

Challenging Case : MitraClip for DMR

Joo-Yong Hahn, MD
Samsung Medical Center, Korea

Disclosure

- Grant support
 - National Evidence-based Healthcare Collaborating Agency, Ministry of Health & Welfare, Republic of Korea
 - Abbott Vascular, Biosensors, Biotronik, Boston Scientific, Daiichi Sankyo, Donga-ST, and Medtronic
- Consulting Fees/Honoraria
 - Abbott Vascular, Amgen, Astra Zeneca, Biosensors, Biotronik, Boston Scientific, Daiichi Sankyo, MSD Korea, Novartis, Pfizer, and Sanofi-Aventis

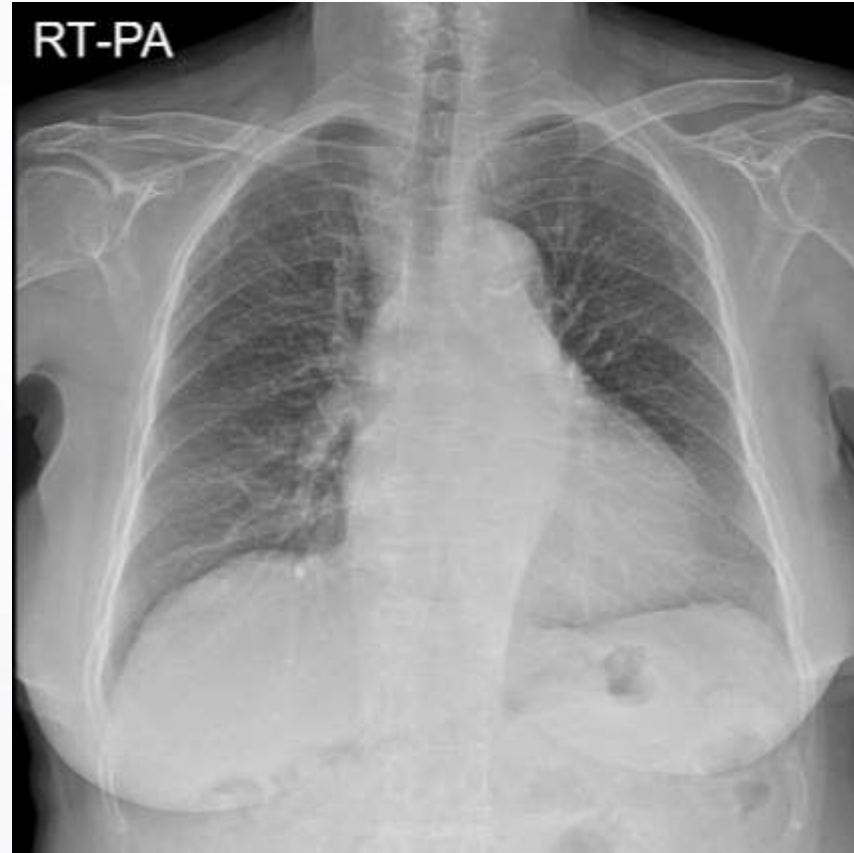
Case: Clinical Information

- An 80-year-old woman
- Height / Body weight: 149 cm / 51.2 kg
- Known moderate MR due to prolapsed PMVL since 2014
- Recurrent admission due to congestive heart failure since 2021
- HTN
- Chronic renal disease (eGFR 25.2)
- Medical treatment
 - Furosemide 40mg 0.5T bid
 - Spironolactone 25mg 0.5T qd
 - Digoxin 0.25mg 0.5 T qd
 - Apixaban 2.5mg 1 T bid

Chest X-ray



2014/12/26



2019/07/08



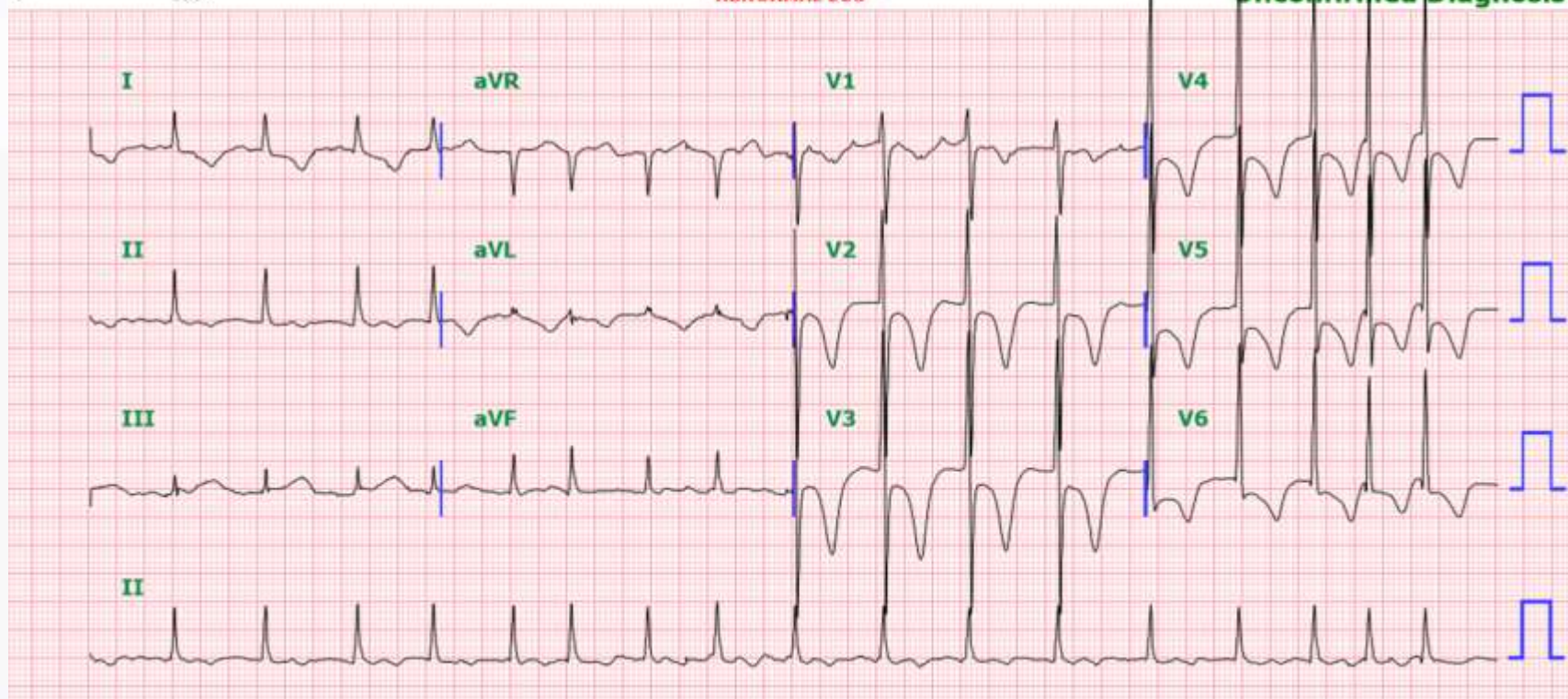
2022/03/15

ECG: Atrial fibrillation

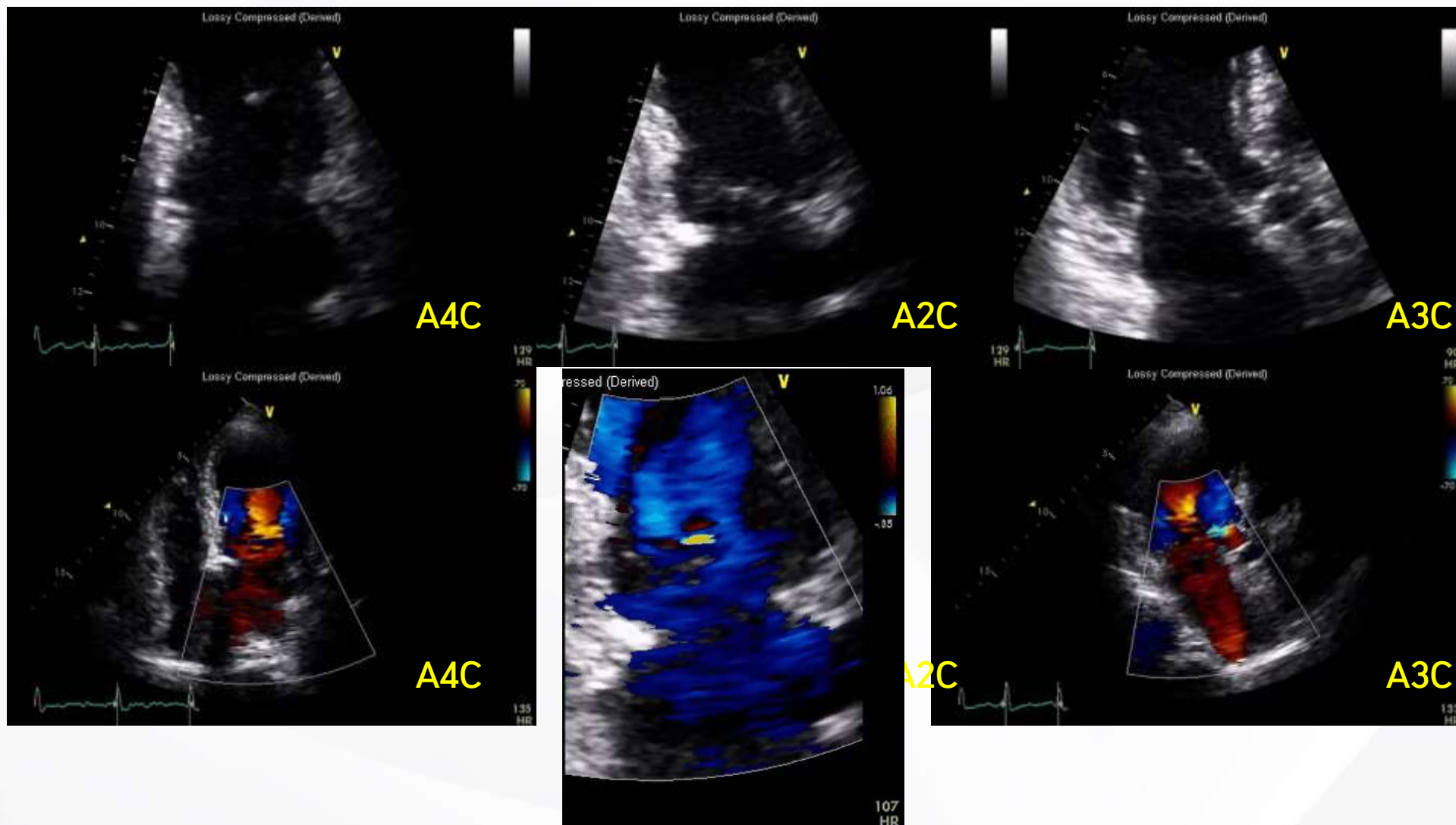
Rate	102	Atrial fibrillation	V-rate 91-122, irreg A-activity
RR	588	Paired ventricular premature complexes	sequence of 2 V complexes
PR interval		LVH with secondary repolarization abnormality	multi-LVH criteria, abnrm ST-T
QRSD	100	Prolonged QT interval	QTc > 500ms
QT	389		
QTcB	507		
QTcF	464		
..... <i>AXIS</i>			
P			
QRS	49		
T	159		

[UID :]
 [PID : 00471766 / Date : 2022-03-18]
 Unconfirmed Diagnosis

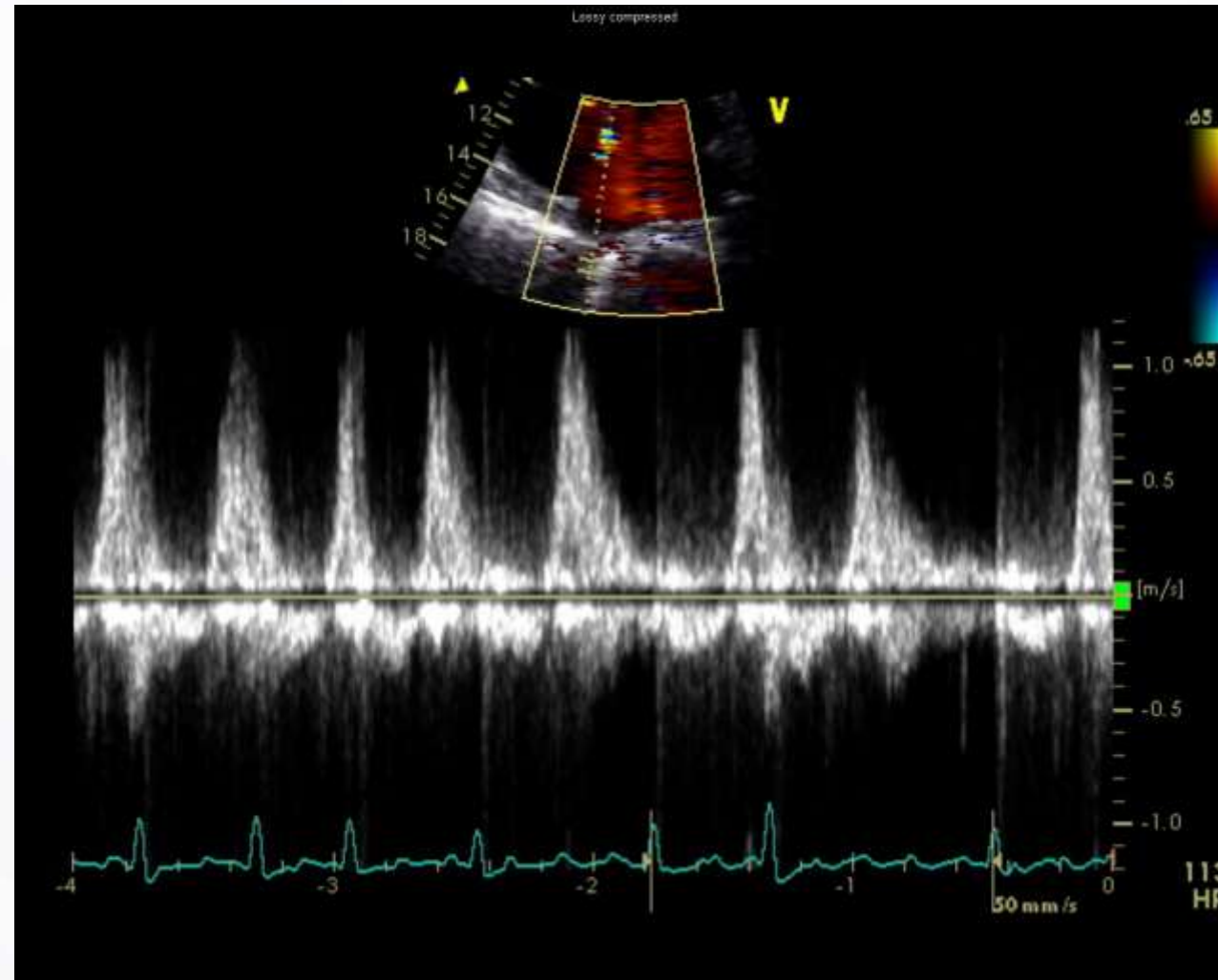
- ABNORMAL ECG -



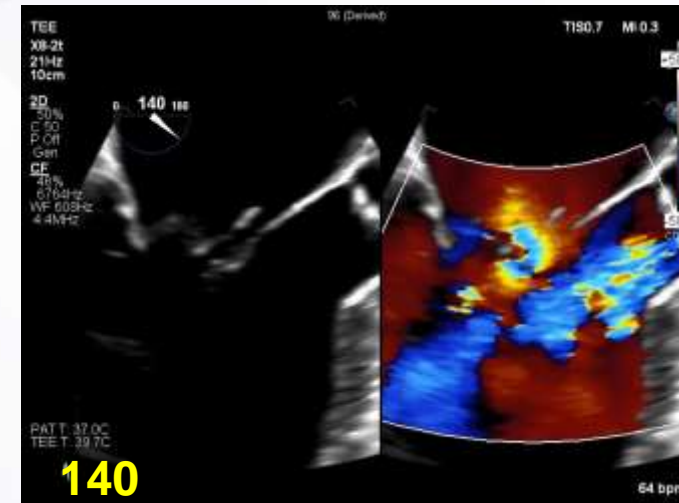
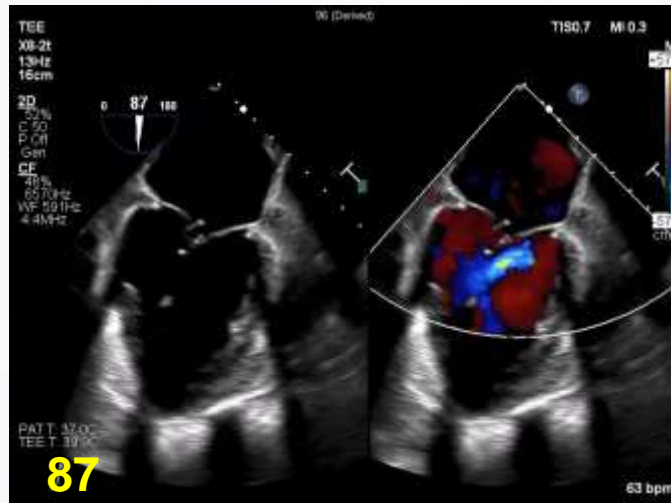
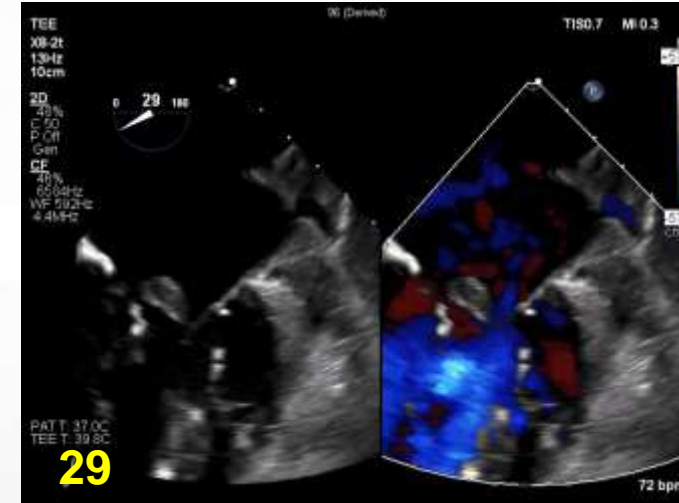
Echocardiography: pre-TTE



Echocardiography: pre-TTE (PVFR)

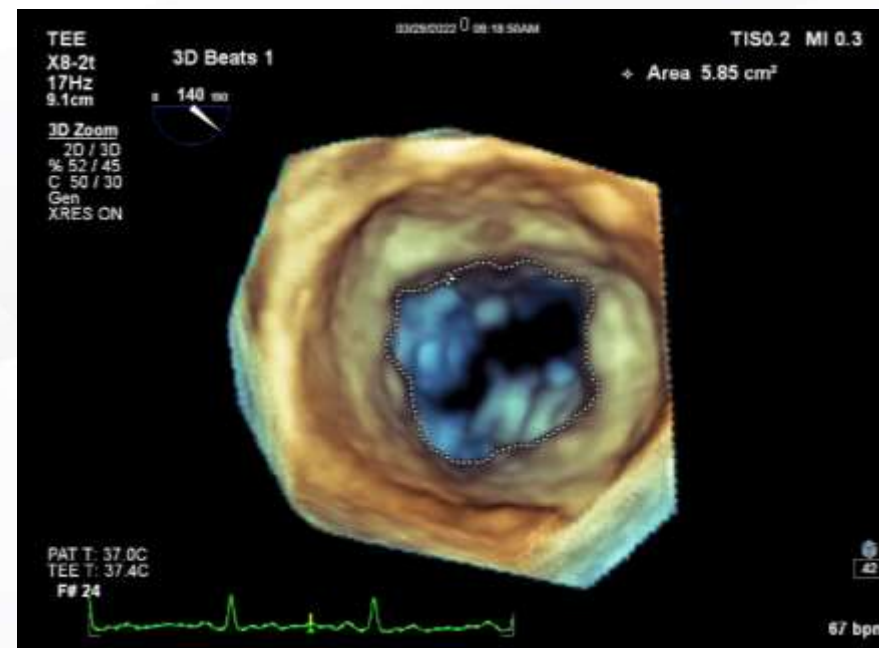
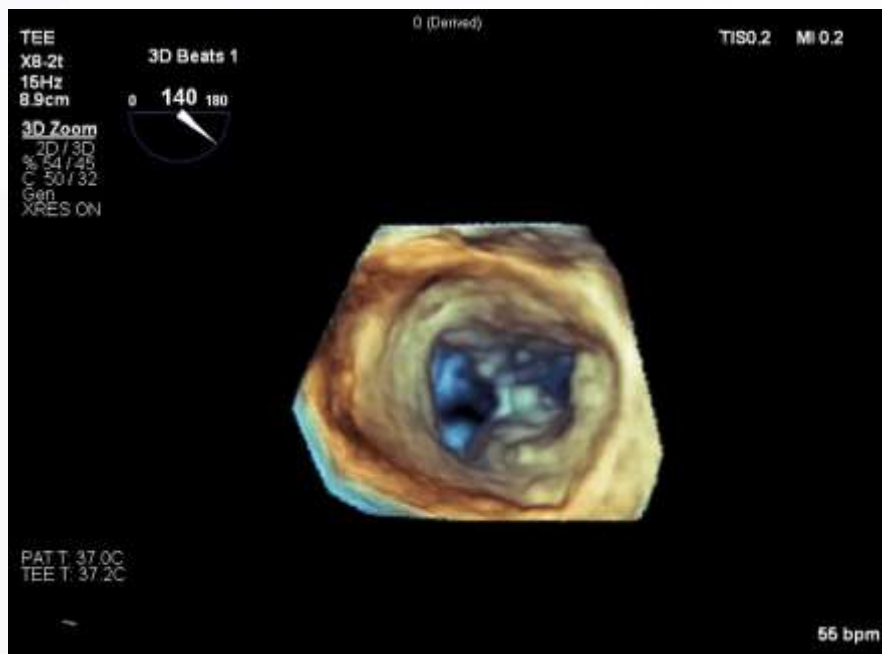


Echocardiography : pre-TEE

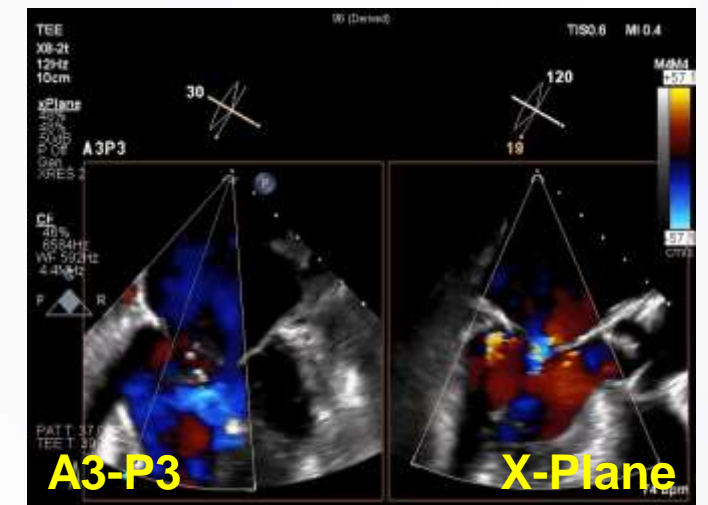
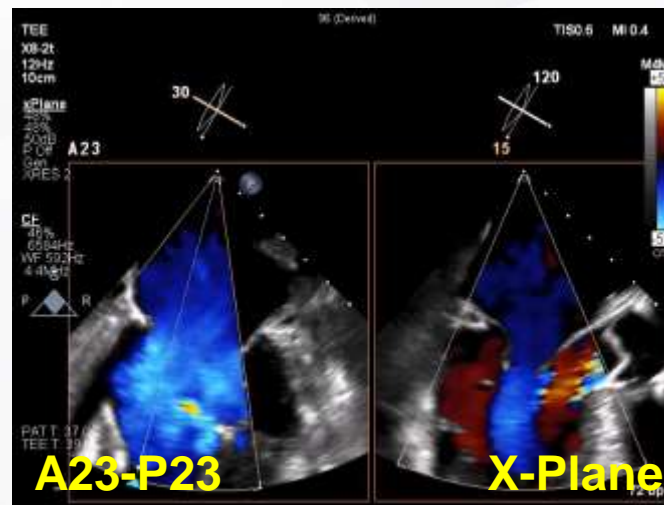
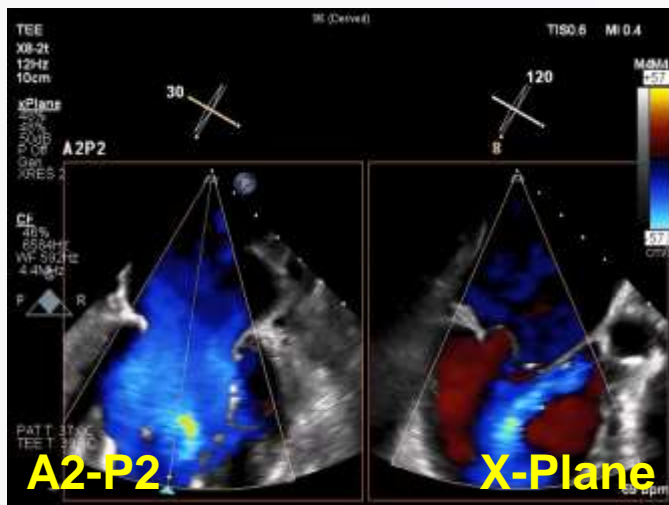
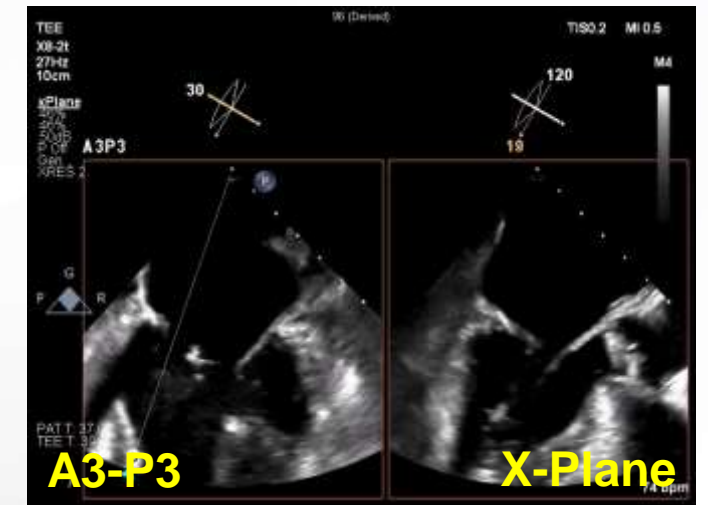
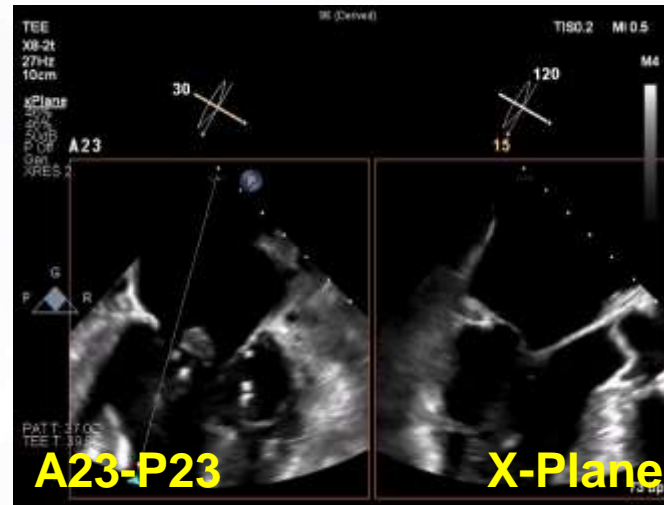
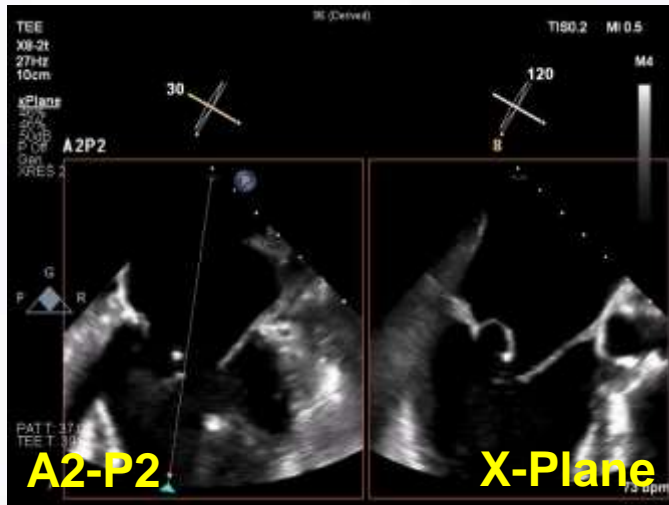


Echocardiography: pre-TEE (3D)

MV area by 3D = 5.85 cm²
MV mean PG = 2.13 mmHg



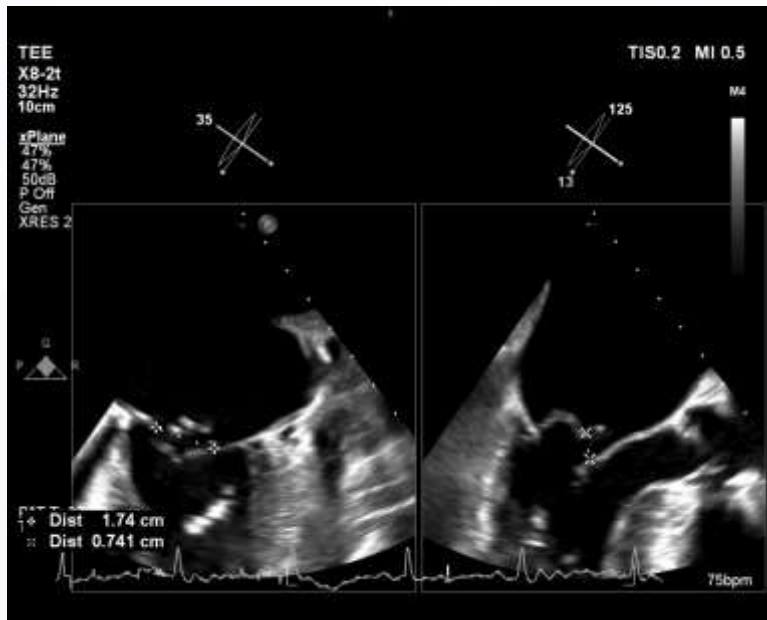
Echocardiography: pre-TEE (2 → 3)



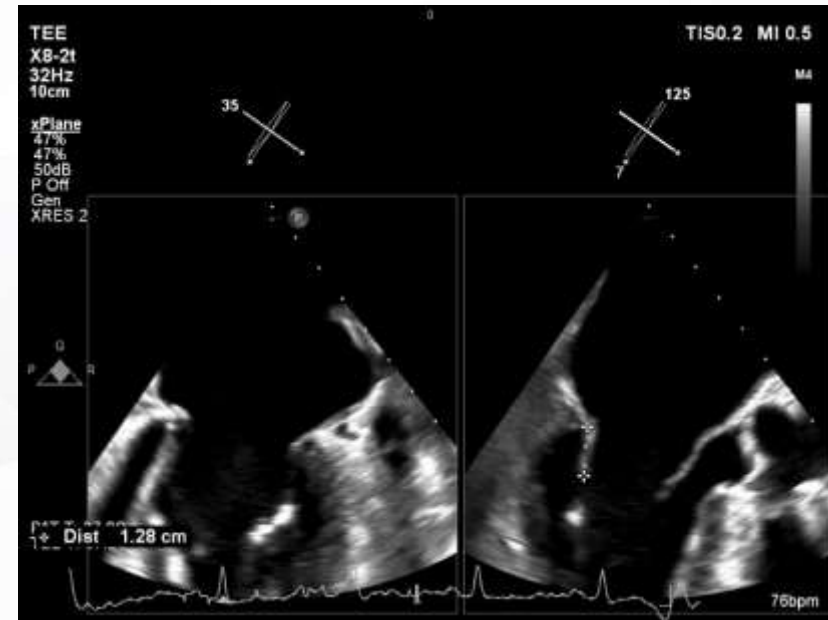
Echocardiography: Feasibility

Flail width = 1.74 cm

Flail gap = 0.74 cm



PMVL length = 1.28 cm



Surgical Risk

STS score 9.110%

EuroSCORE 15.66%

STS Adult Cardiac Surgery Database Version 4.20

RISK SCORES

Procedure: Isolated MVR

CALCULATE

Risk of Mortality: 9.110%

Renal Failure: 3.917%

Permanent Stroke: 4.252%

Prolonged Ventilation: 27.278%

DSW Infection: 0.063%

Reoperation: 11.874%

Morbidity or Mortality: 33.790%

Short Length of Stay: 10.039%

Long Length of Stay: 15.287%

Patient-related factors				Cardiac-related factors			
Age (years)	80		0	Unstable angina ⁶	No ▾	0	
Gender	Female ▾		.3304052	LV function	Good ▾	0	
Chronic pulmonary disease ¹	No ▾		0	Recent MI ⁷	No ▾	0	
Extracardiac arteriopathy ²	No ▾		0	Pulmonary hypertension ⁸	Yes ▾	.7676924	
Neurological dysfunction ³	No ▾		0	Operation-related factors			
Previous Cardiac Surgery	No ▾		0	Emergency ⁹	No ▾	0	
Creatinine > 200 µmol/ L	No ▾		0	Other than isolated CABG	Yes ▾	.5420364	
Active endocarditis ⁴	No ▾		0	Surgery on thoracic aorta	No ▾	0	
Critical preoperative state ⁵	No ▾		0	Post infarct septal rupture	No ▾	0	
Logistic ▾ EuroSCORE				15.66 %			

Case Summary

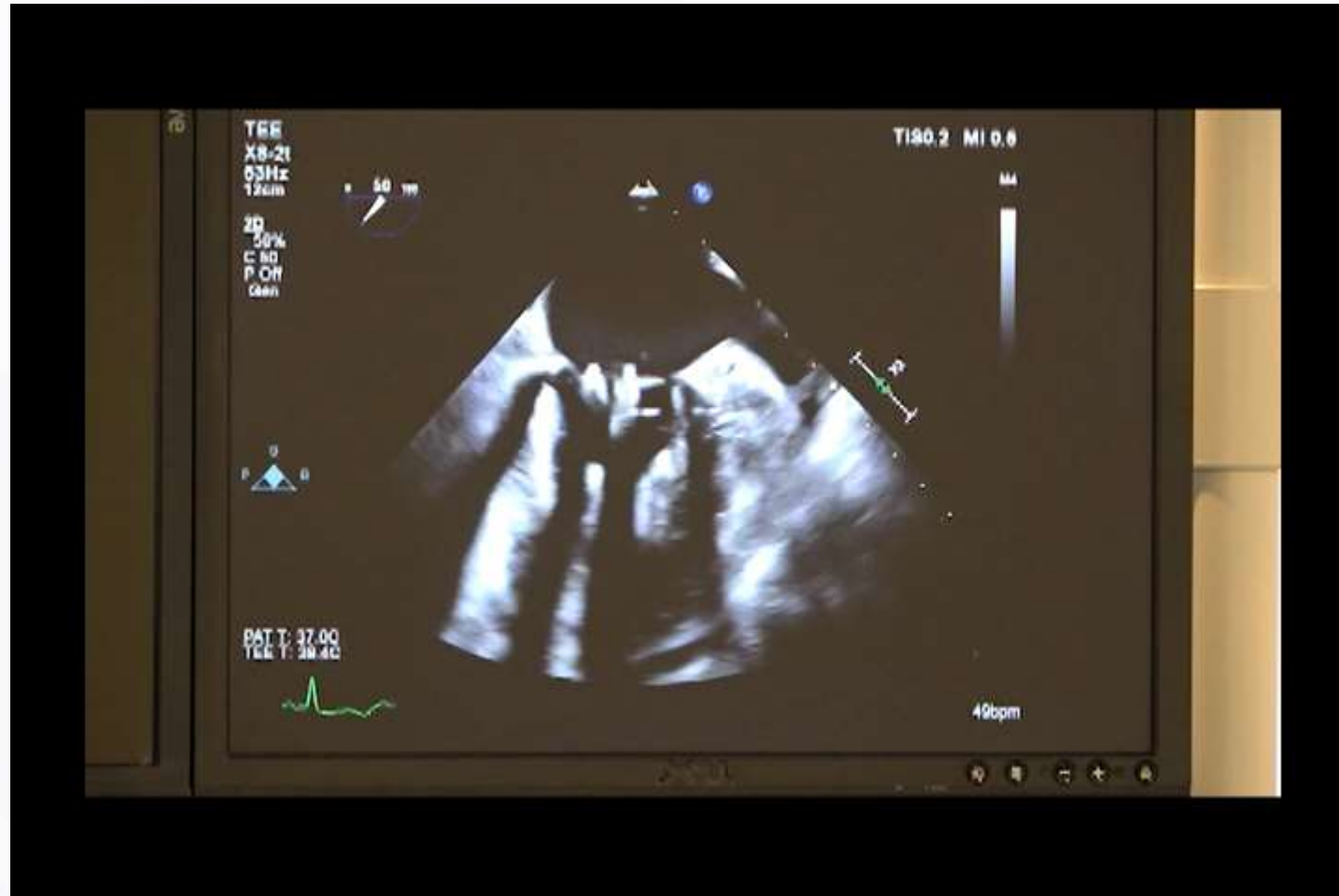
- Severe eccentric MR d/t PMVL prolapse
 - 1) Morphology
 - Prolapse with chordae rupture (Location: mainly P2 and P3)
 - Annulus calcification (+) : especially medial annulus
 - 2) Measurement
 - Flail width = 1.74 cm, Flail gap = 0.74 cm, PMVL length = 1.28 cm,
 - MV mean PG = 2.13 mmHg, MV area by 3D = 5.85 cm²
 - PISA radius = 1.25 cm / MV ERO = 73.4 mm² / MR RV = 62.37ml
 - Pulmonary vein systolic reversal flow (+) at both pul. vein (Right > left)
 - RV systolic pressure: 50.6 mmHg
- Recurrent admission due to heart failure
- High risk for surgery

Treatment Plan

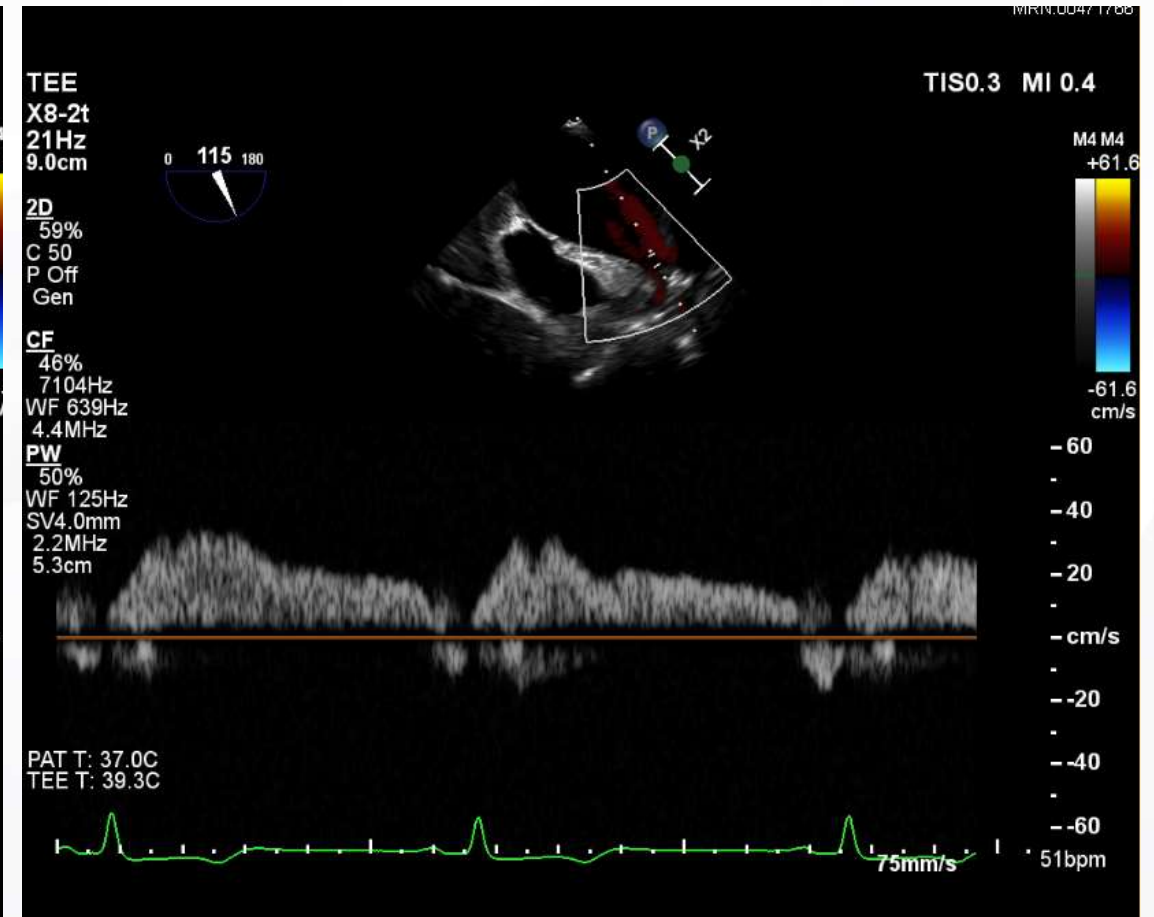
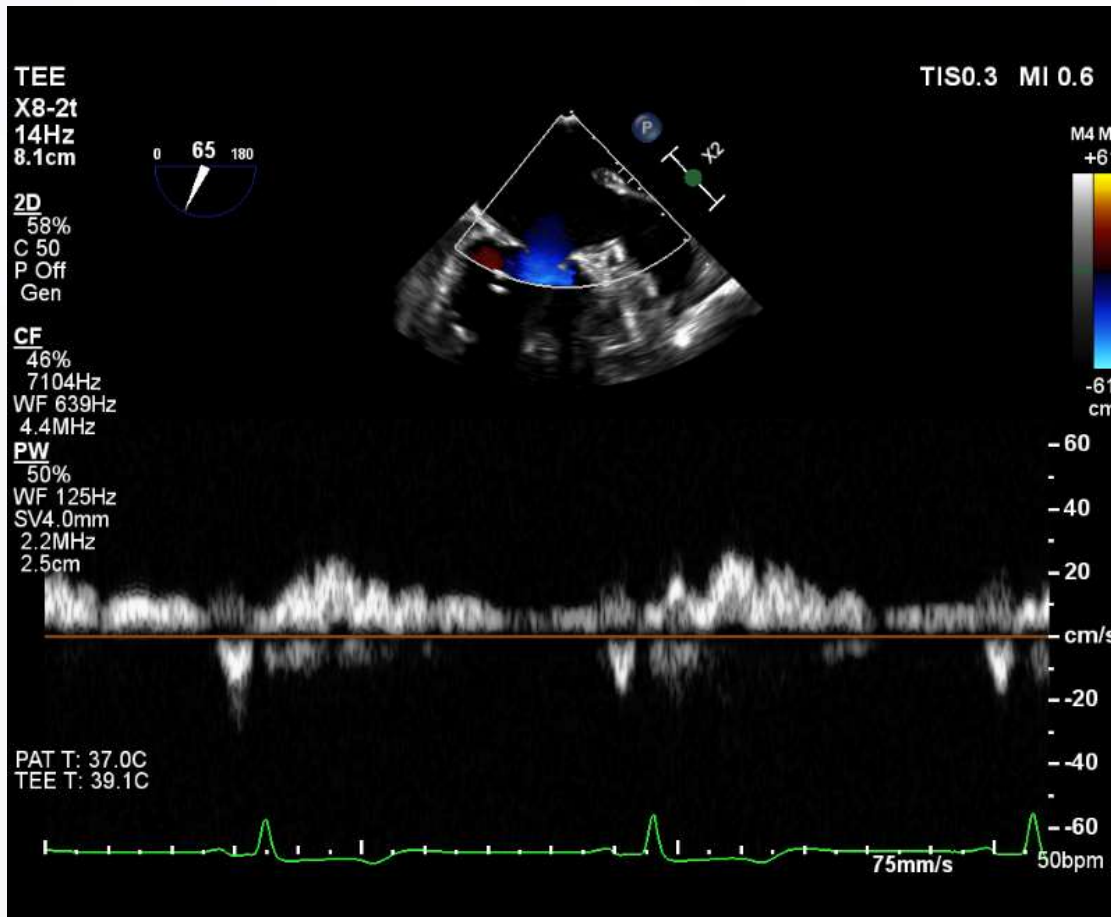
- Transcatheter edge-to-edge repair
- Device selection
 - XTW at maximal jet flow (A2-P2), then NTW at A3-P3
vs.
 - XT at A3-P3, then XTW or XT at A2-P2



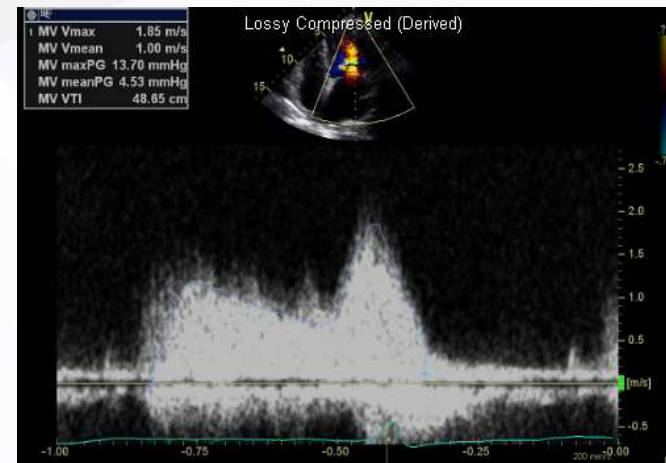
Post TEE



Post TEE: pulmonary venous flow



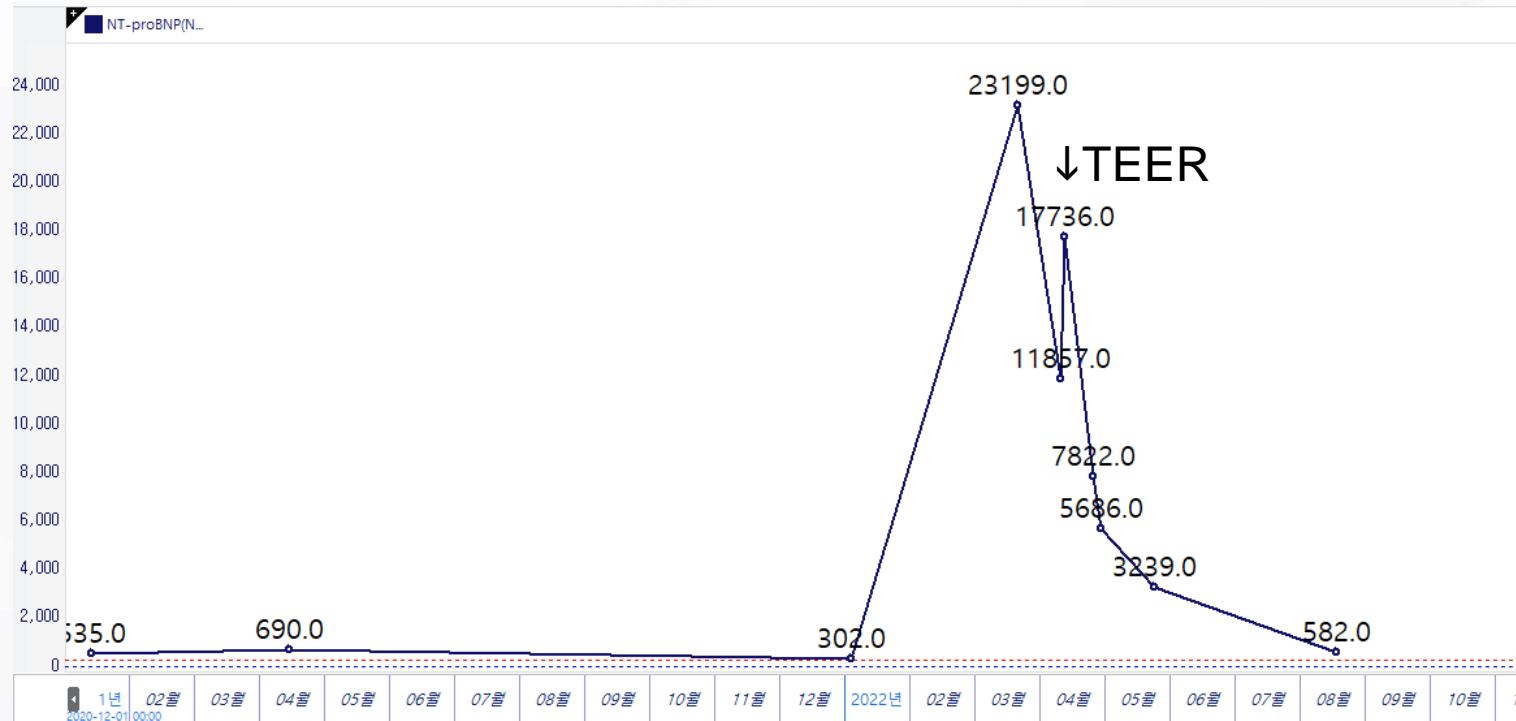
Echocardiography : post TTE



Clinical course

- Symptom improvement
- No further hospitalization

Change of NT-proBNP



Chest X-ray

