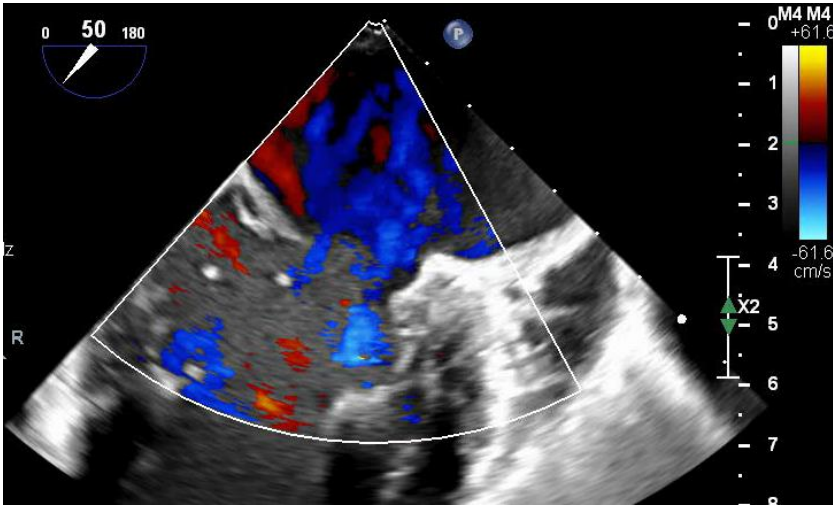
No eccentric MR from ACOM

Mild-moderate residual MR but finish the procedure due to hemodynamic improvement

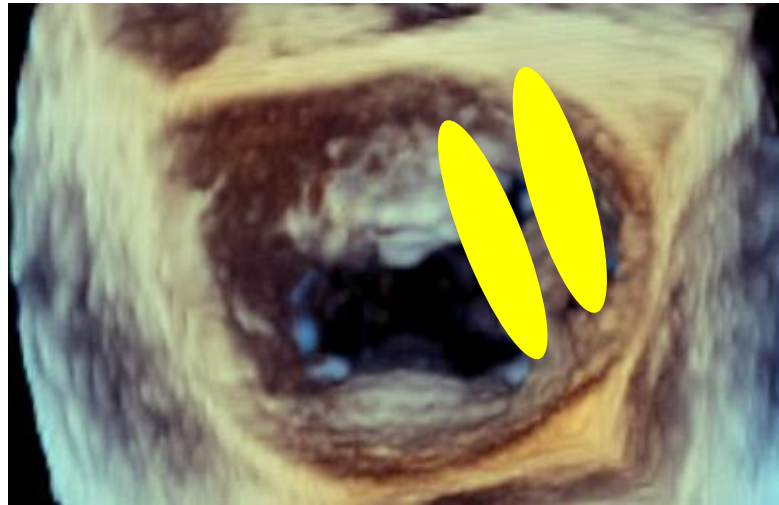




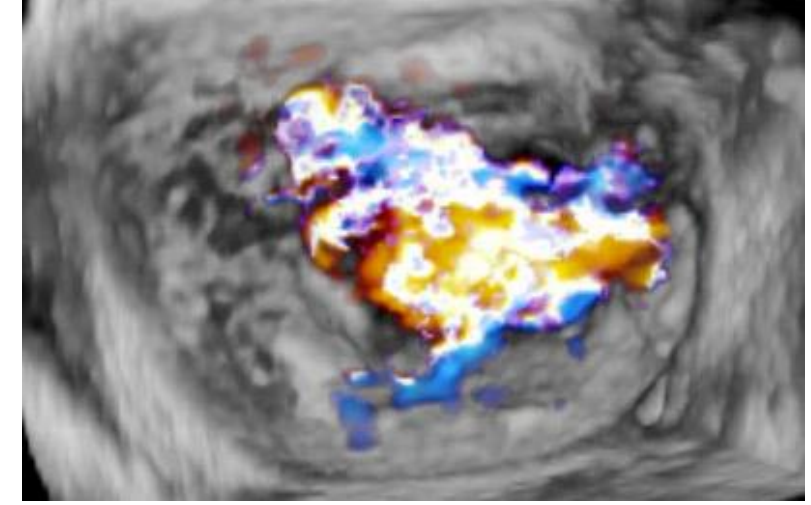
# 85 years, female : Huge P3 Prolapse



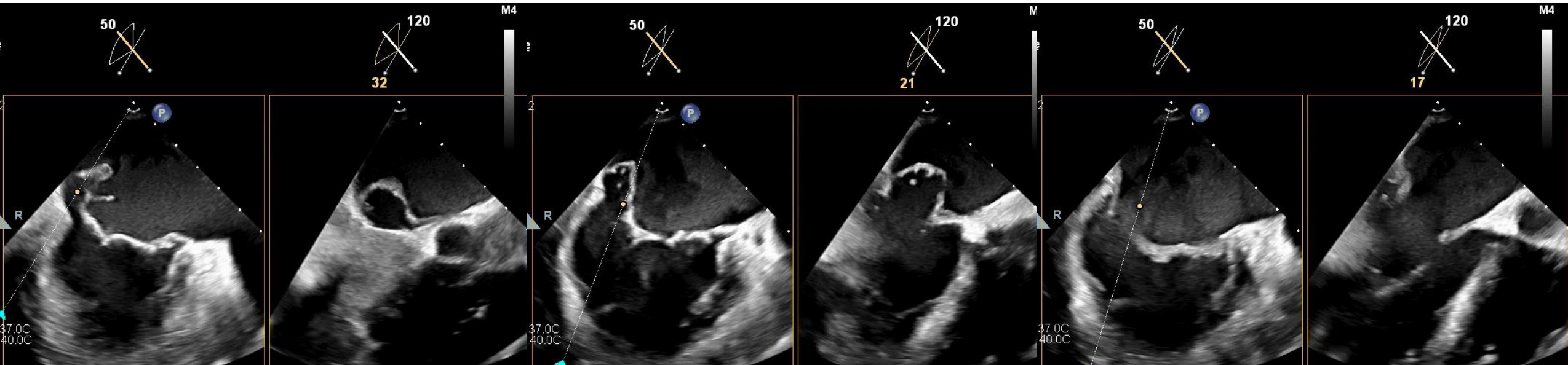
PCOM



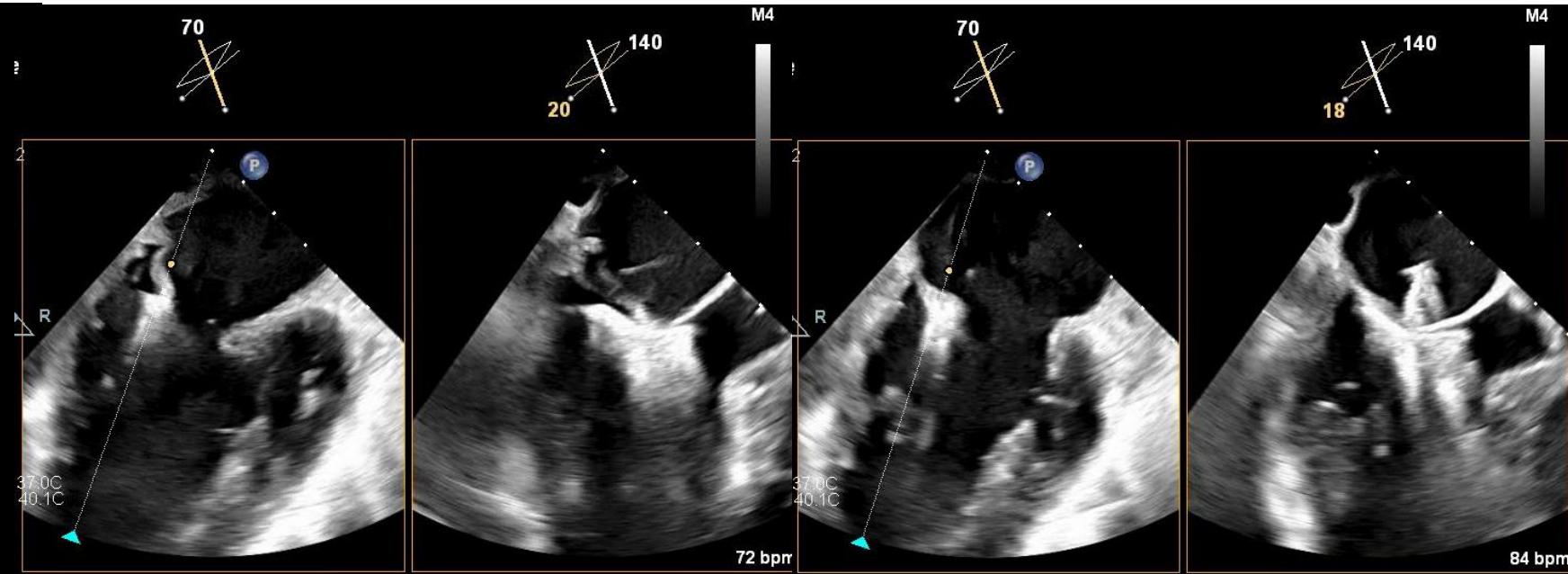
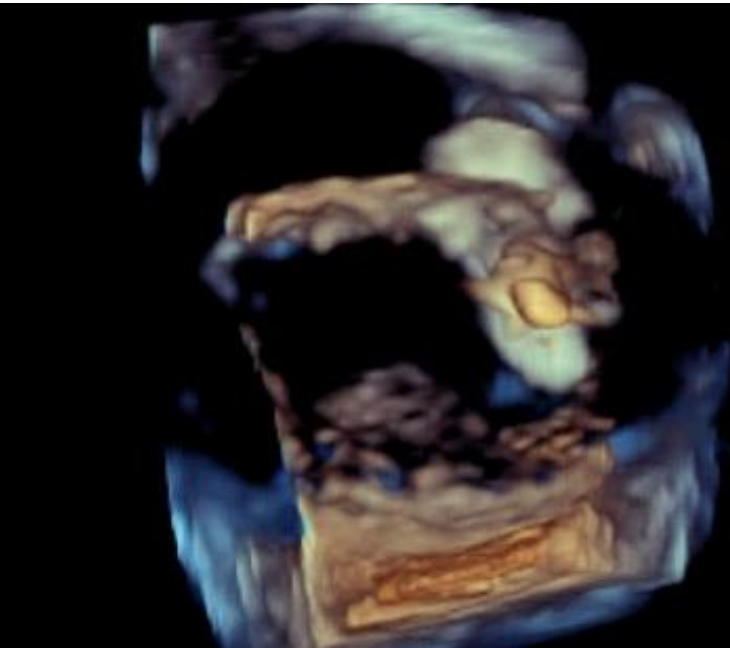
Medial A3/P3



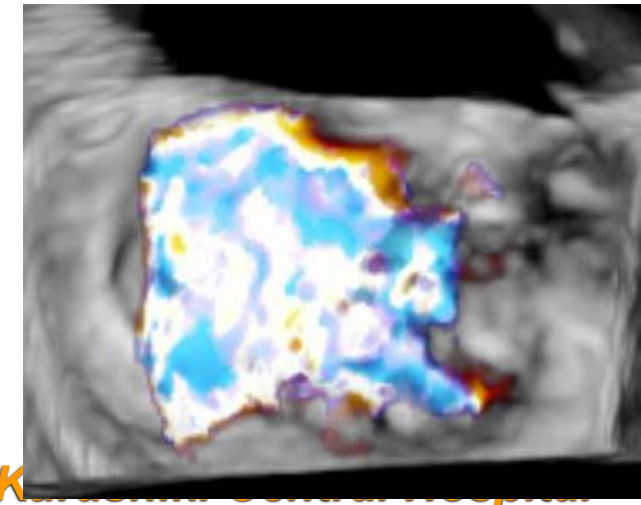
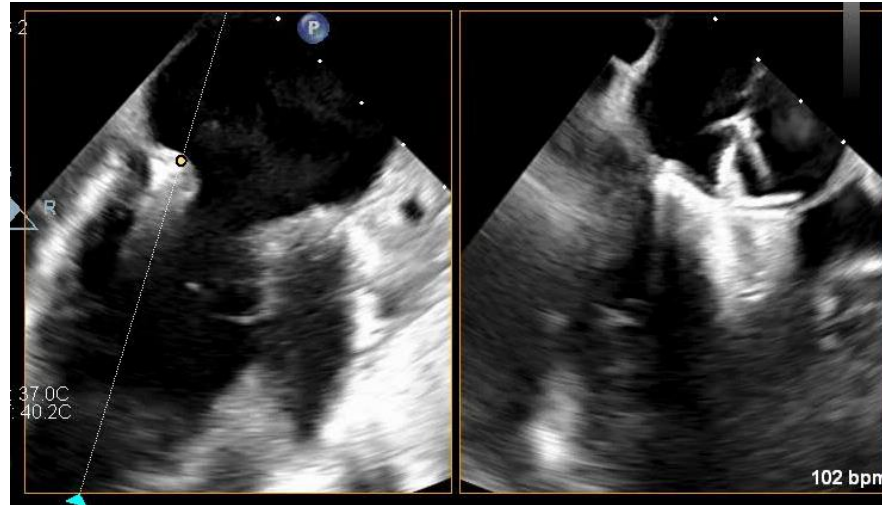
Lateral A3/P3



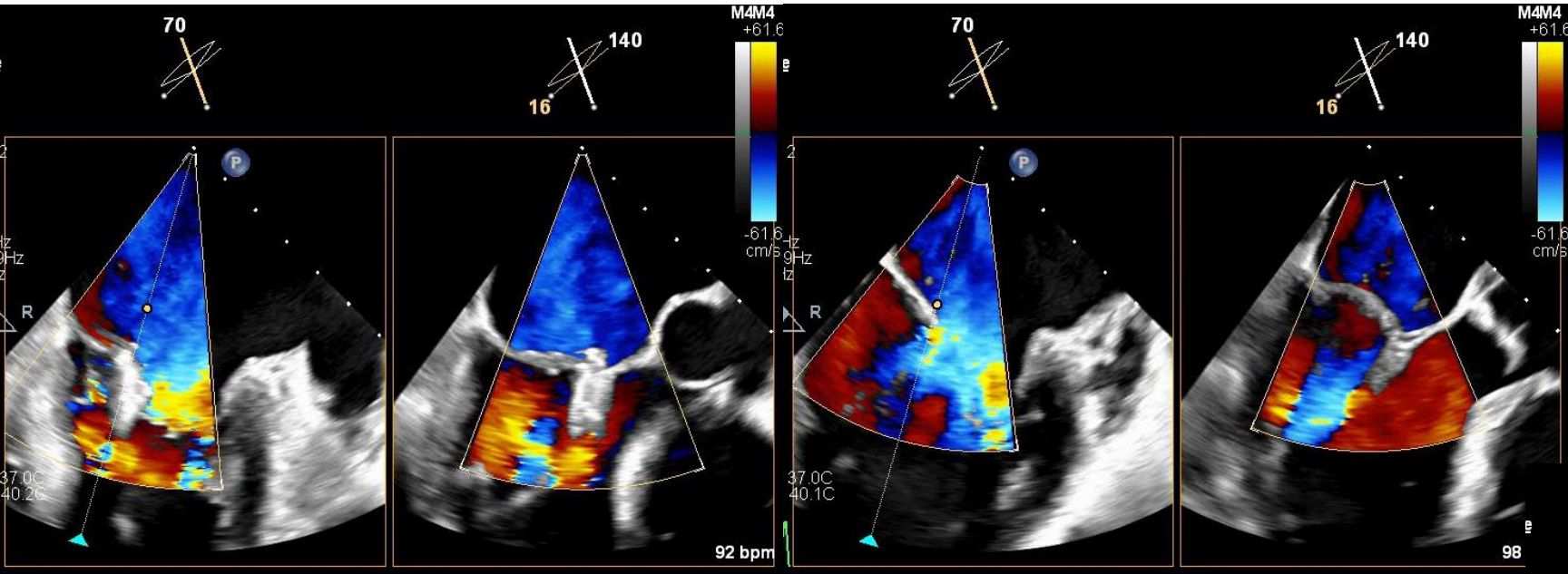
# 1st clip



Use XTW with CGA  
Grasp AML first, and then PML  
In TEE, leaflet insertion  
seemed to be good

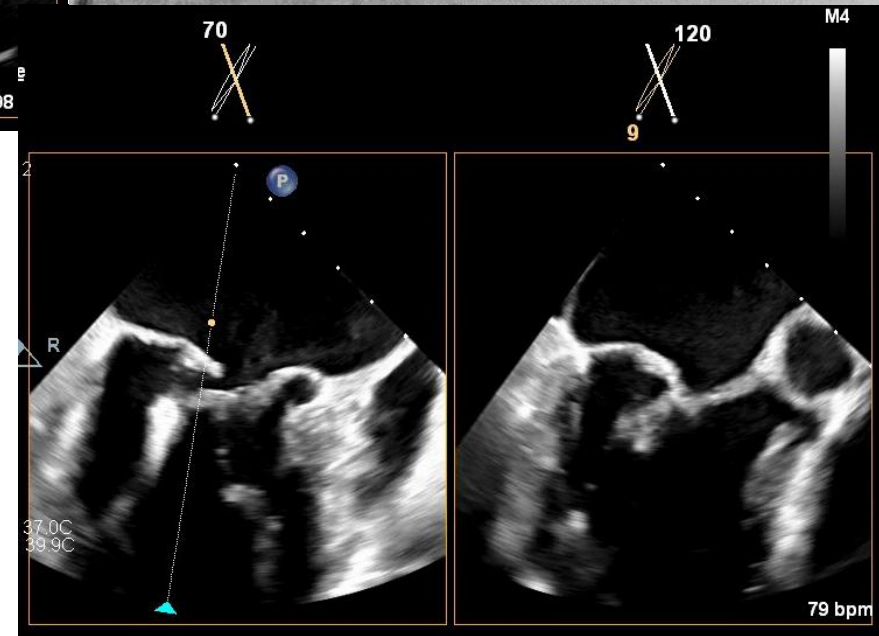


# Post 1st clip

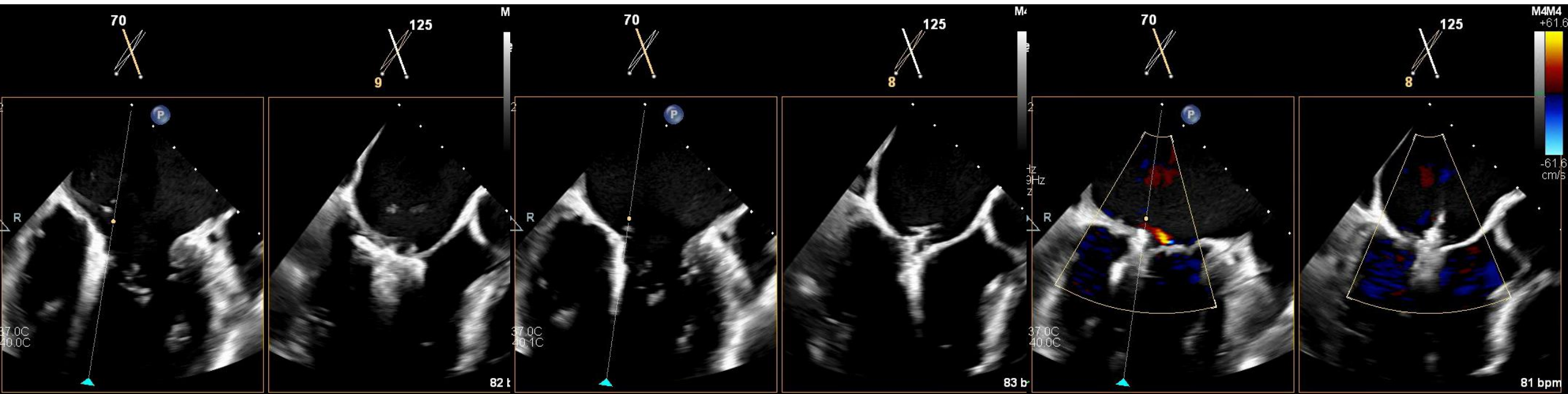


No MR medial to the clip  
Severe MR lateral to the clip.  
Release and select XT for 2nd clip

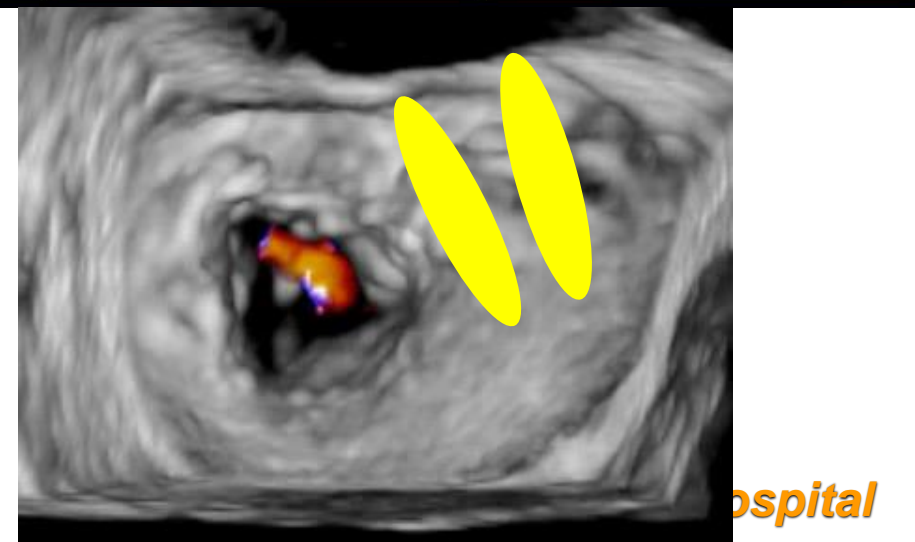
Target of 2nd clip



# 2nd Clip

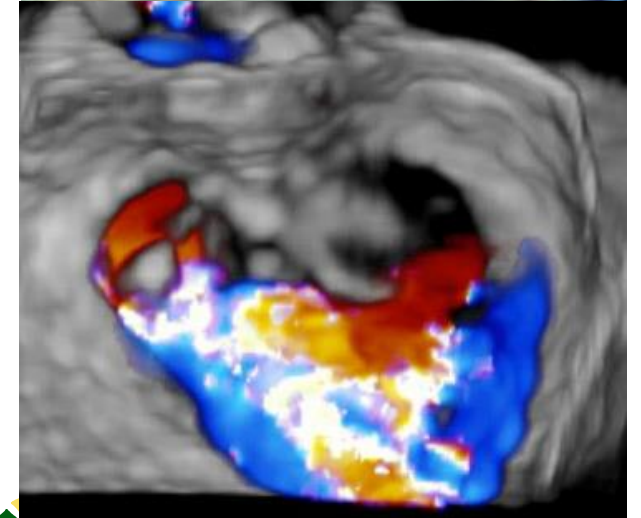
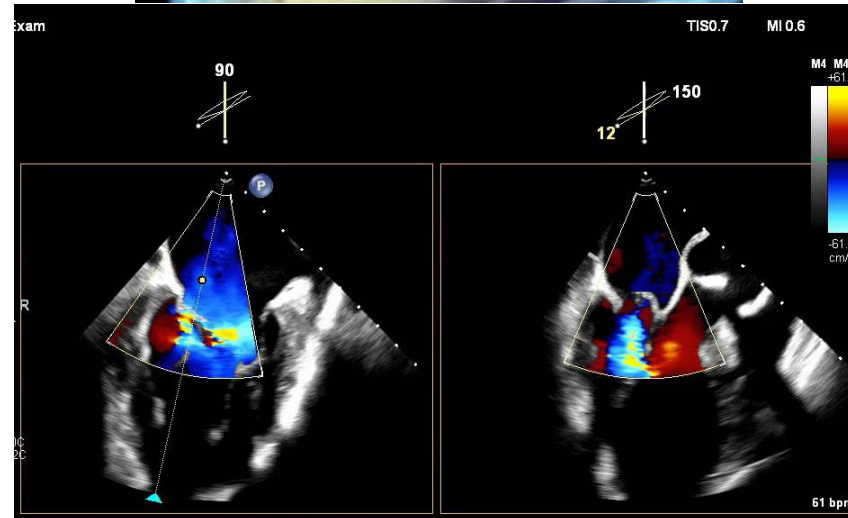
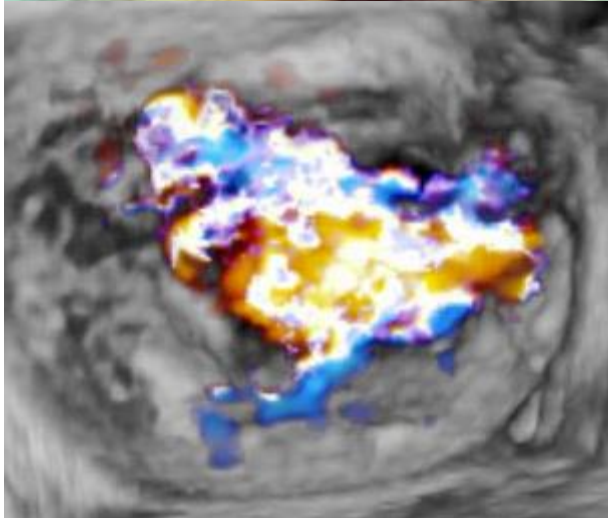
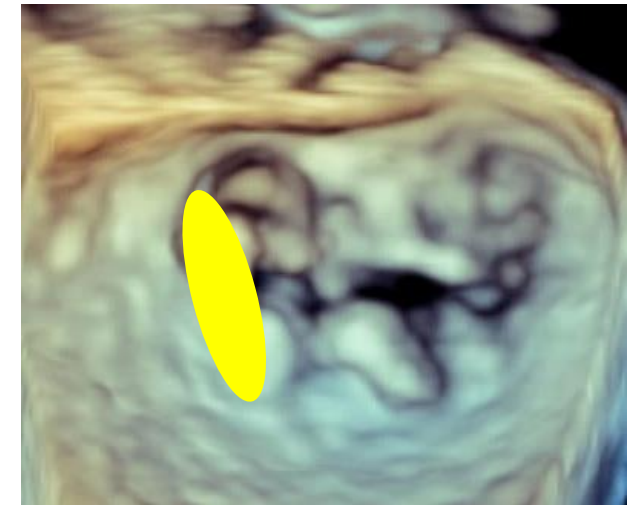
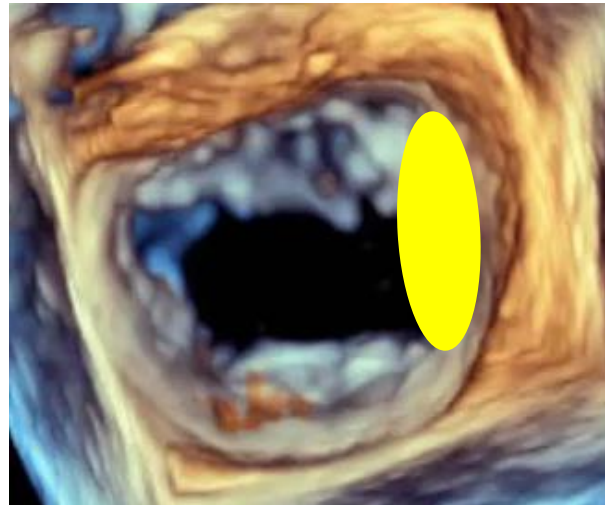
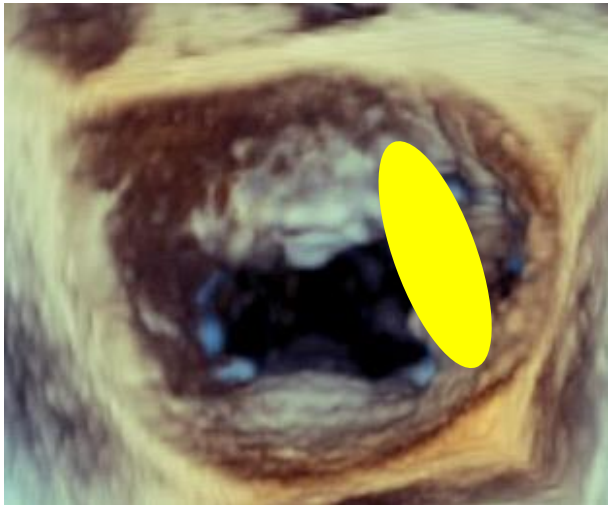


Using CGA, put the anterior gripper down after grasping posterior leaflet  
MR reduced to mild and no eccentric MR

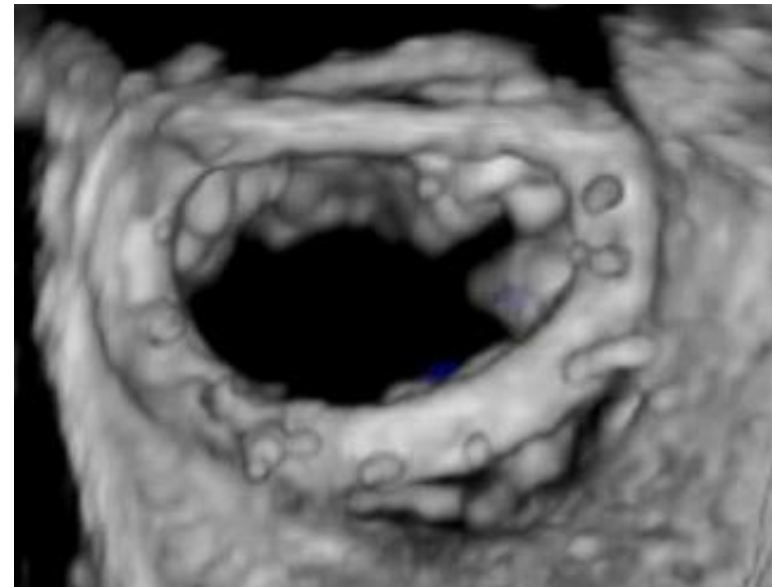
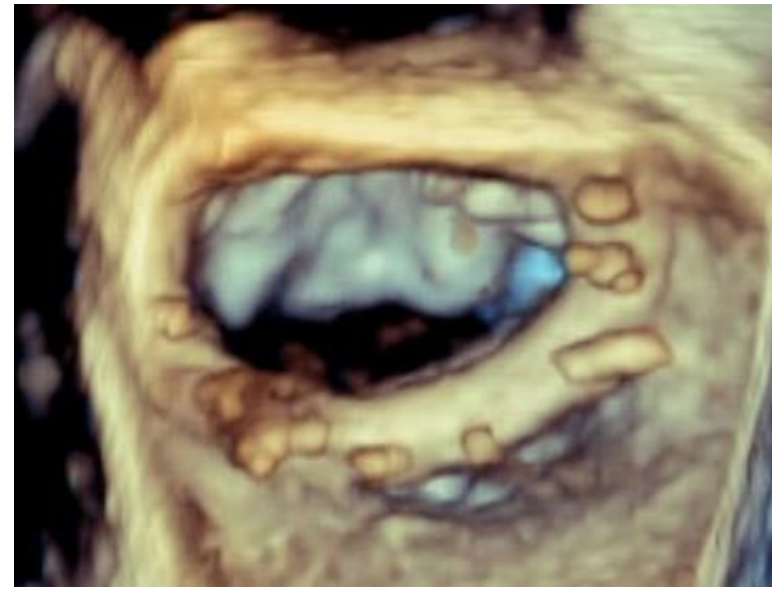
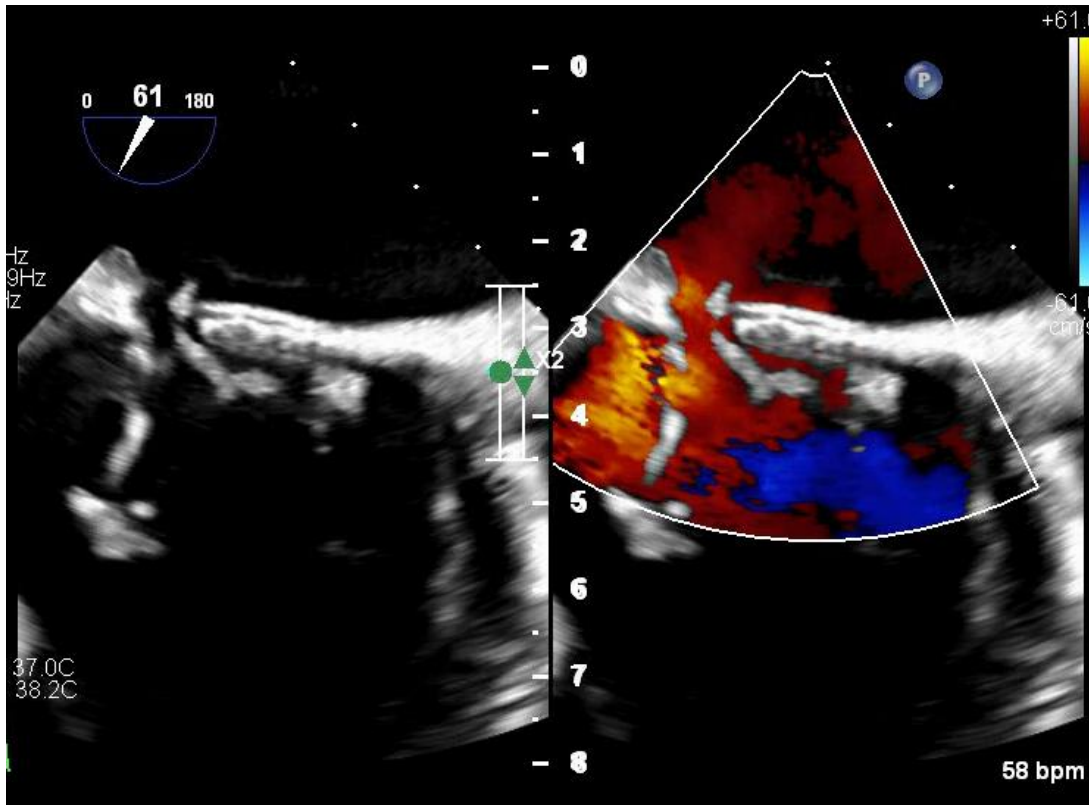


# How to decide orientation ?

- Based on the prolapse lesion, commissural anatomy, and jet direction

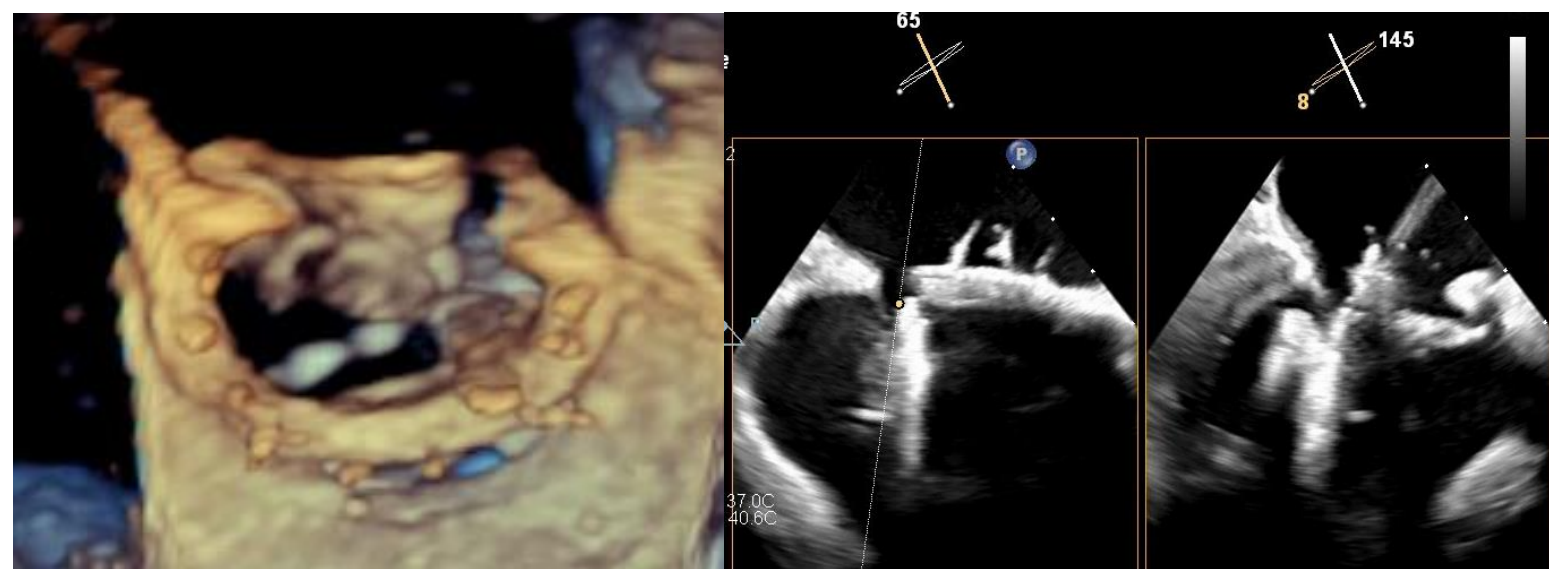
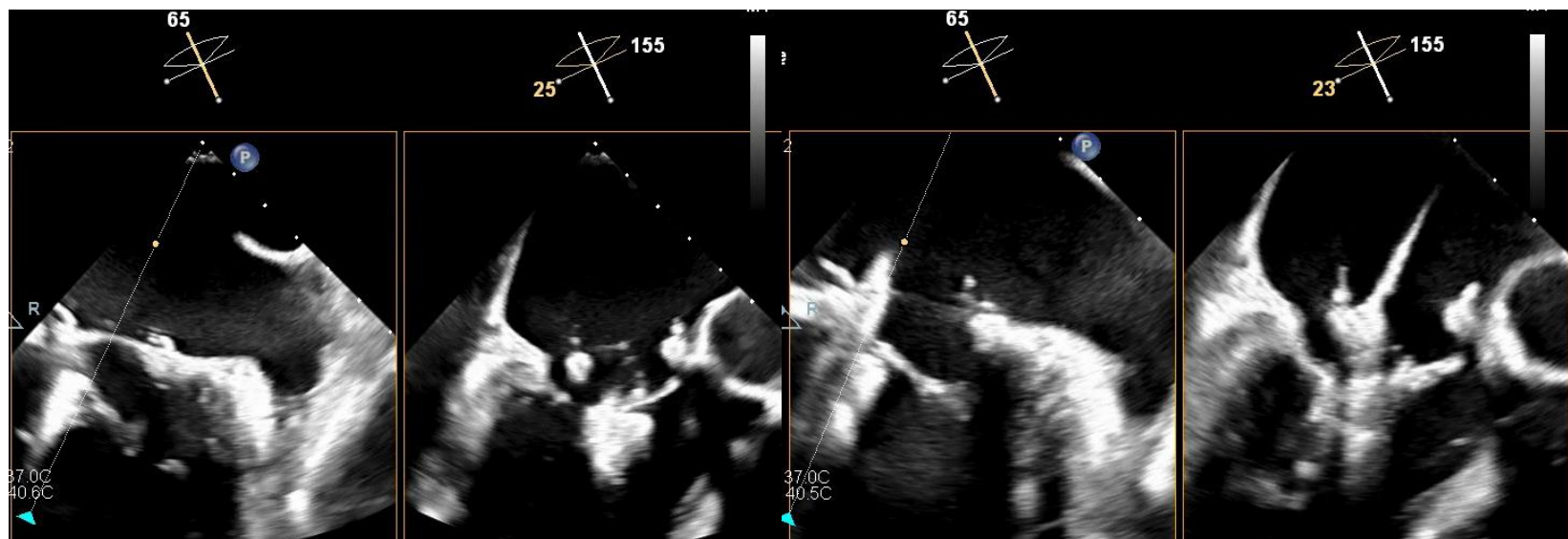
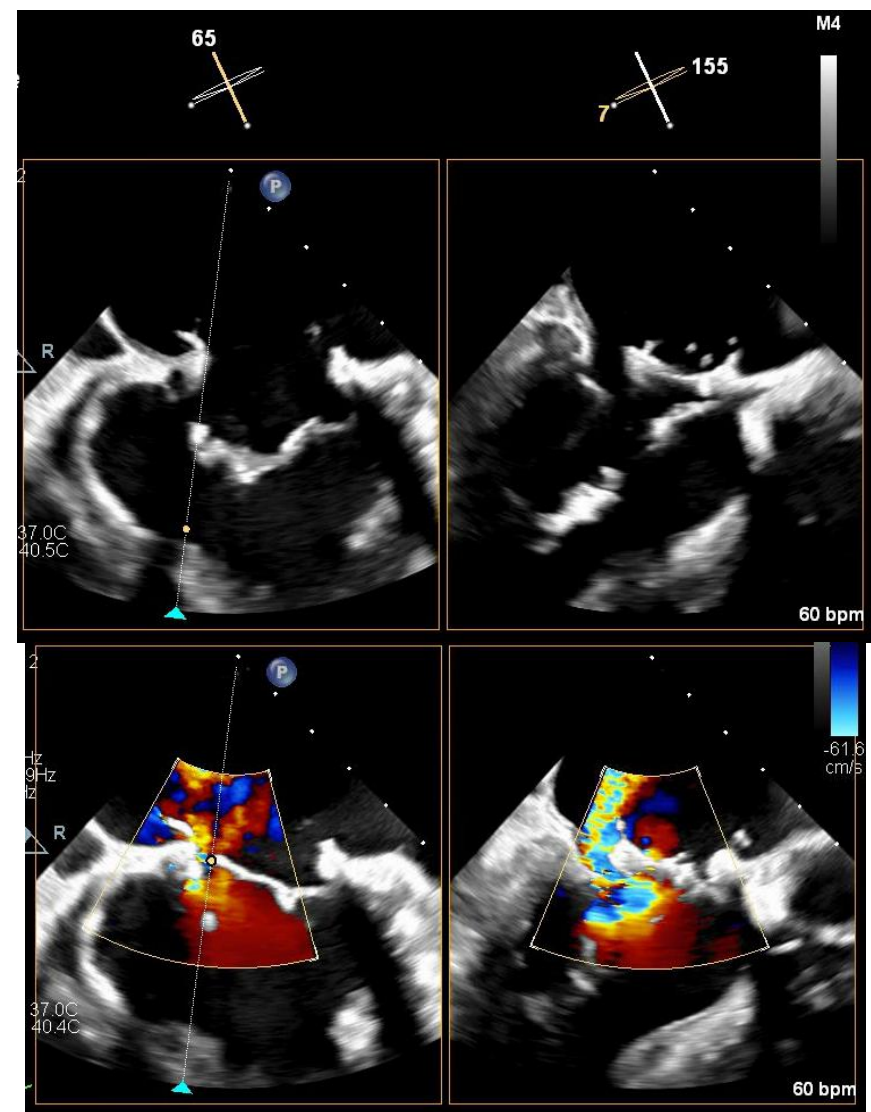


# 73 years, Male: A3 prolapse with detached ring



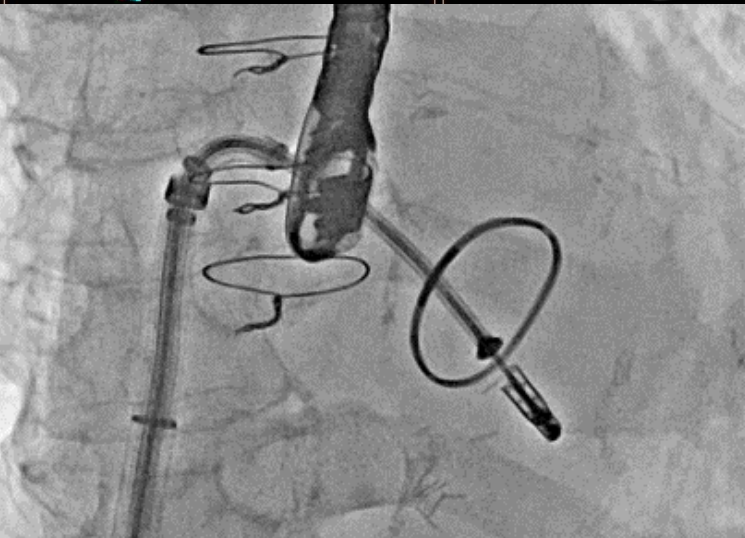
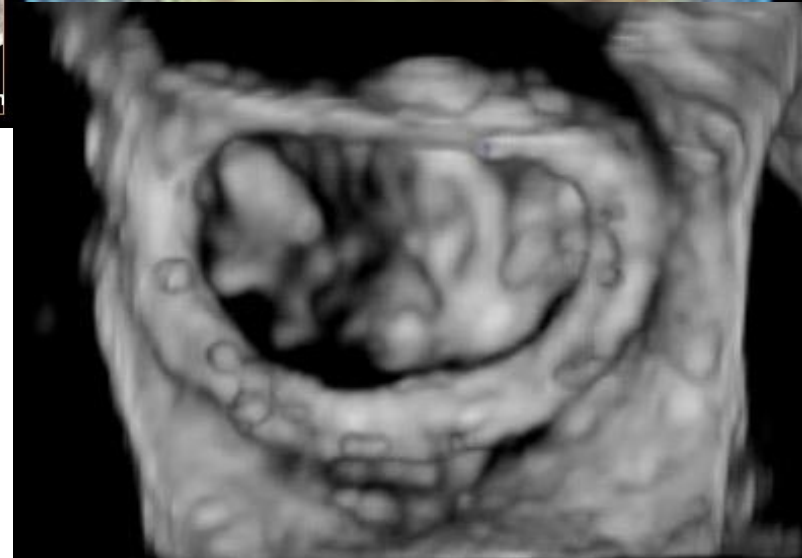
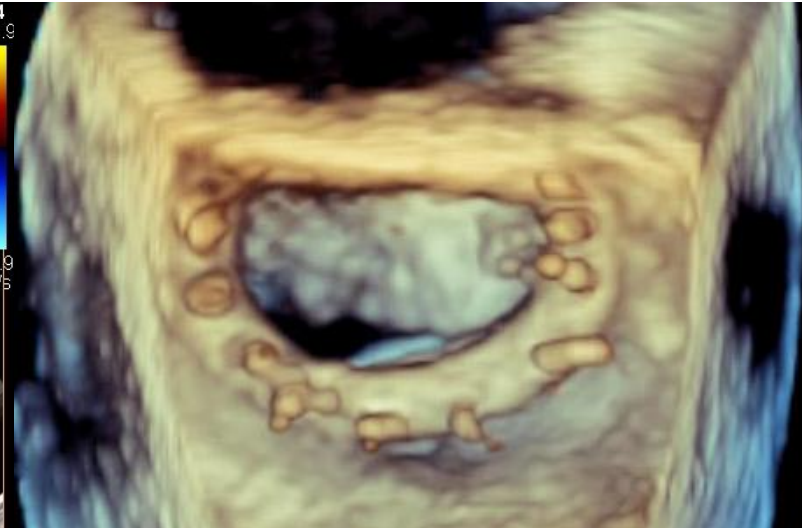
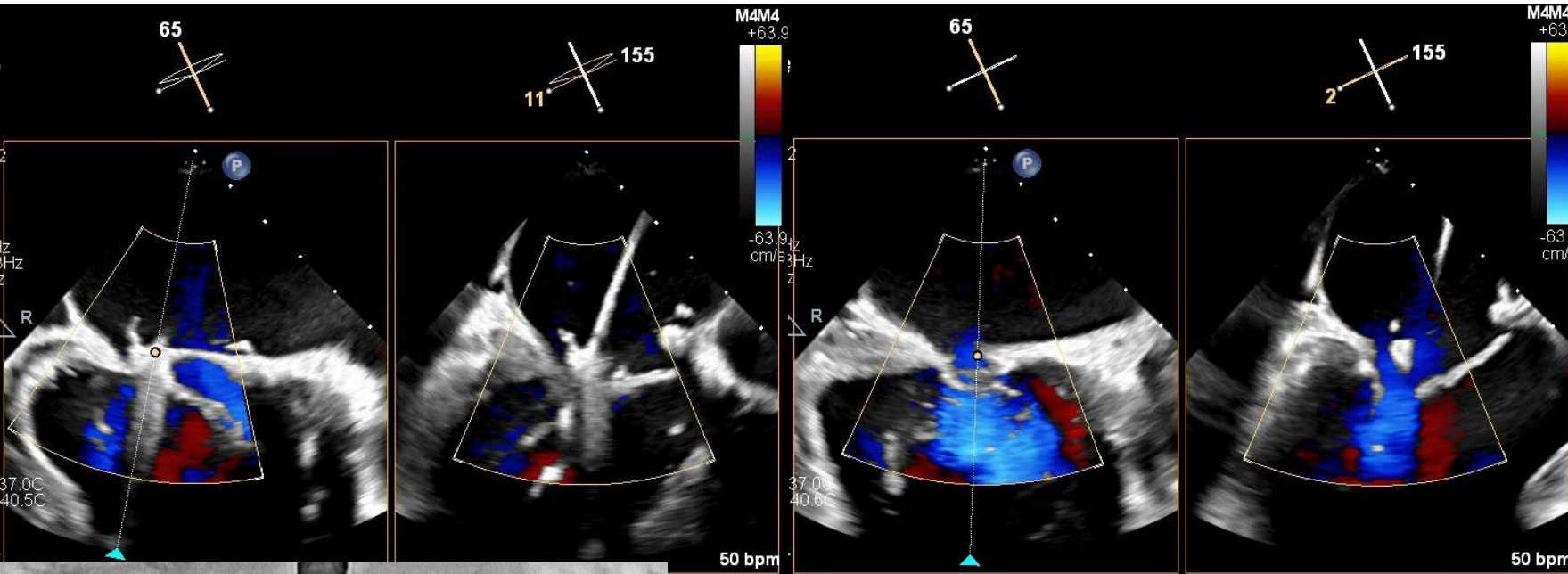
Post MVP, artificial chordae in A2/3,  
30mm ring annuloplasty  
3 year later, Ring detach + A3 prolapse

# Grasping with CGA: A3 ⇒ P3



Target of NT clip

# Clip Close

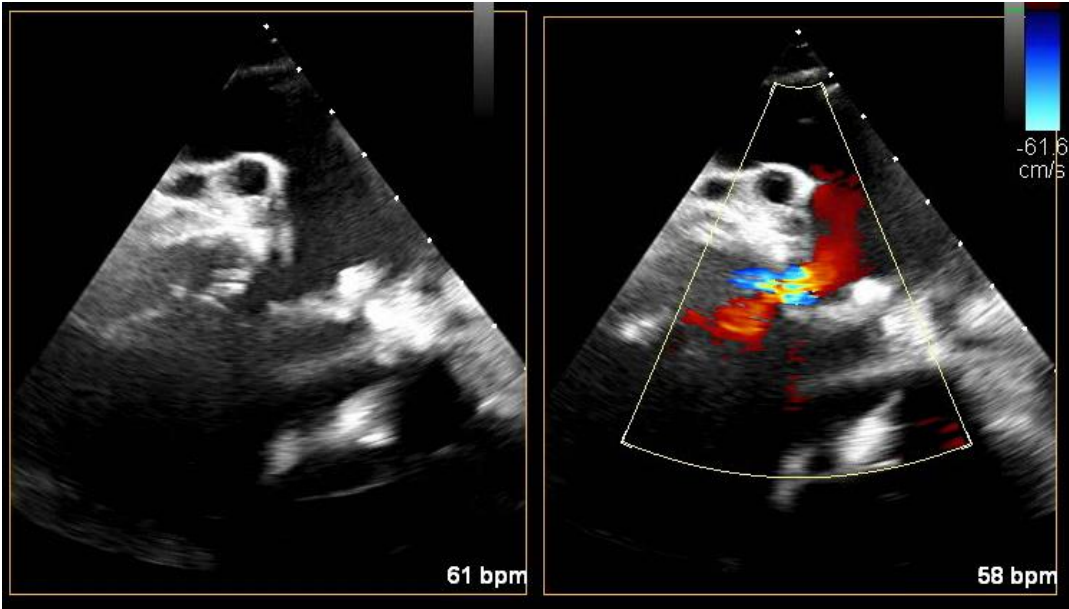
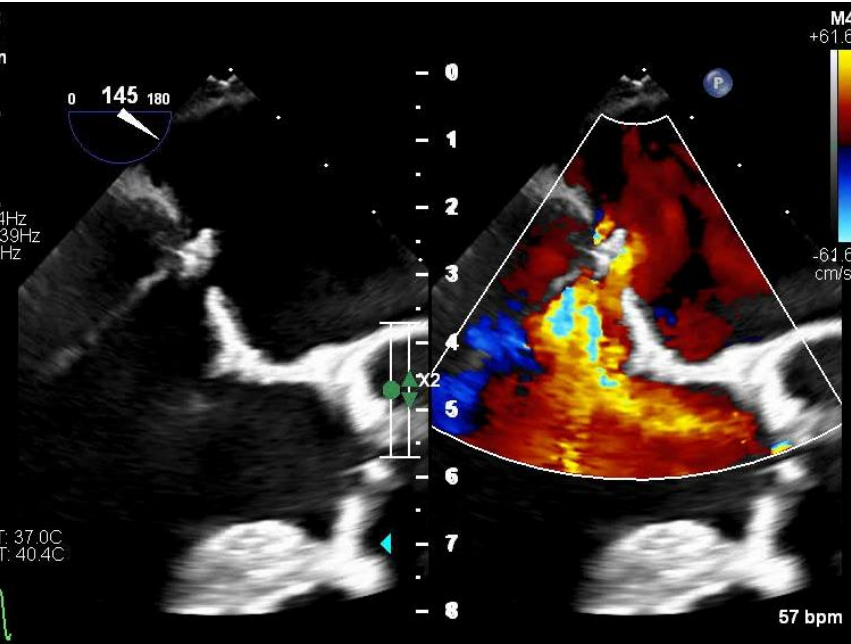
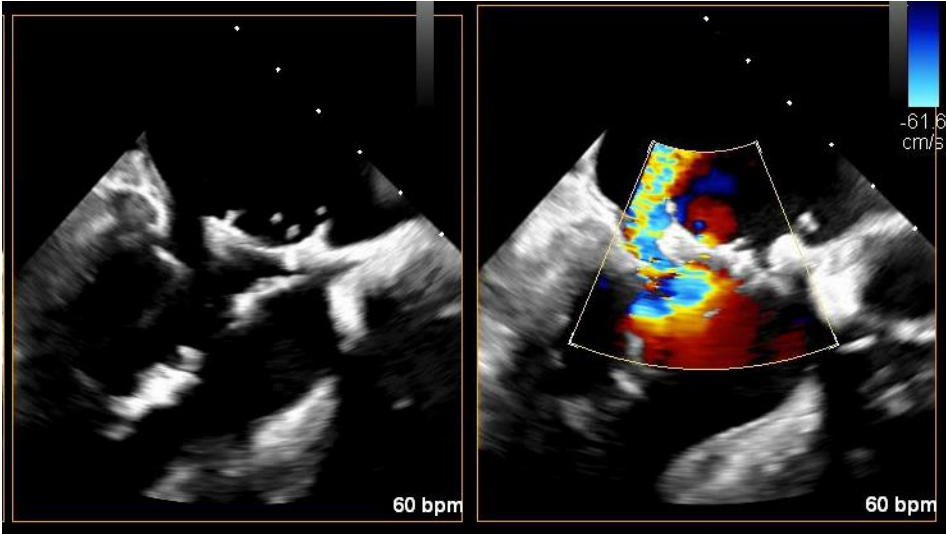


No MR medial to the clip.  
Mild residual MR lateral to the clip.  
Clip release.



# Post ring MR clippable or not ?

- Leaflet visibility ?
- Posterior leaflet length ?
- Mitral valve area and ring size ?
- Ring detachment ?



# Summary

- Large coaptation gap, commissural MR, and huge flail are challenging anatomies of mitral TEER.
- Clip orientation is a key factor of TEER for commissural MR.
- Controlled gripper actuation system should be used in complex case, but minimum movement is required to avoid complications.
- Leaflet visibility is most important for post annuloplasty clip.