

Luckily Within The Grasp

Dr C Leung

Cardiology Division
Queen Elizabeth Hospital
Hong Kong

- I have no potential conflict of interest to declare

Case summary

Patient demographics

Age: 77

Gender: Male

Risk factors

Dyslipidemia (on statin)

hypertension

non smoker

Past medical hx

Stable CAD, CCS 2/4 angina

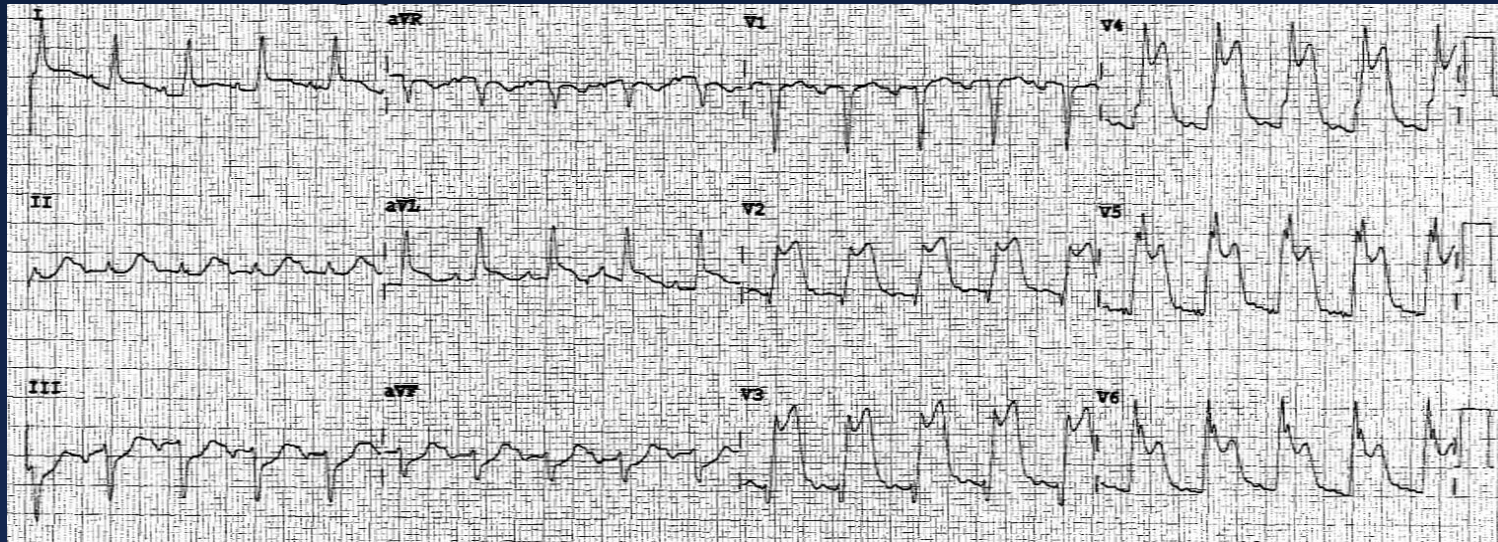
Positive CT Coro -> LAD

Just had elective PCI done to LAD
in outside hospital few days ago
uneventful

put on aspirin and
clopidogrel

Case summary

- Few days later after PCI
- Chest pain , shortness of breath
- Symptom to presentation ~ 6 hr
- ECG anterior & anterolateral STE
- Shock, on dopamine 15 ml/hr
- Pulmonary edema intubated



⇒ **Primary PCI**

⇒ Loaded with **ticagrelor**

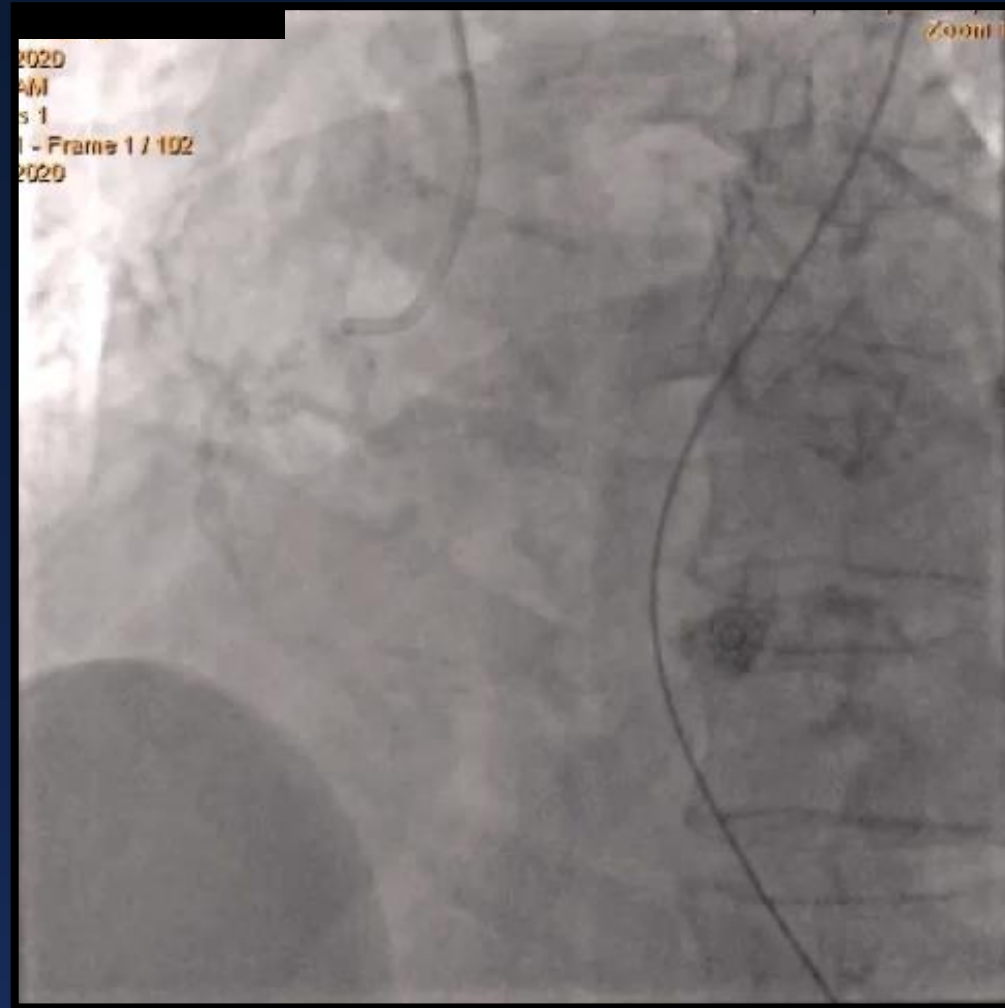
6Fr RRA

RCA diffuse mild disease

Clinical status

Shock
Intubated

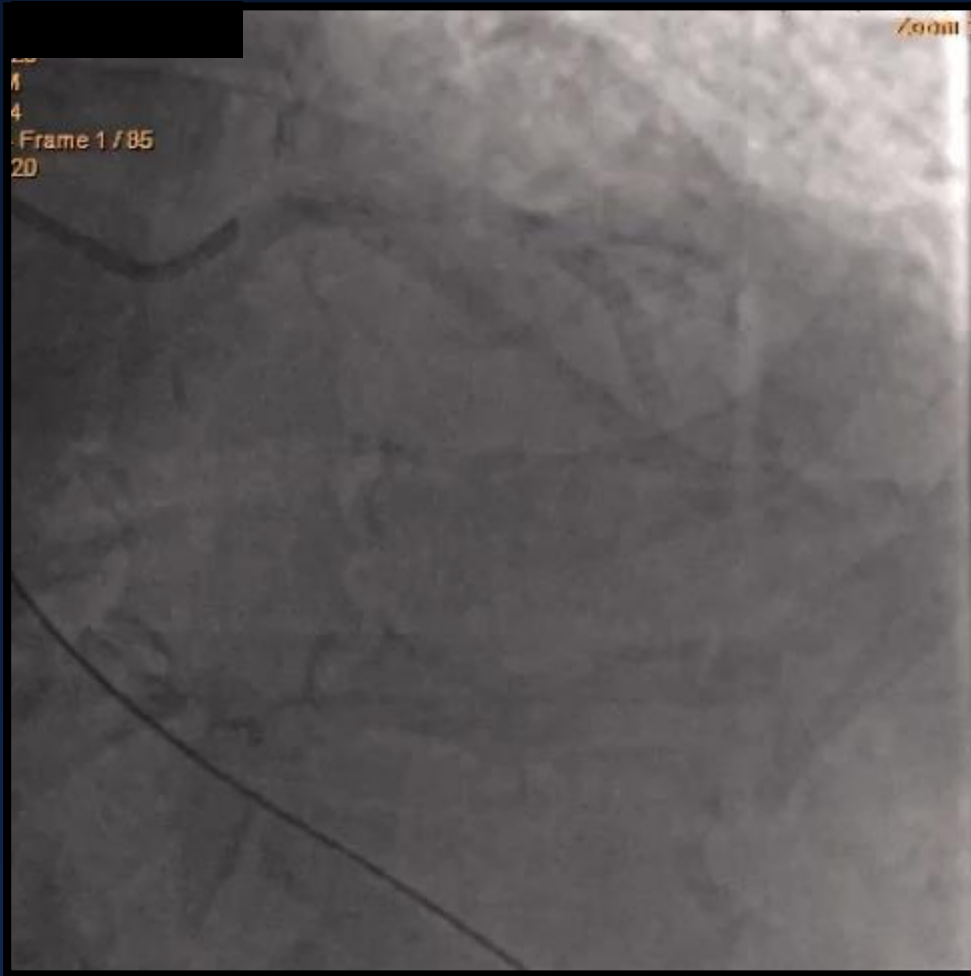
LVEF 20-25%
mild MR



Access: RRA

6Fr sheath
6Fr IL 3.5

LAD subacute stent thrombosis



presentation



Door to balloon = **62 min**

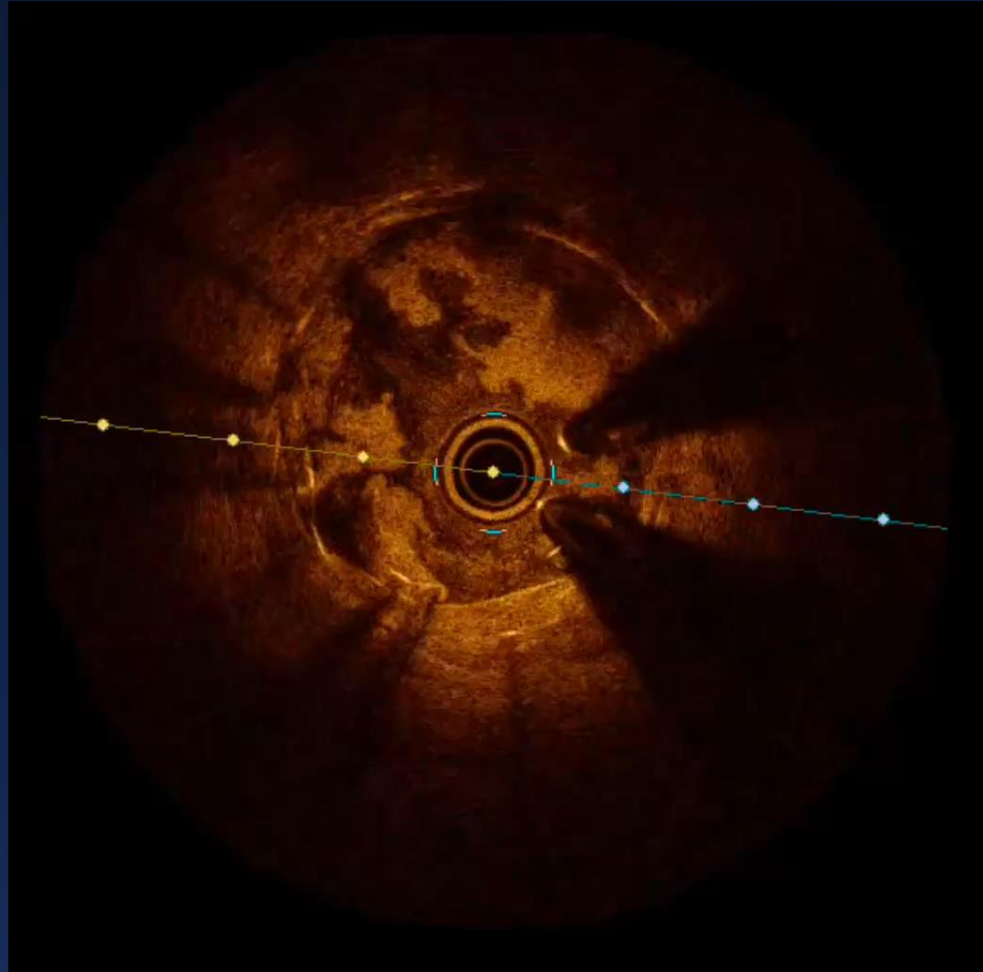
Total ischemic time ~ **7-8 hr**

PCI to LAD

**2.0 x15 mm
balloon**

Dottered , POBA
To mLAD

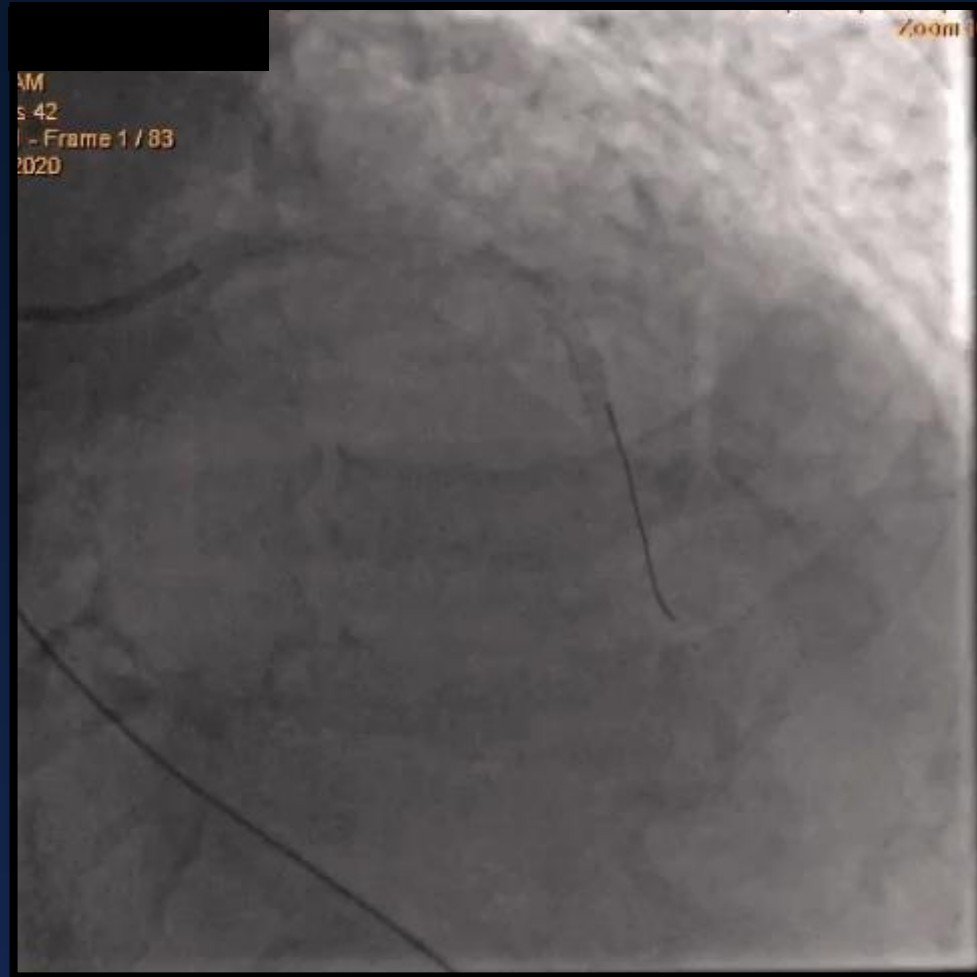
OCT -> proximal stent edge malposition with thrombus burden



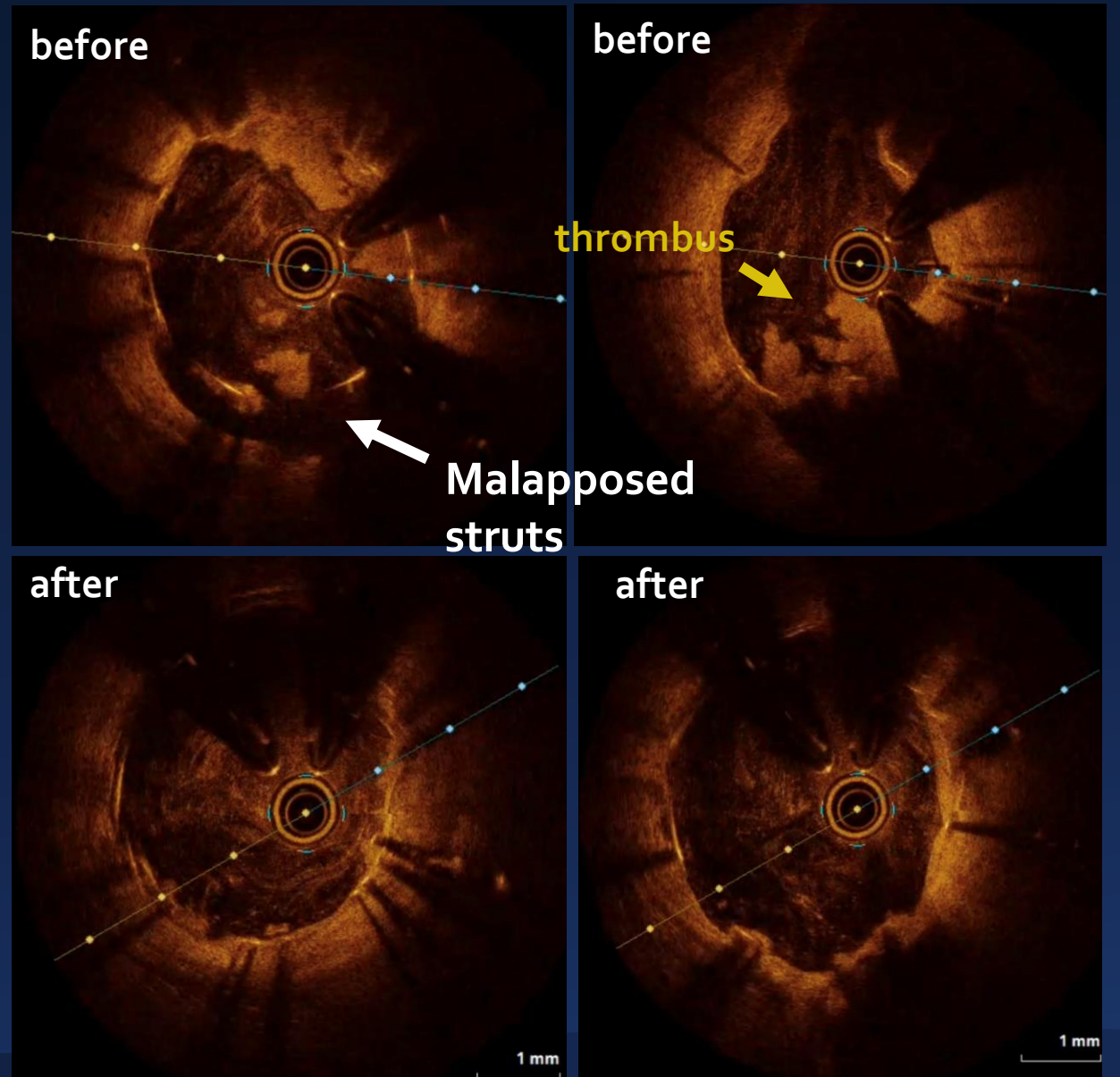
proximal stent edge

Selected frames , slow motion

Satisfactory angiogram and OCT results




Sequential then KBI LAD/D2 with NC 3.25, NC 2.5
POT with NC 3.75, 4.0



Good Progress

- Stabilized, Weaned inotropes, extubated D2
- Weaned O2 and CXR clear up
- ECG Q waves anterior
- LVEF 30-35%, AK LAD, mild-mod MR
- Guideline directed medical therapy
- Ambulatory and discharged to cardiac rehab

Feel good

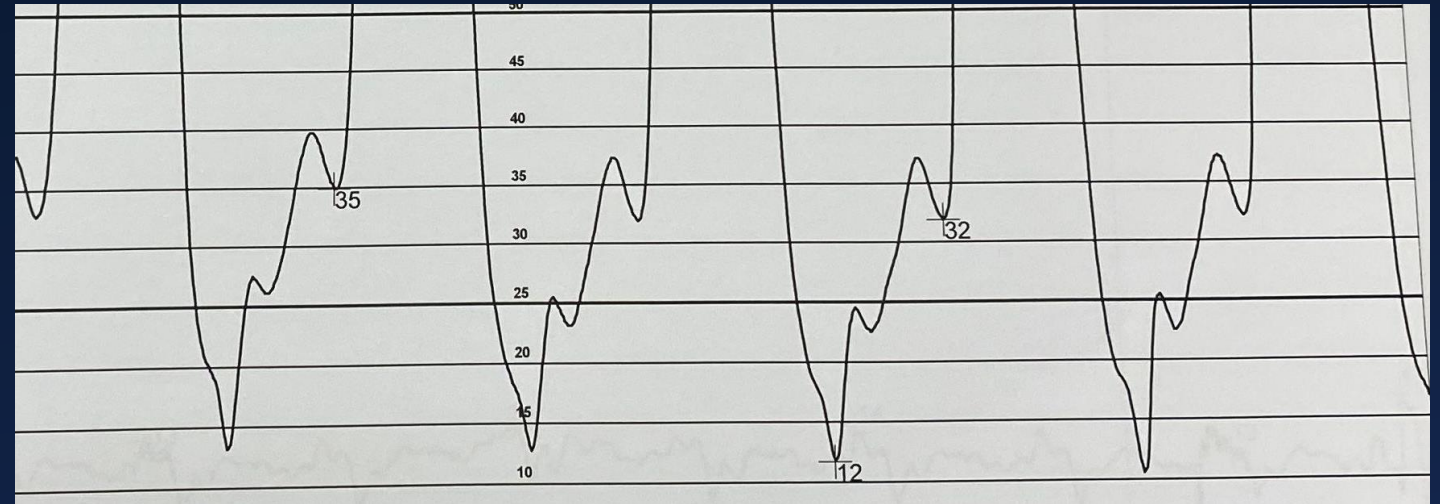
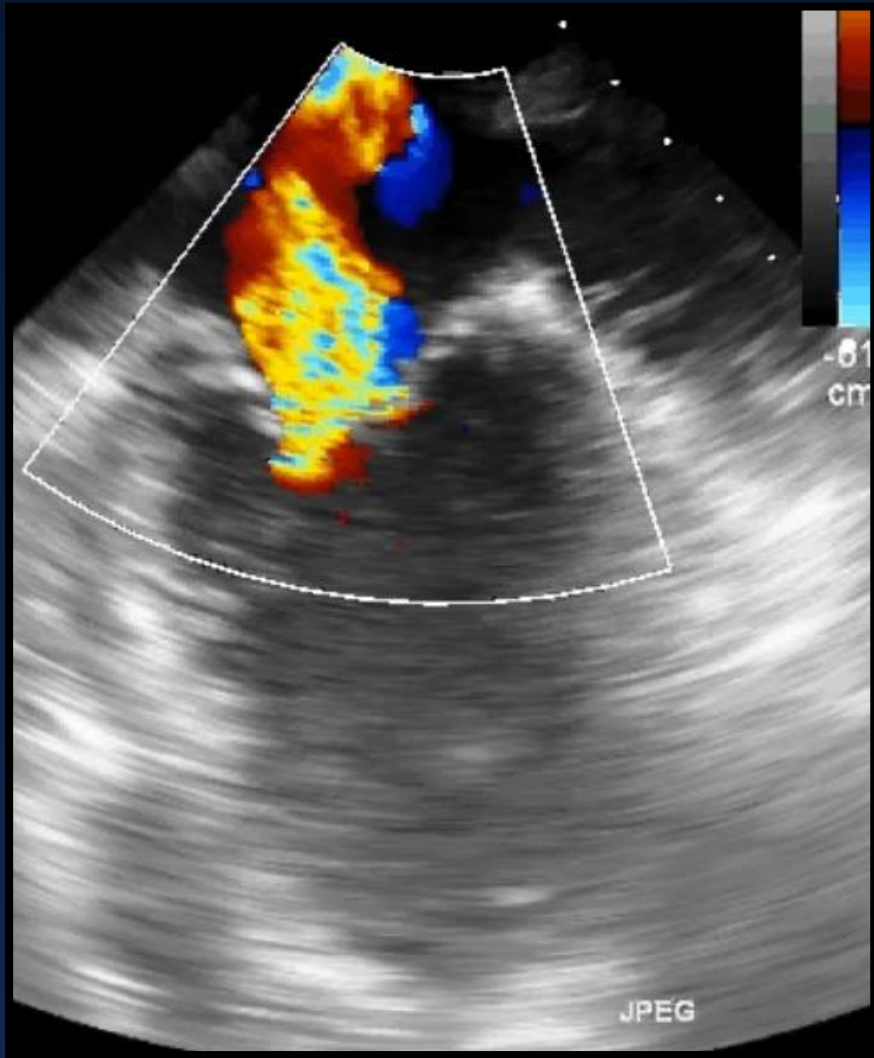
A white sign with black cursive text is set against a blue background. The sign is partially obscured by a white rectangular box containing red text. The cursive text on the sign includes the words "But", "Should", and "We?".

**BUT
SHOULD
WE?**

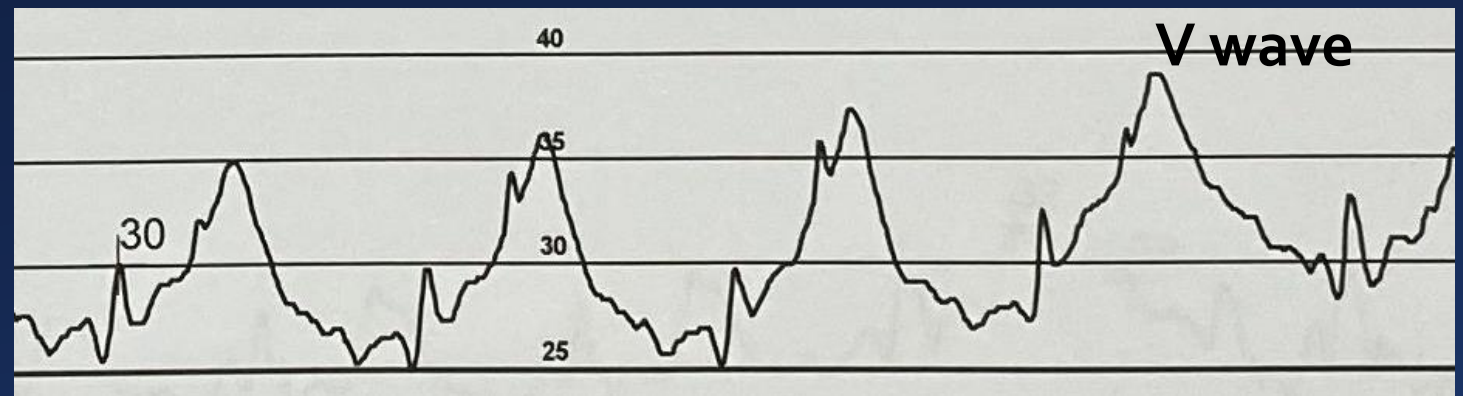
Sad and but probably can be expected

- Just ~ 1-2 week later
- Decompensated heart failure
- Frank pulmonary edema
- Reintubated

Poor LV function, acute severe MR



LVEDP = 32 mmhg



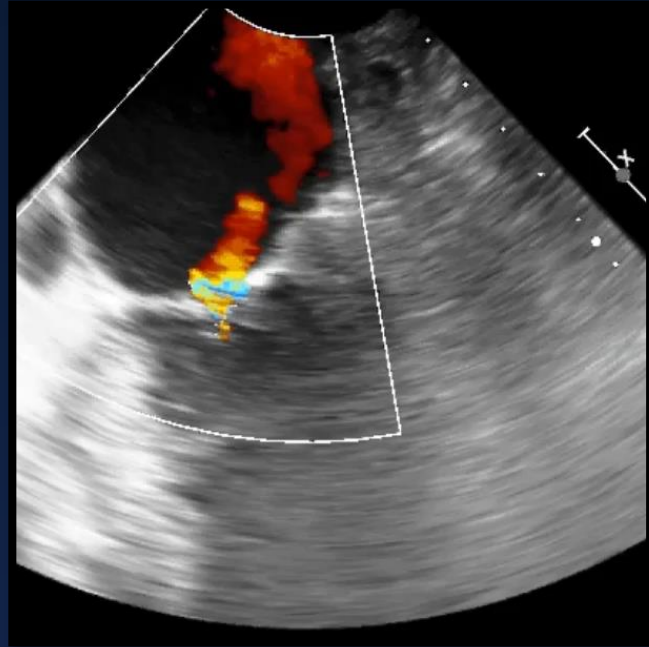
Mean LAP ~ 28 , V wave ~ 38 mmhg

Subsequent management

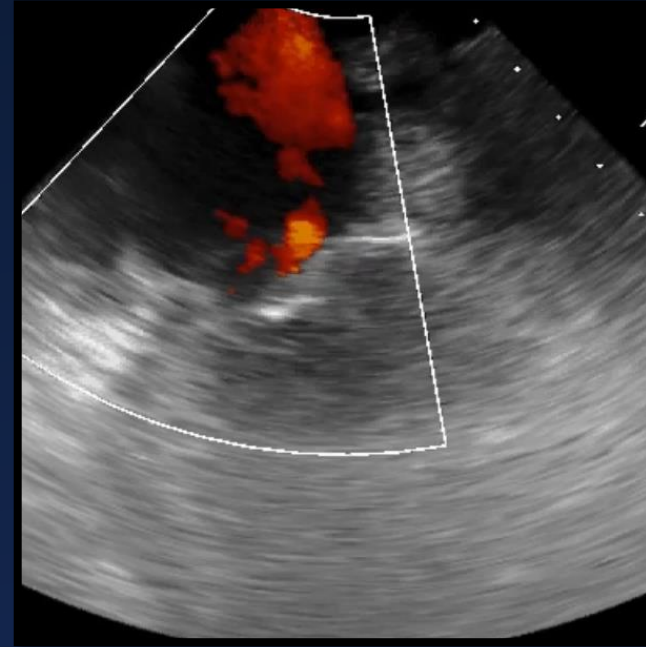
- Invasive hemodynamic monitoring
- Bedside Echo serial
- Diuretic
- After load reduction
- Intra aorta balloon pump

Difficult weaning ; Dynamic MR

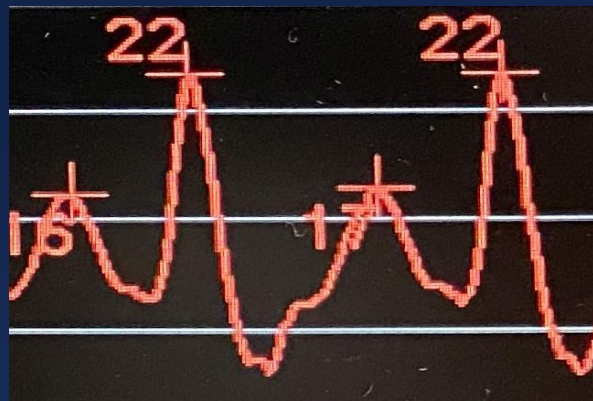
IABP ON



IABP OFF



↑ MR



↑ LAP

Deteriorating

Poor LV function
Regional dyskinesia
LV dilating



Leaflet
tethering

Functional
MR

Failed
weaning

What to do?

Conservative?

Surgery?

Percutaneous?

What to do?

- Clinical deteriorating
- Septic complications

Conservative?

**Surgery
?**

Percutaneous?

What to do?

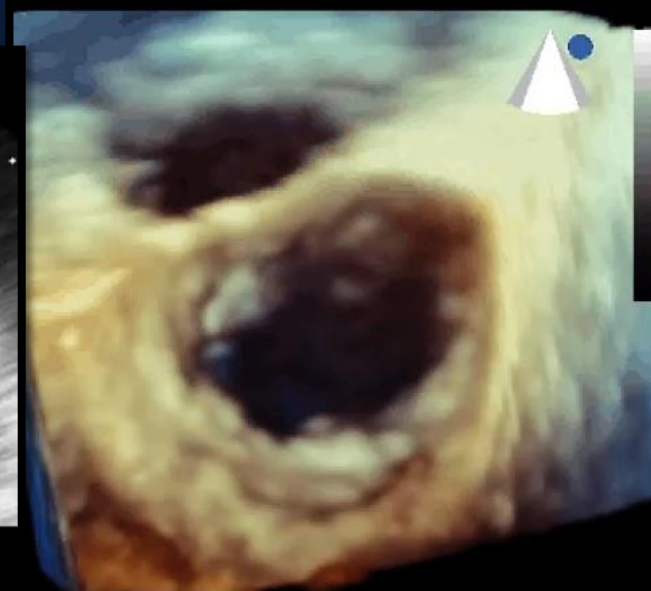
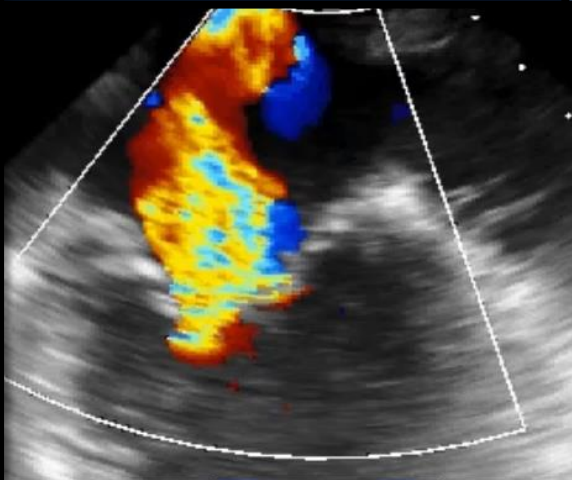
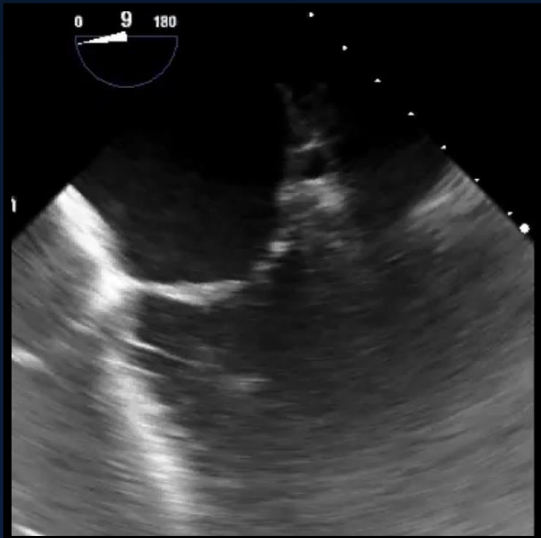
- Definitive
- Invasive
- Bypass, further ischemic insult
- **STS score – 24
% mortality**

Conservative?

Surgery
?

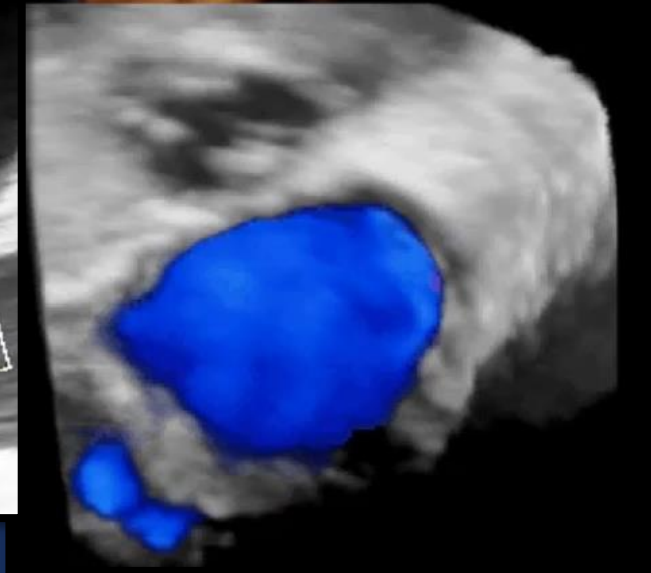
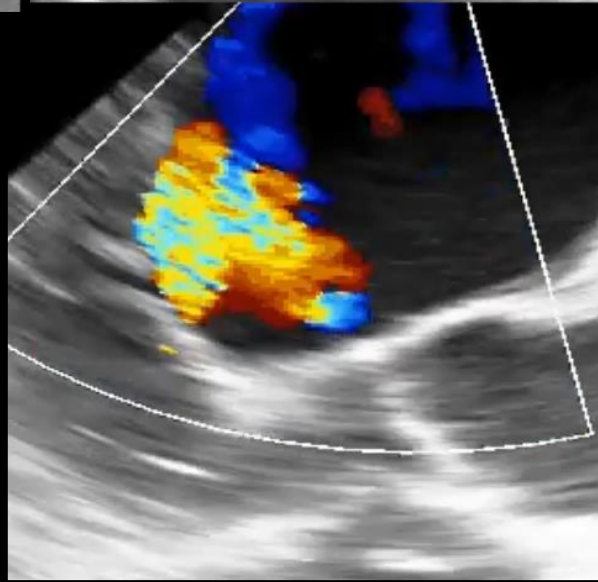
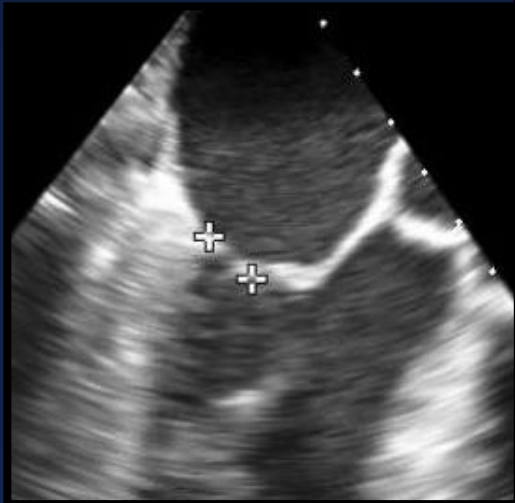
Percutaneous?

Taking a closer look to the MR



Restricted $P_2 > P_3$
Severe functional
MR

Very Posterior
directed, Central jet



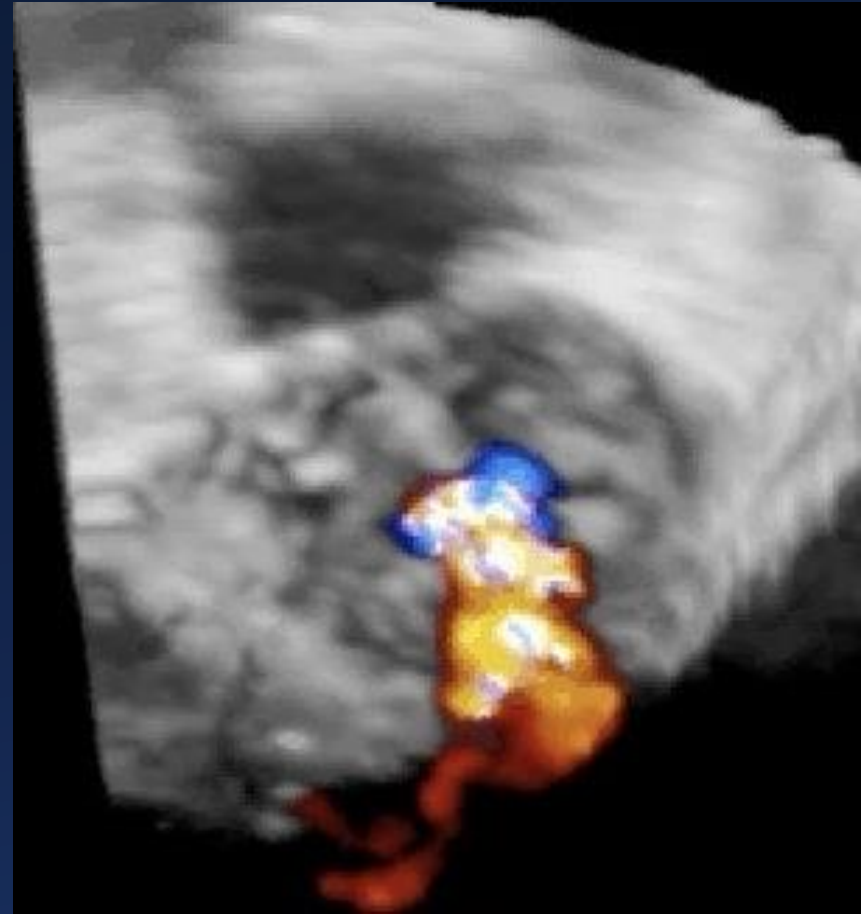
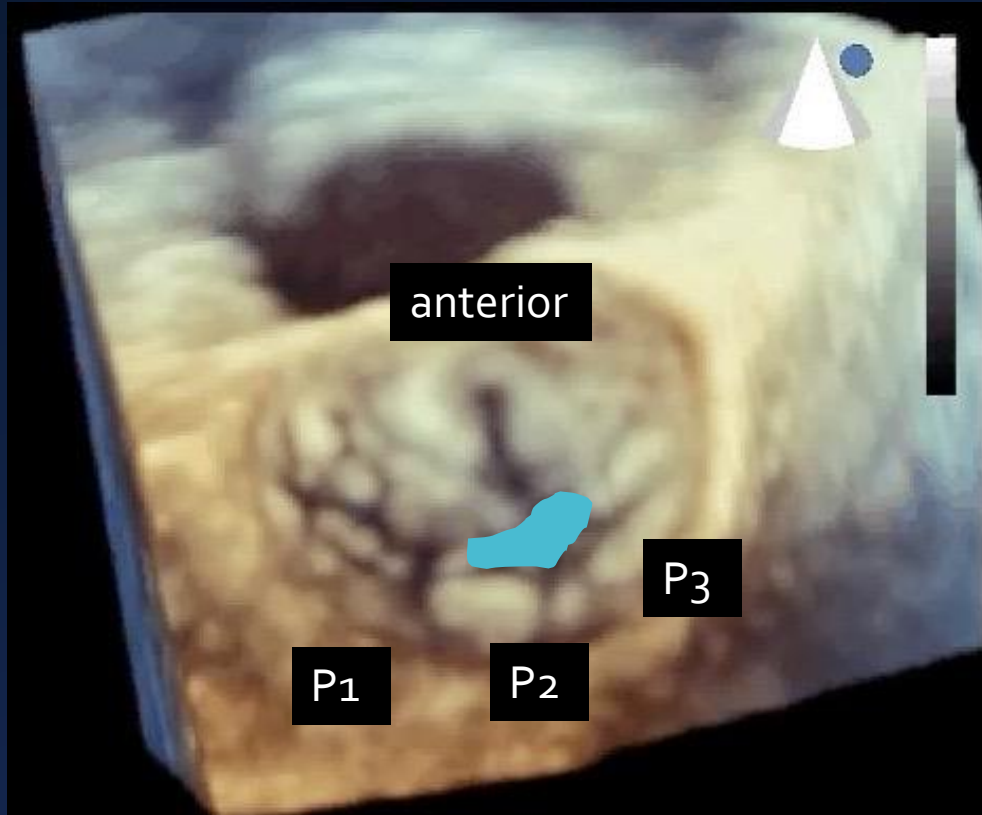
Posterior leaflet length = 9
mm

MVA > 4 cm²

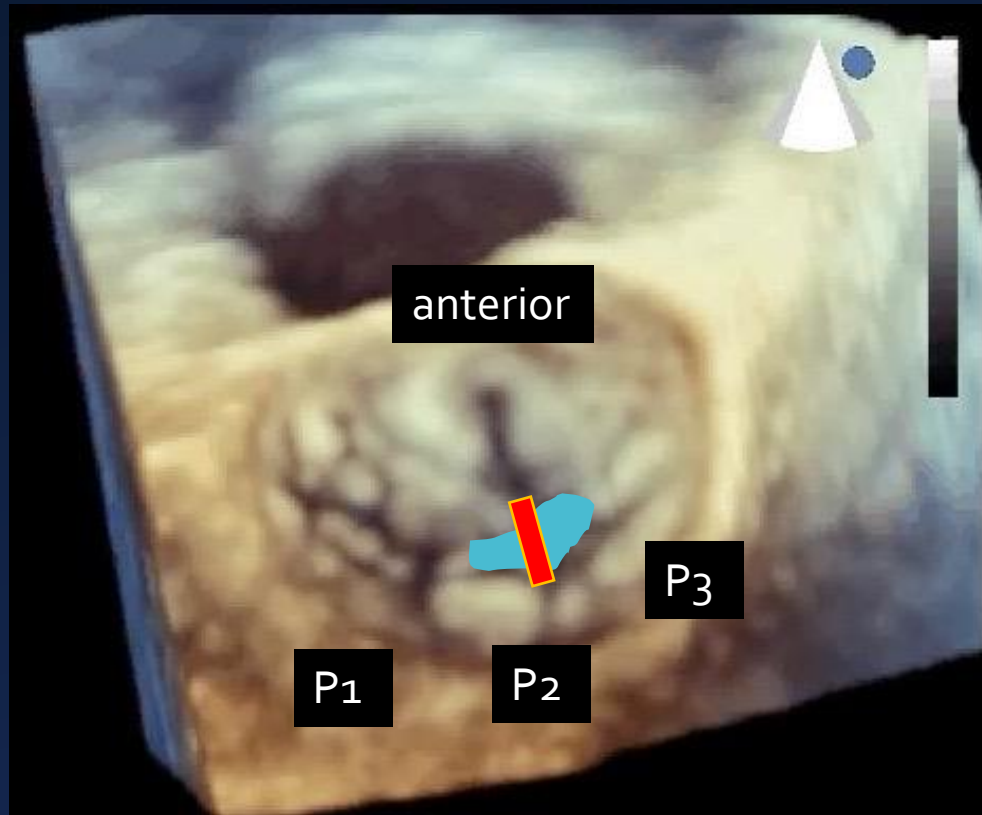
MG = 4 mmHg

PML length = 9mm

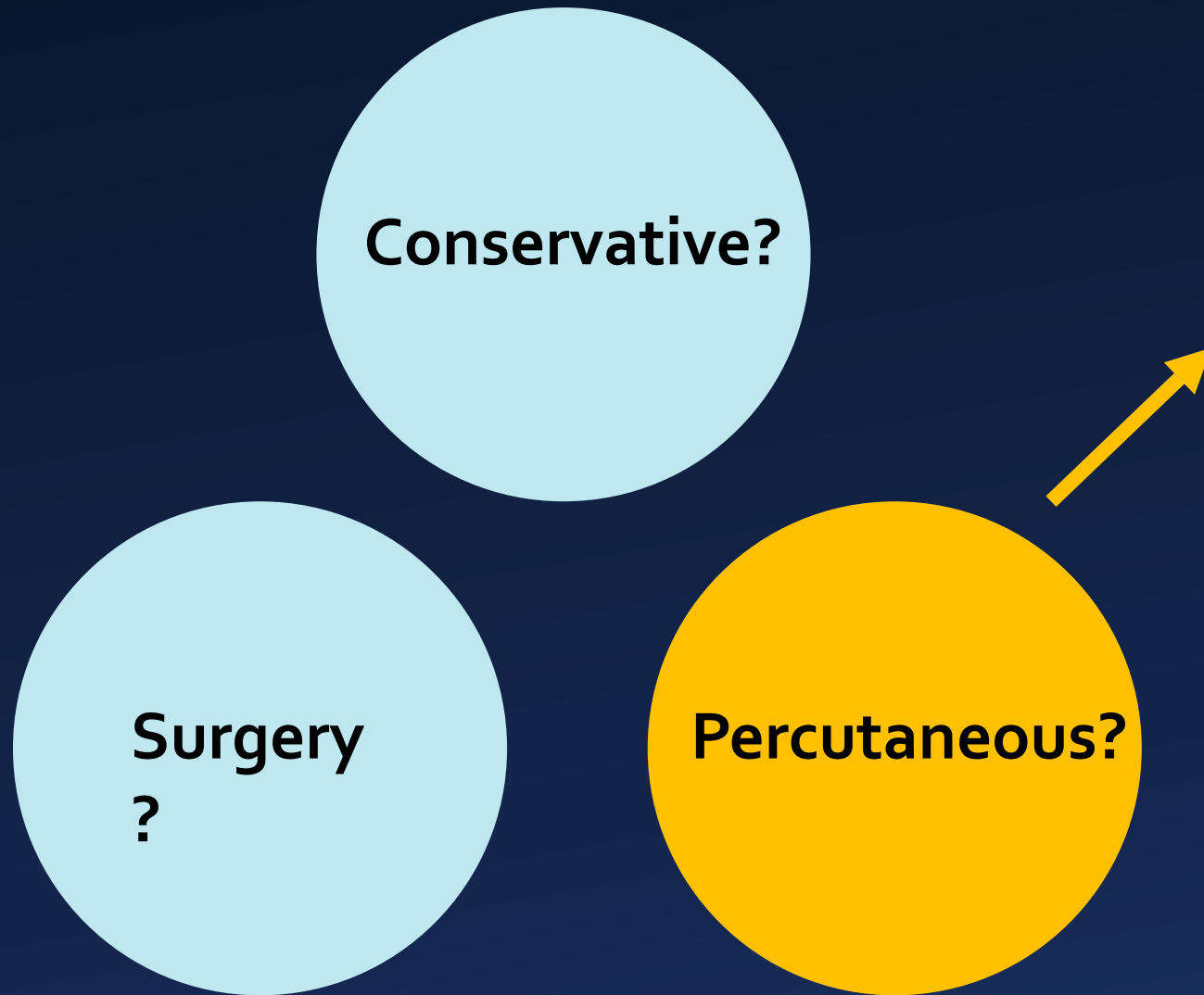
MAYBE ?, all we need is



MAYBE ?, all we need is



What to do?



- ✓ Technically Feasible
- ✓ No bypass, less invasive
- ✓ In case failed , can still go for surgery
- ✓ Case series (1)
- ✗ No RCT

What we do

HEART team approach

Family discussion

=> Rescue percutaneous
MV repair with Mitraclip
device



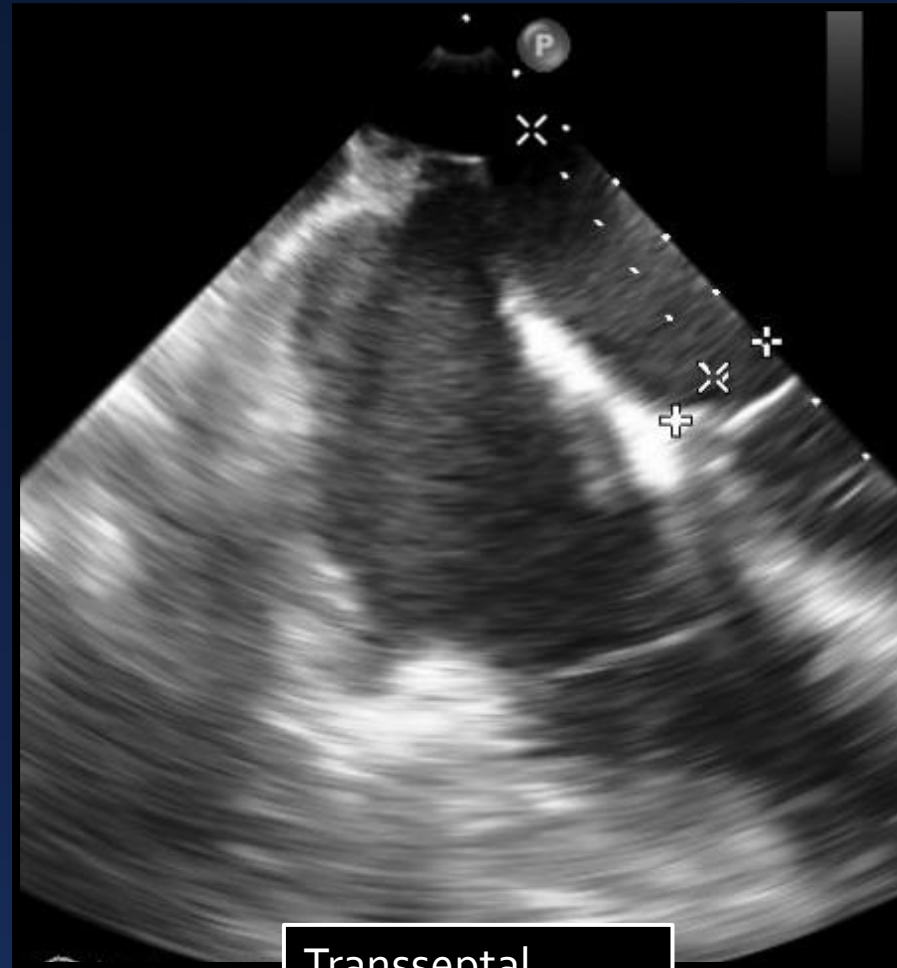
Percutaneous mitral clip – RFV access, transseptal puncture

GA

RFV , 24 Fr

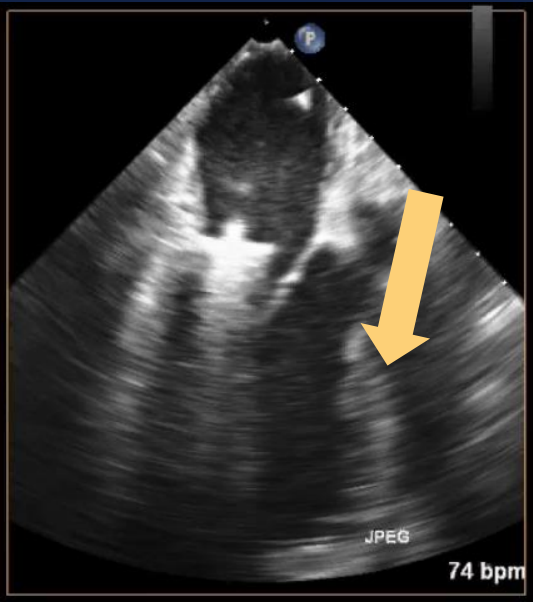
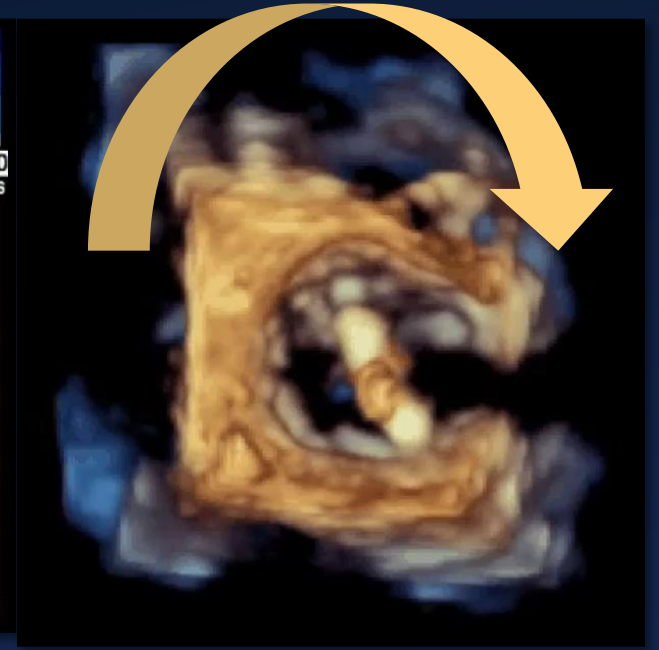
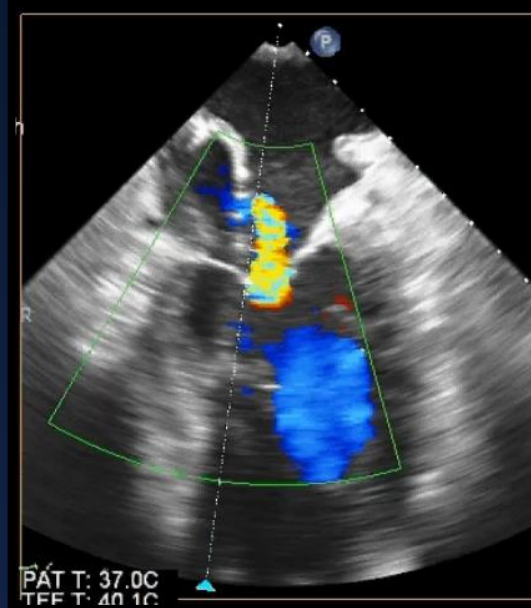
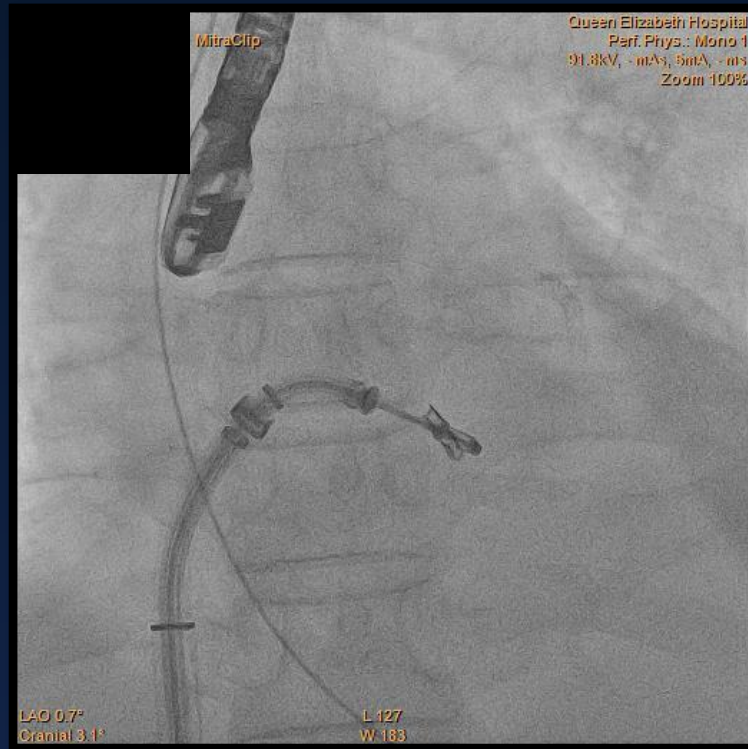
TEE guide

Transseptal puncture



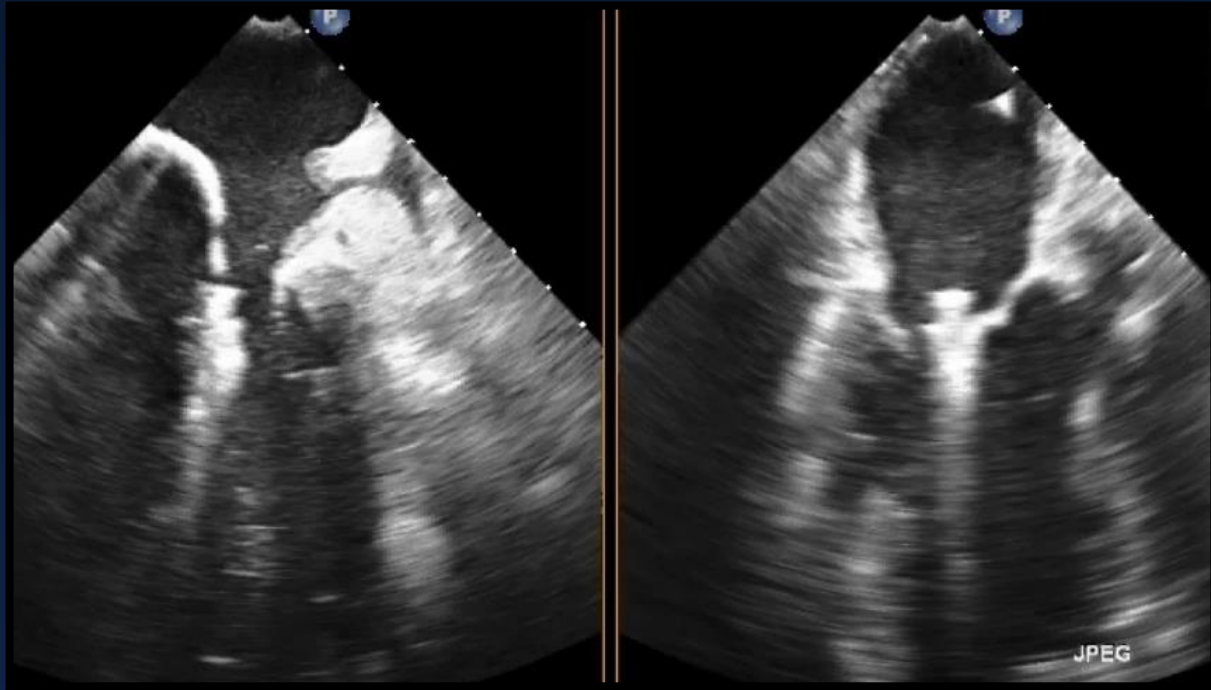
Transseptal
height= 4.2 cm

Left atrial steering, clip positioning



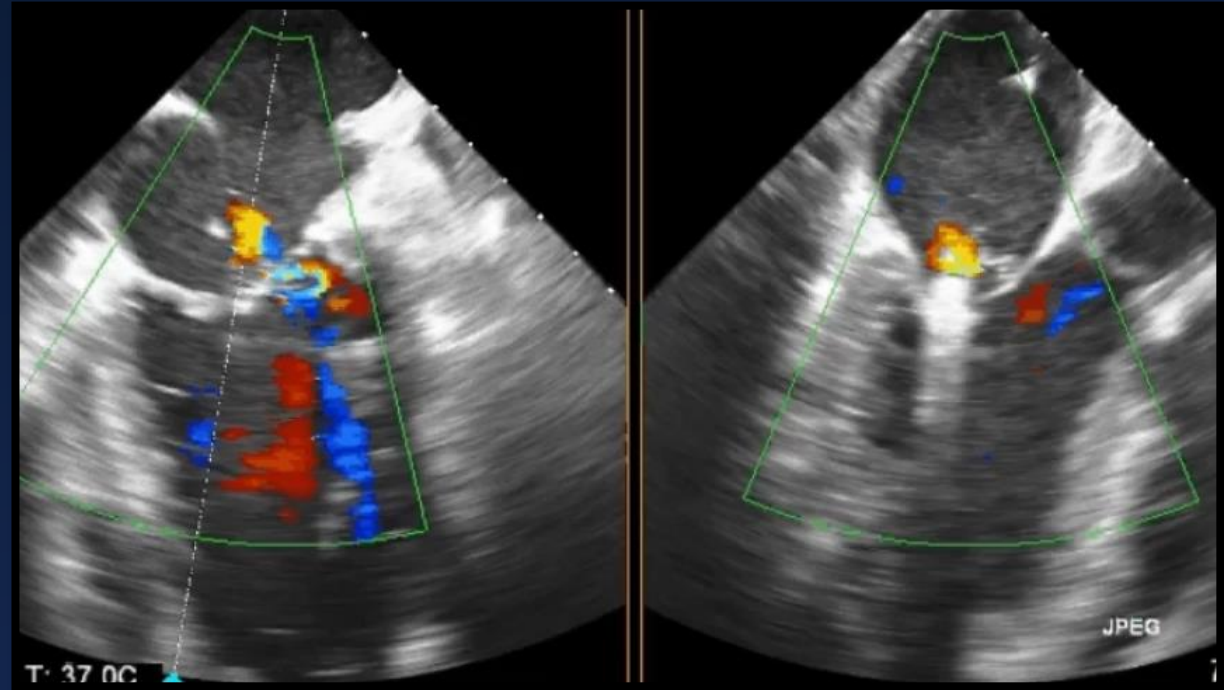
2D and 3D
TEE guidance

Visualizing leaflet grasping



Mitraclip NTR

1st attempt **failed** to
catch posterior leaflet

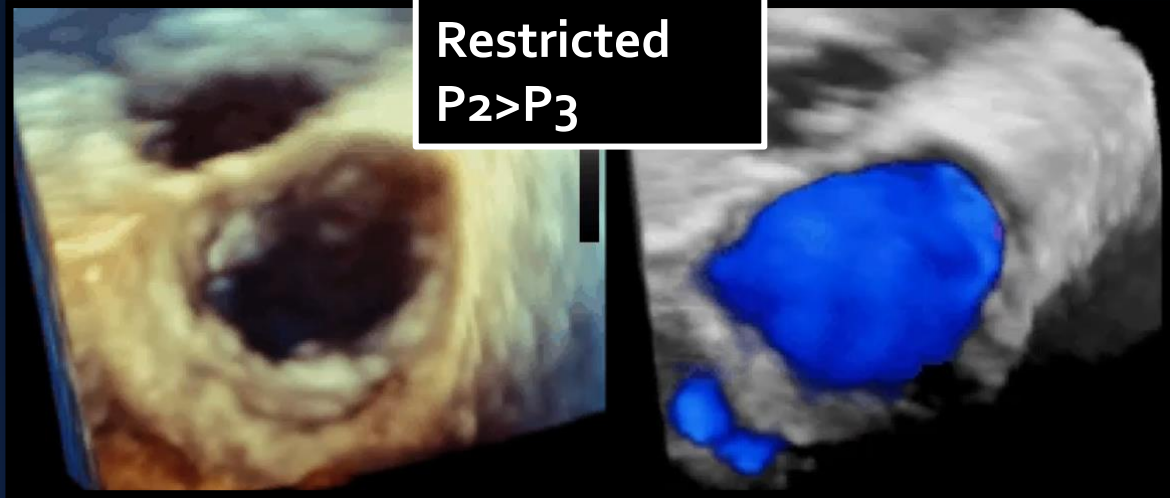


2nd attempt

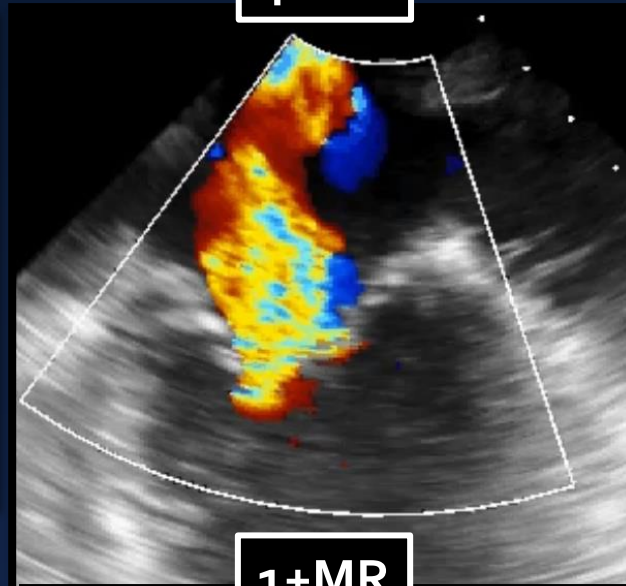
satisfactory

Result -> Acute MR reduction

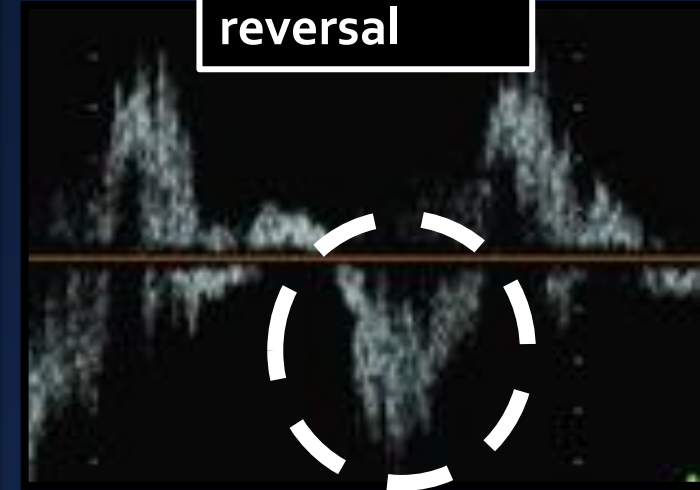
Severe
Restricted
 $P_2 > P_3$



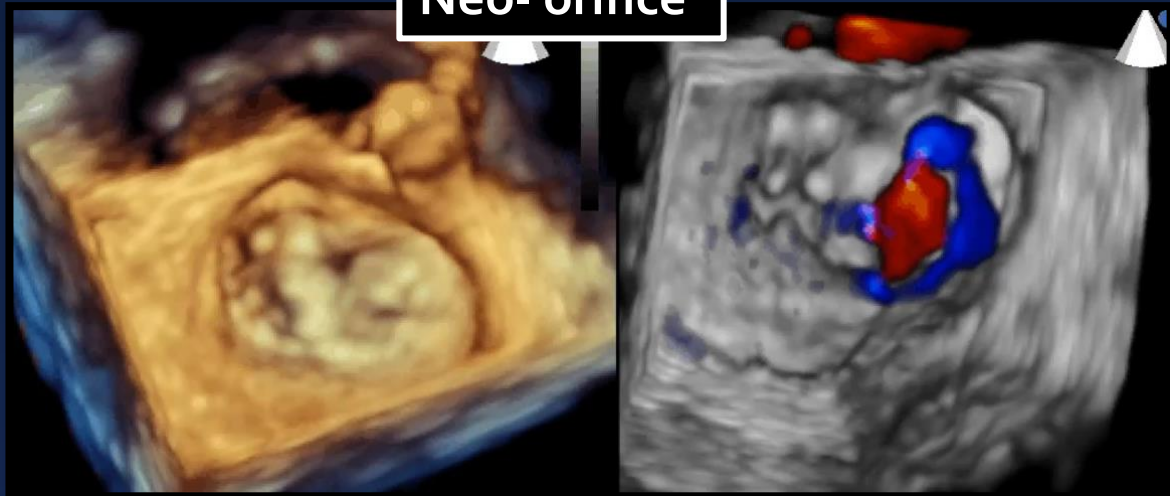
4+MR



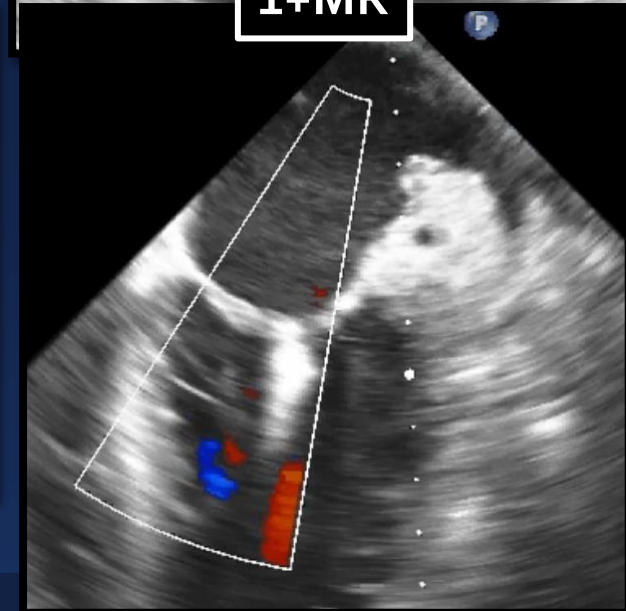
Systolic flow
reversal



Neo- orifice



1+MR



Systolic forward
flow

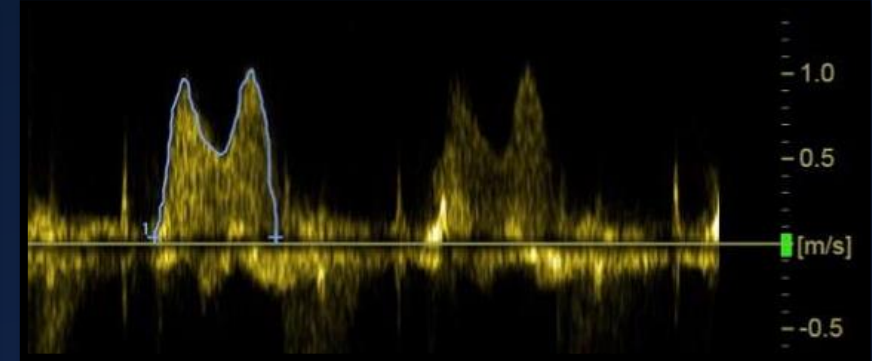
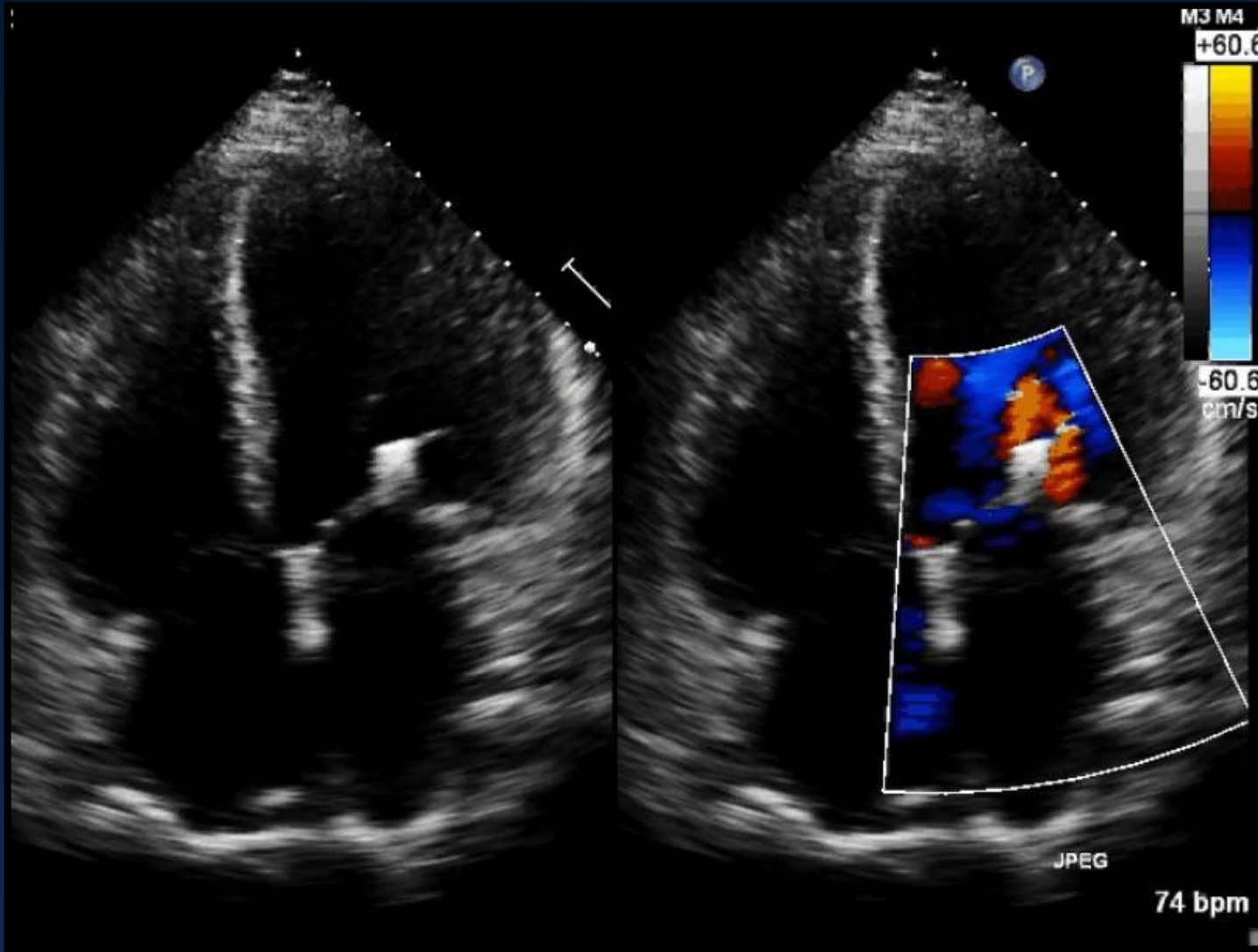


MG = 3 mmHg

Clinical good progress

- Weaned IABP same day
- Weaned ventilator D2
- Out of heart failure
- Guideline directed medical therapy

Follow up at 3 month



Mild residual MR 1+
Mean gradient = 2mmhg
Normal LV size
LVEF ~ 35%

Tolerated HF meds
NYHF class I
Ambulatory

Case takeaway

- No PCI is simple
- Prevention is the key, but be prepared for complications
- **Acute ischemic MR** can occur in AMI secondary to regional/global LV dysfunction and leaflet tethering
- Pulmonary edema in this context can be **difficult to resolve** without correcting valve regurgitation
- Data on how to best management these patients is scarce
- **Surgery** associated with **high mortality** in such critically ill patients
- In our case, rescue **percutaneous** MV repair for acute ischemic MR was **safe and feasible, with good short term outcome**
- Further study warranted for this patient group

Thank you