



# EUROVALVE

## & STRUCTURAL CARDIOMYOPATHIES

### NH PALERMO

**Dr. Monica Barki**



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San Raffaele

**SAVE  
THE DATE**  
**OCTOBER  
24&25, 2024**



#### **COURSE DIRECTORS**

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#### **LOCAL HOST**

Khalil Fattouch, Italy



I have no disclosure



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# RV function in severe TR: lesson from a clinical case

- 87 y.o. female
- BMI 18, BSA 1.4
- CV RF: arterial hypertension,
- **Comorbidities:** previous thyroidectomy
- **Cardiovascular anamnesis:**
  - **Bicuspid aortic valve** conditioning mild-to-moderate aortic regurgitation
  - Known history of **permanent atrial fibrillation (AF)** conditioning **HFrEF** with coronary angiography showing normal coronary arteries
  - Multiple episodes of Acute Decompensated Heart Failure (ADHF) with persistently reduced LVEF → implanted with a bicameral ICD in primary prevention in 2020
  - From 2021 **evidence of severe TR** (mixed etiology) conditioning numerous ADHF episodes
- Referred to our University Hospital for the evaluation of the TR after presenting to the ED for ADHF



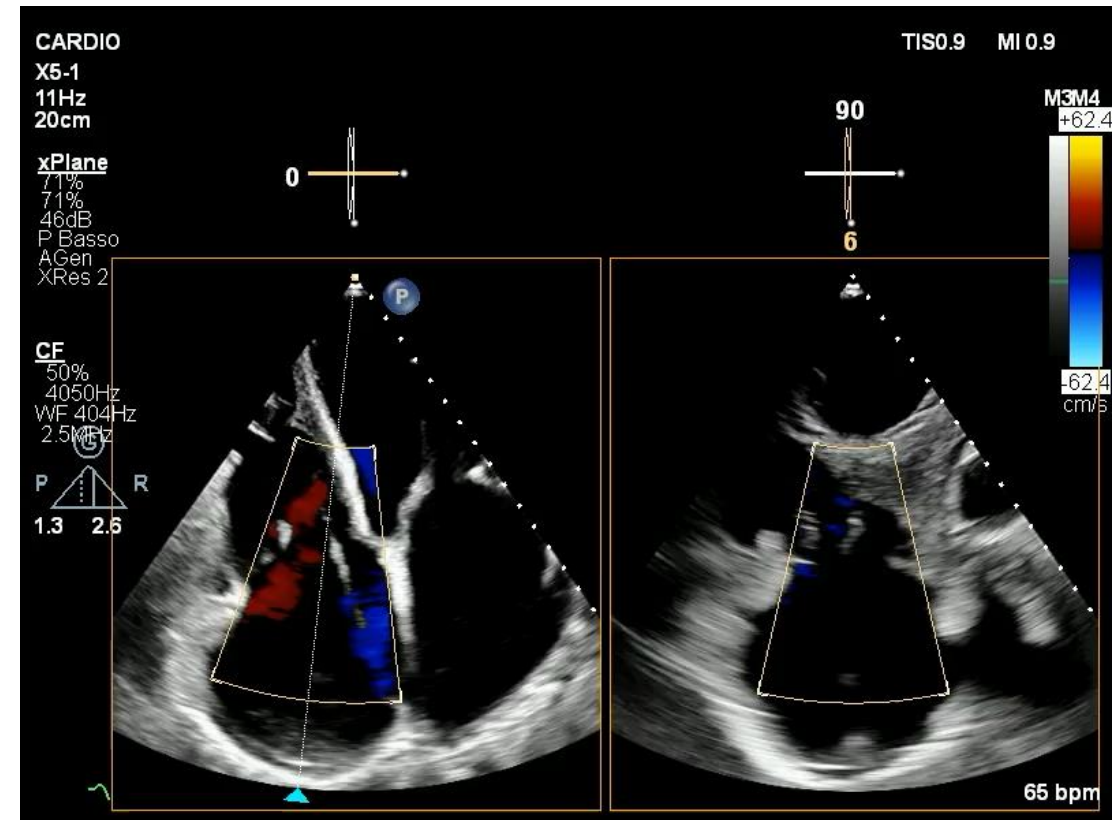
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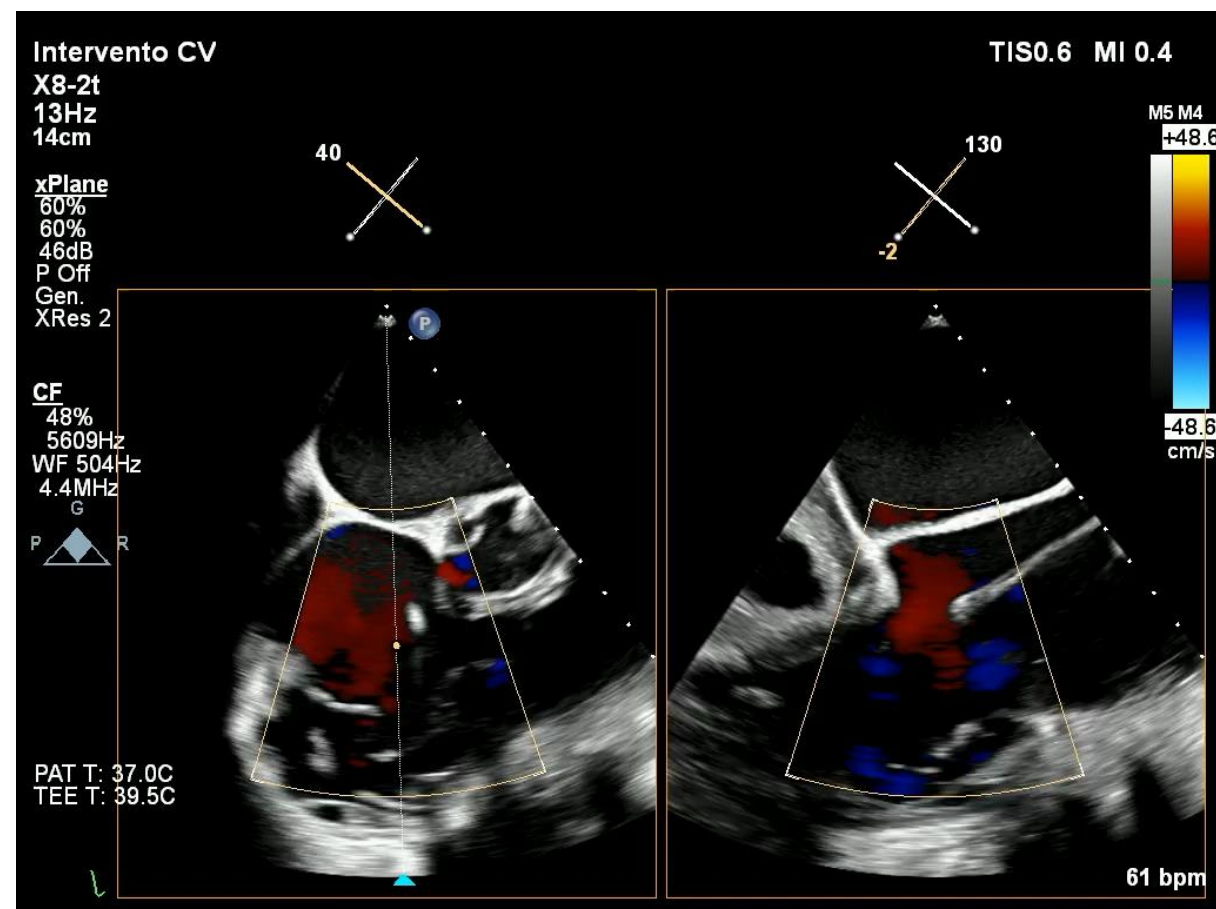
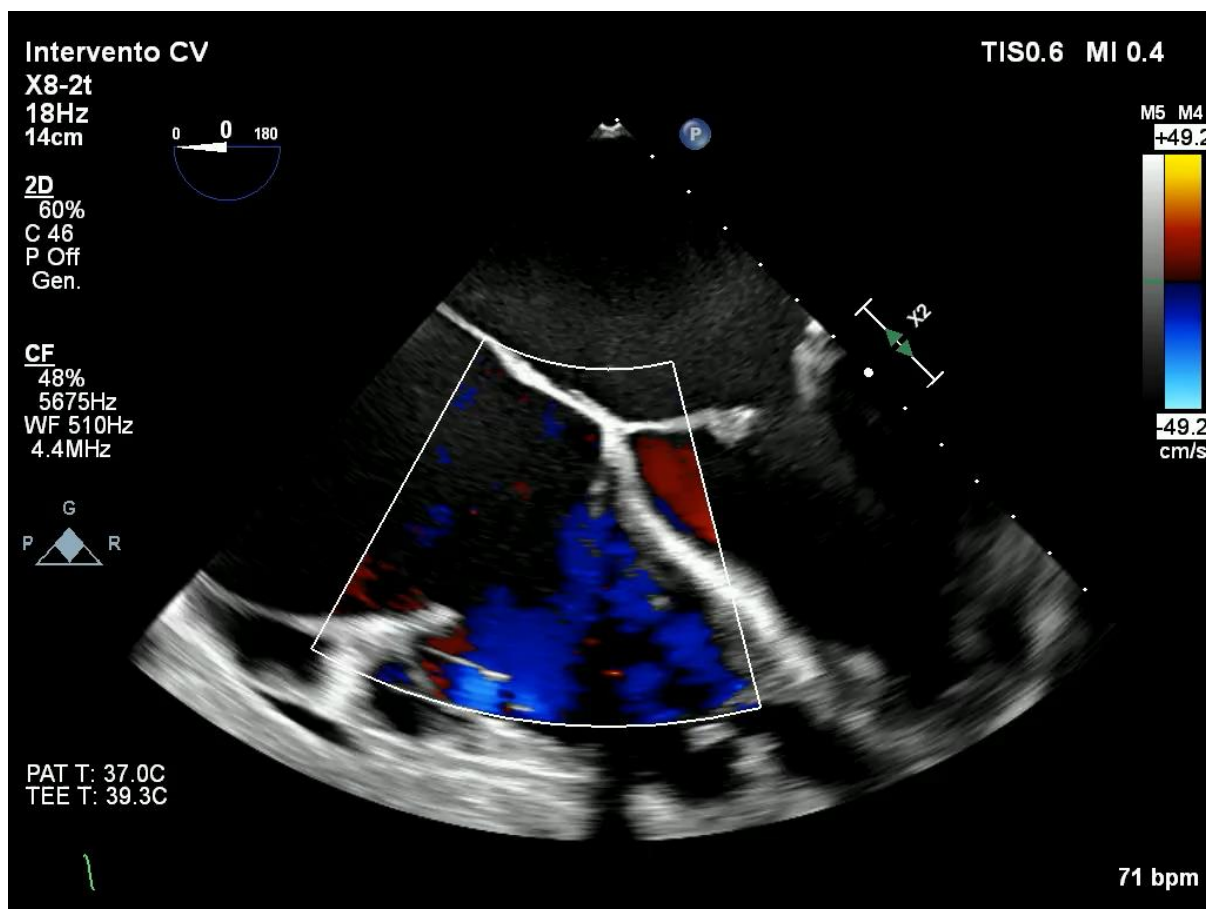


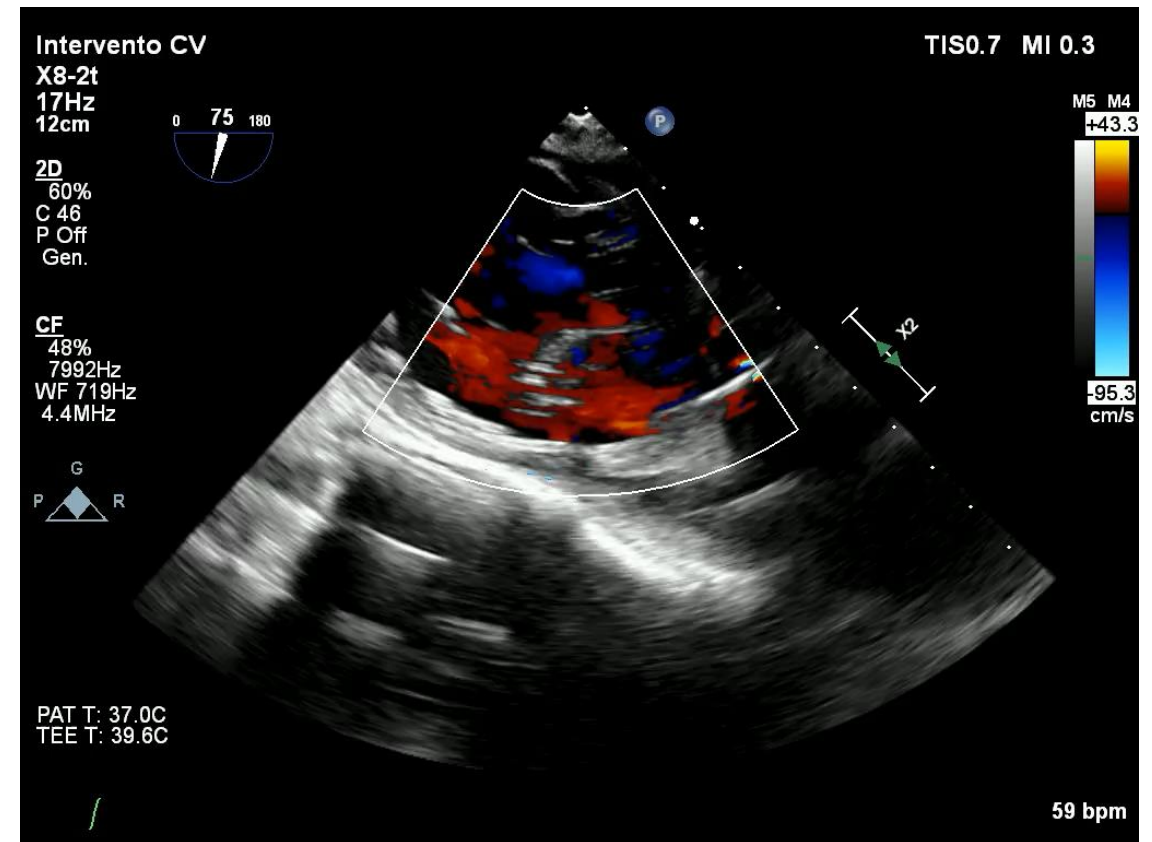
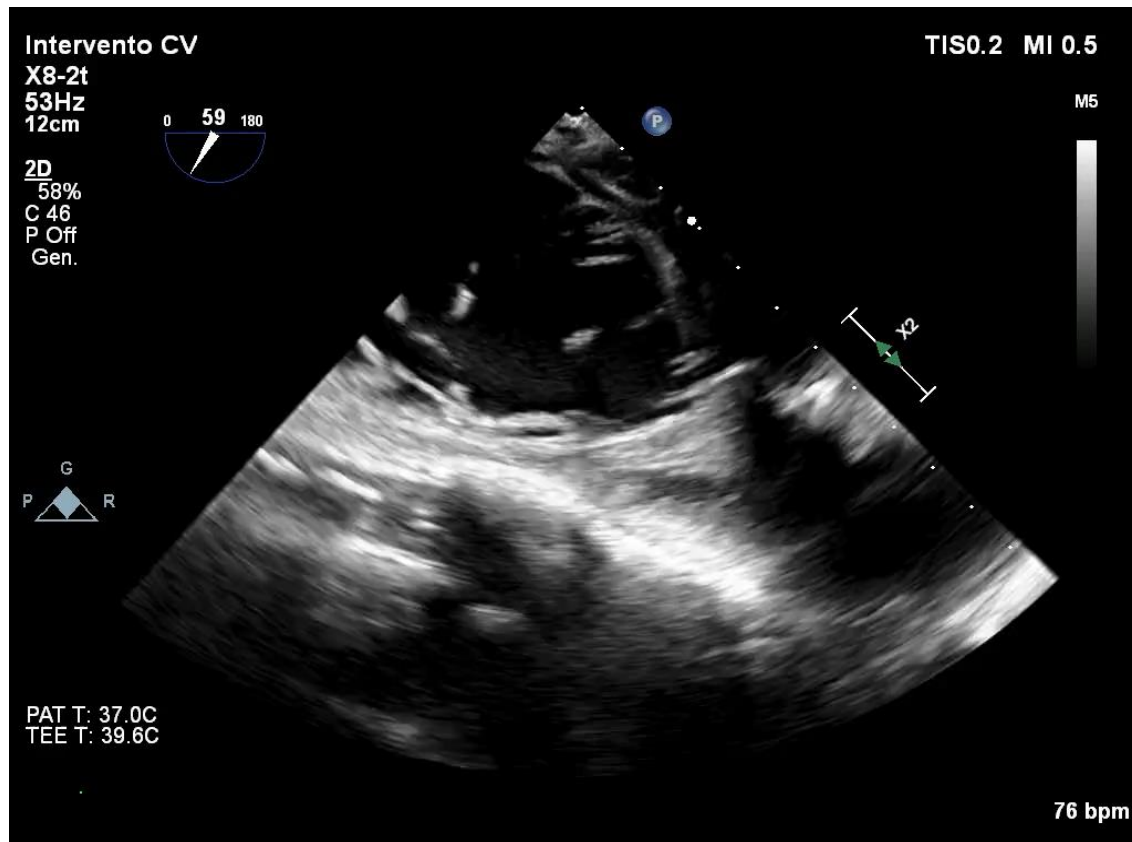
## Baseline TTE and TOE

- Severe TR of (bp VC 18 mm, VCA 3D 0.6 cmq) with large coaptation gap (central 11 mm), apical tethering of the flaps (14 mm) and annular dilation (SL 49 mm)
- mixed etiology (atrial TR and prolapse of the anterior leaflet). Presence of CIED
- Backflow in the sovrahepatic veins
- Mild-moderate MR, non dilated LA
- Mild to moderate reduction of LVEF





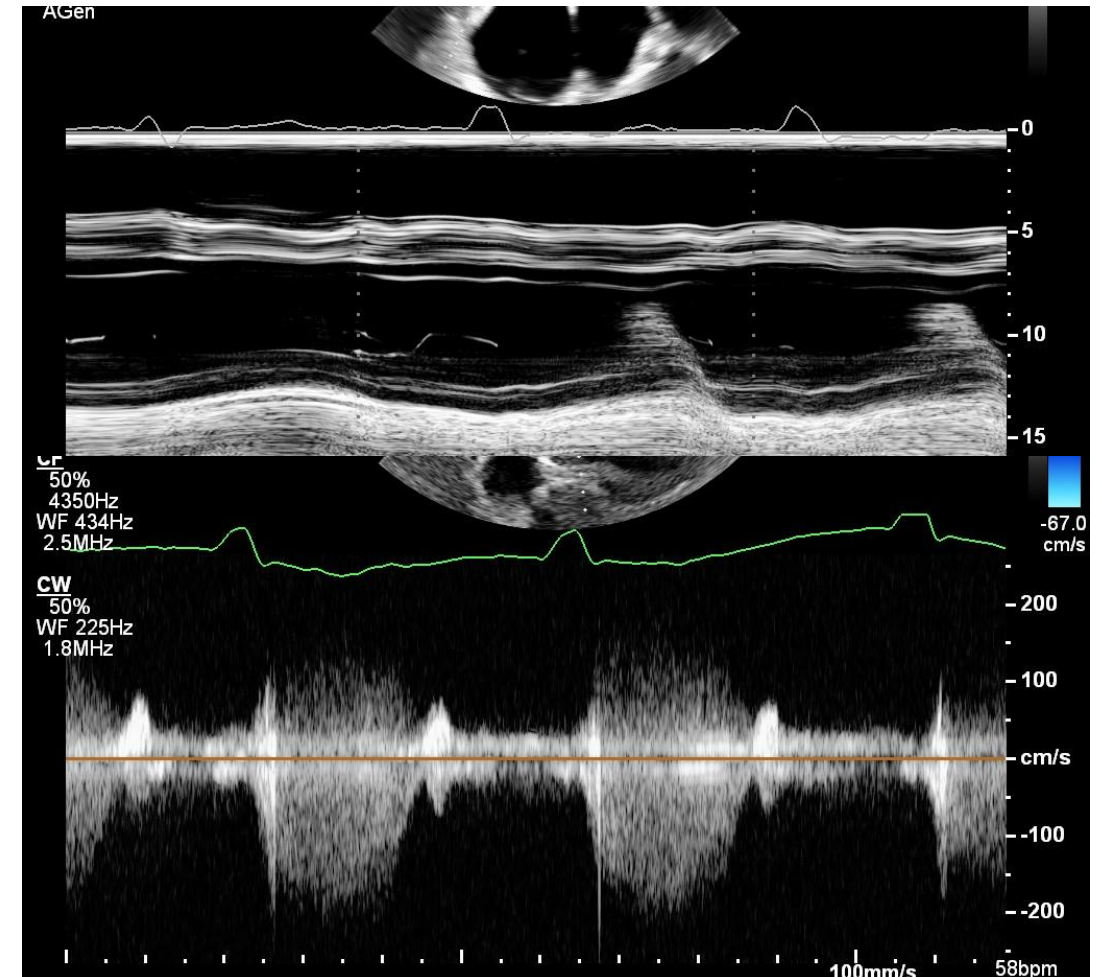




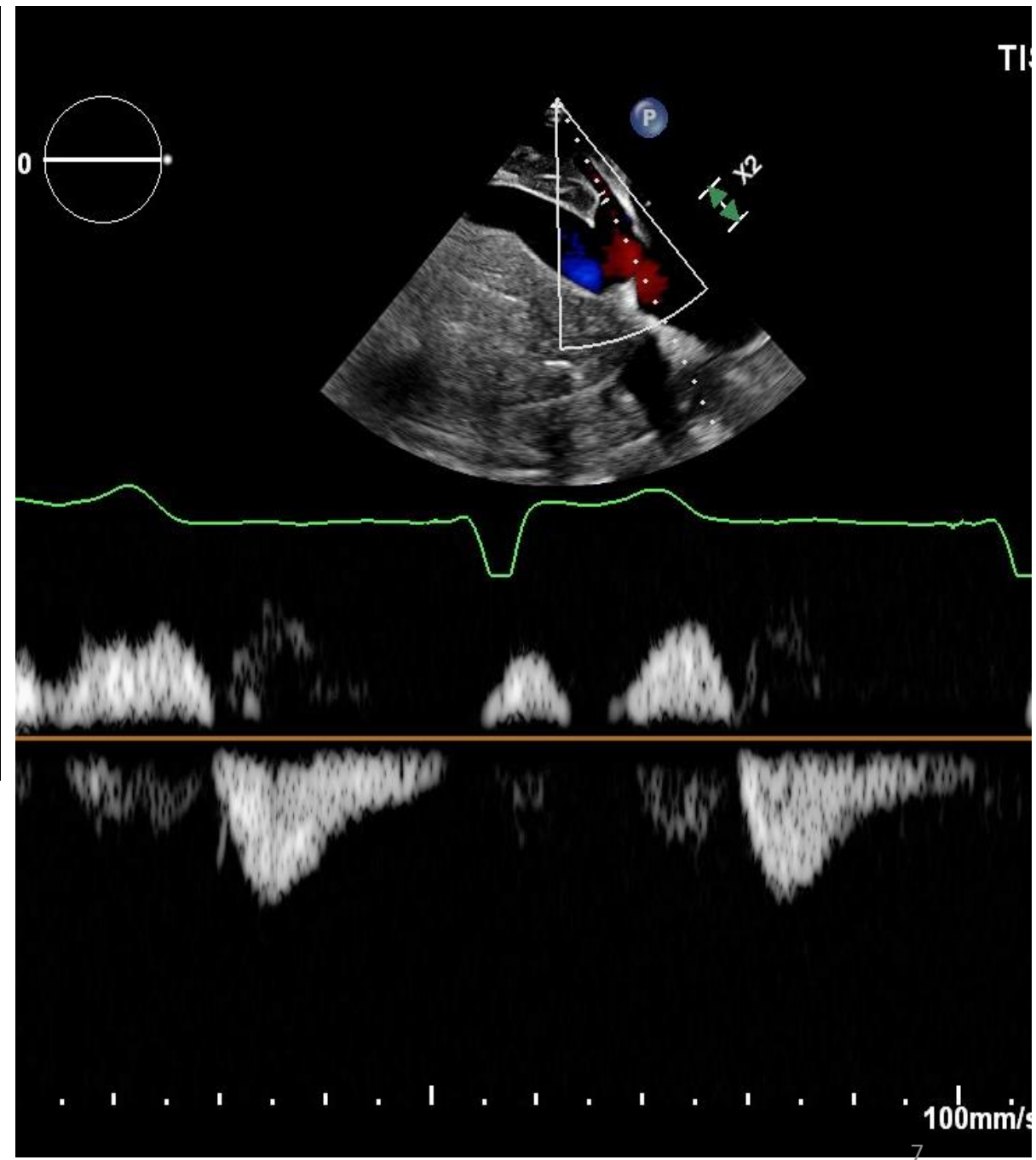
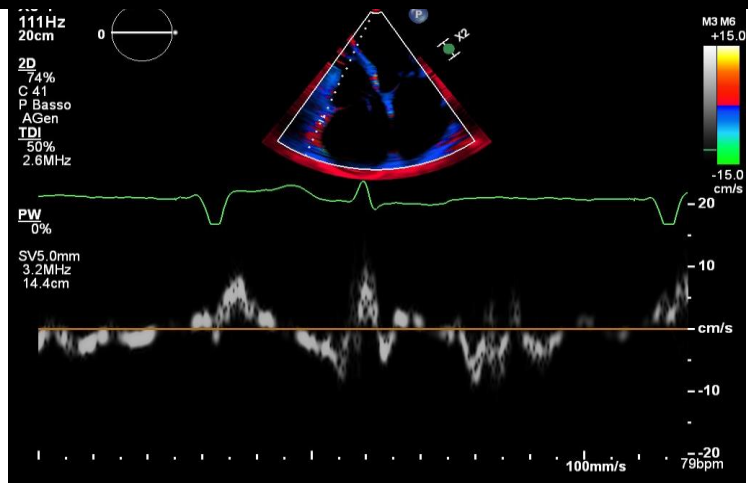
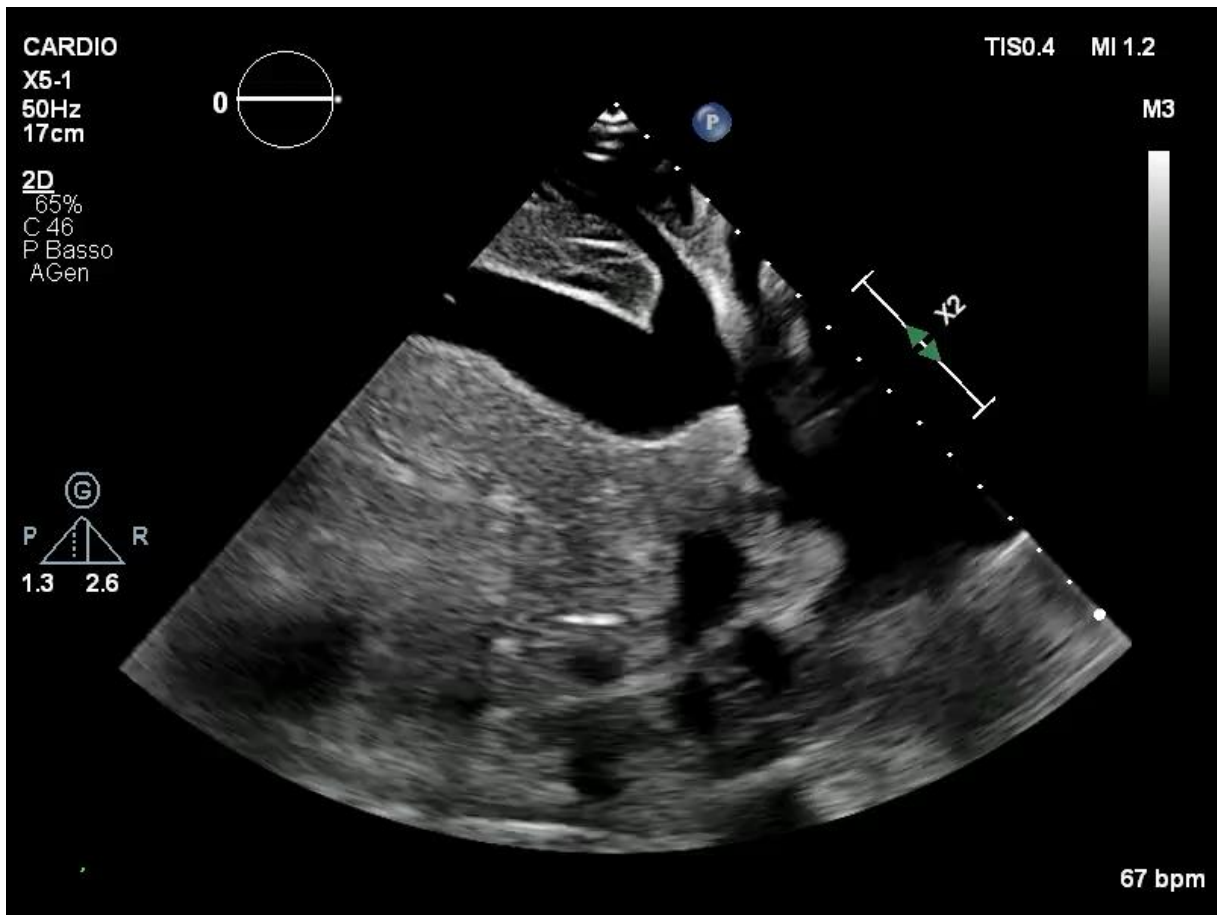


# Multiparametric evaluation of RV function

- Reduced systolic longitudinal RV function (TAPSE 15 mm s' TDI 9.5 cm/sec) with reduced FWLS (-14%)
- Right ventricular to pulmonary circulation uncoupling
- Severe systemic congestion





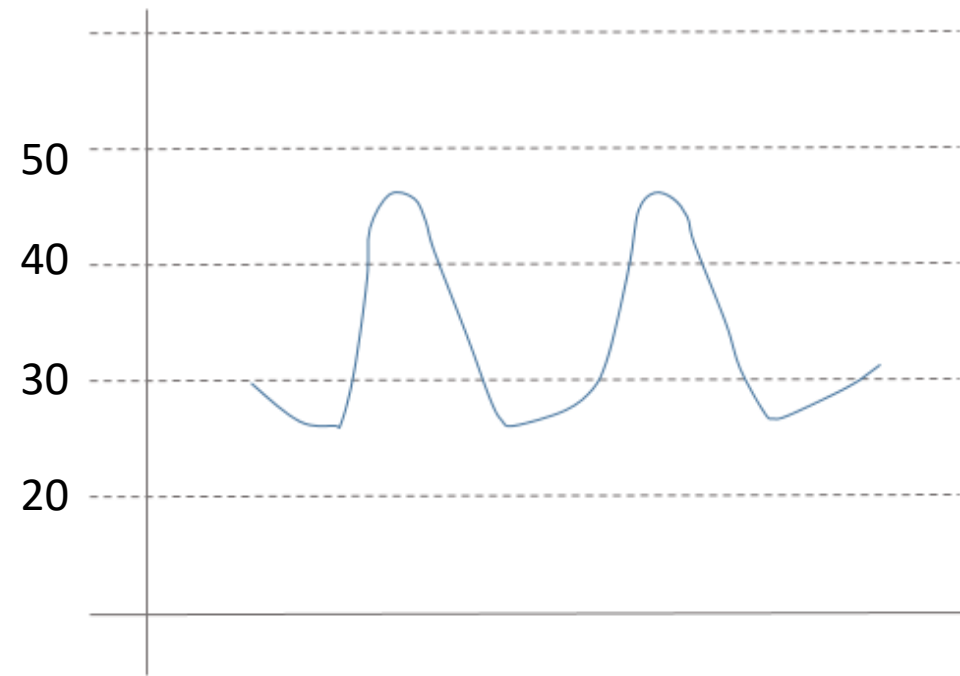



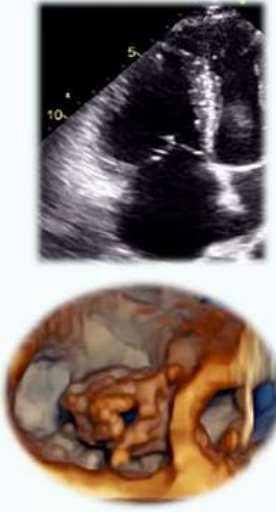

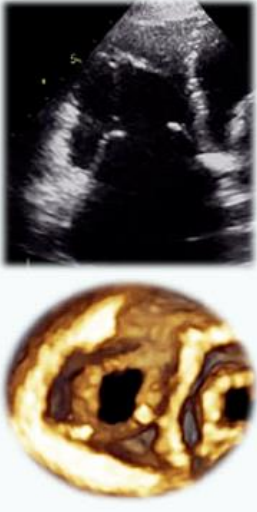




# Right heart catheterization

- Elevated filling pressure (mean RAP 9 mmHg)
- PCWP 18 mmHg
- Increased Pulmonary artery pressure PAP 48/26/32 mm Hg,
- LV end-diastolic pressure was 18 mm Hg
- CI was 2.2 L/min (Fick).



	FUNCTIONAL/SECONDARY		CIED-RELATED	ORGANIC/PRIMARY	
	ATRIAL	VENTRICULAR			
					
Parameter	Atrial FTR	Ventricular FTR	CIED-Related	Primary TR	
				Prolapse (I)	RHD (IIIA)
Leaflet Tethering	-	+++	++	-	-
Leaflet Restriction	-	Systole	Systole/Diastole	-	Diastole
RA/TA Dilatation	+++	++	+/-	++	++
RV Dilatation	+/-	+++	+/-	+/-	+/-
RV Dysfunction	+/-	+++	+/-	+/-	+/-

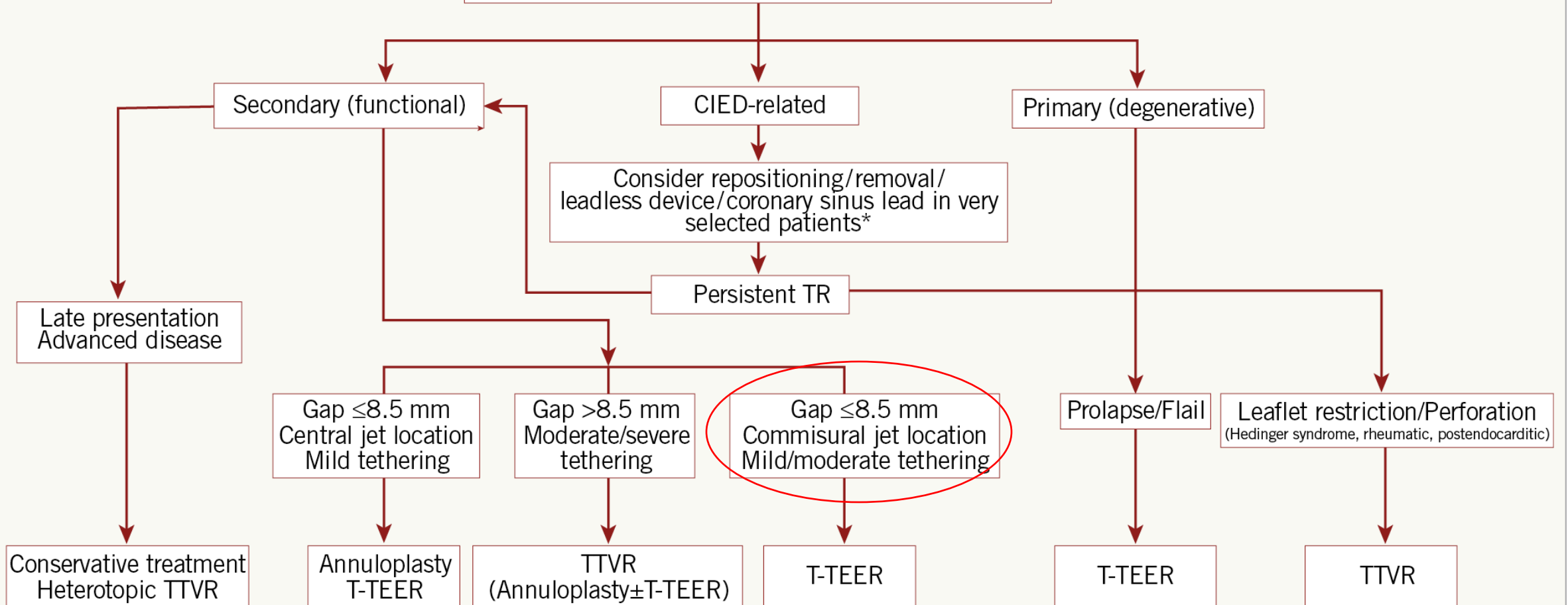


## The case: what we did

- Considering the significant volume overload, the patient was treated with IV diuretic
- Following Heart Team discussion, considering the significant volume overload despite continuous IV diuretics, the reduction of coaptation gap after diuretics, the age and comorbidities a percutaneous repair of the TV was chosen
- Patient was scheduled for T-TEER



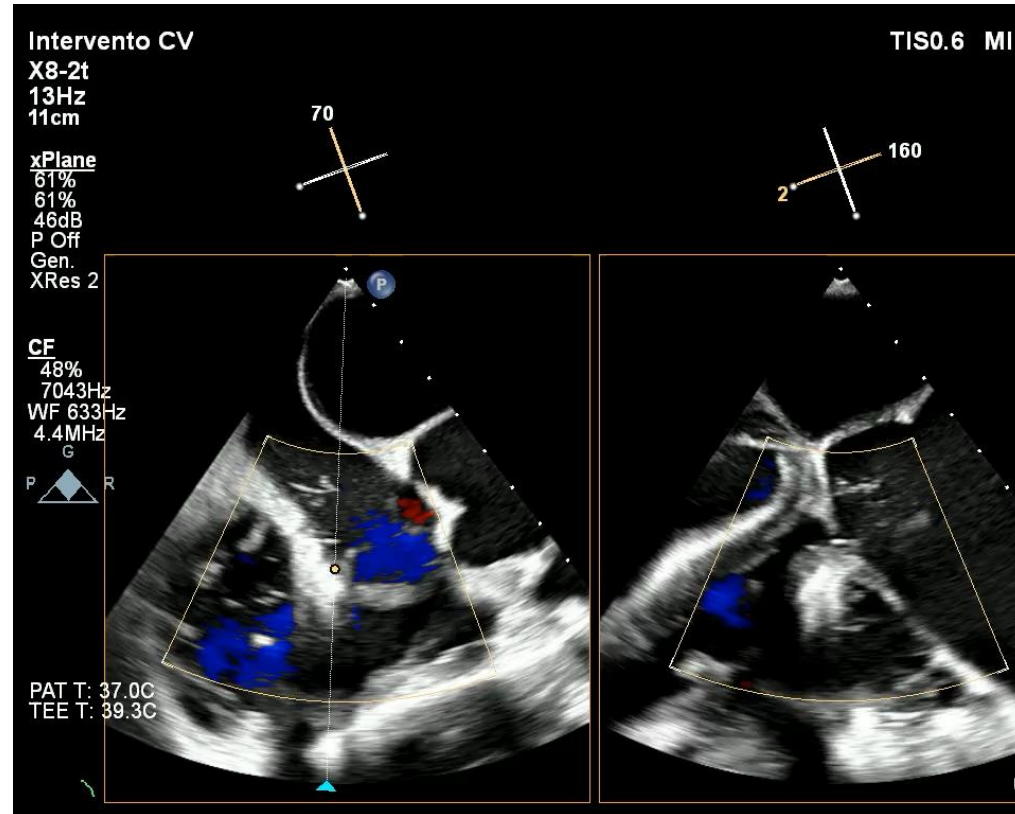
## Symptomatic severe tricuspid regurgitation



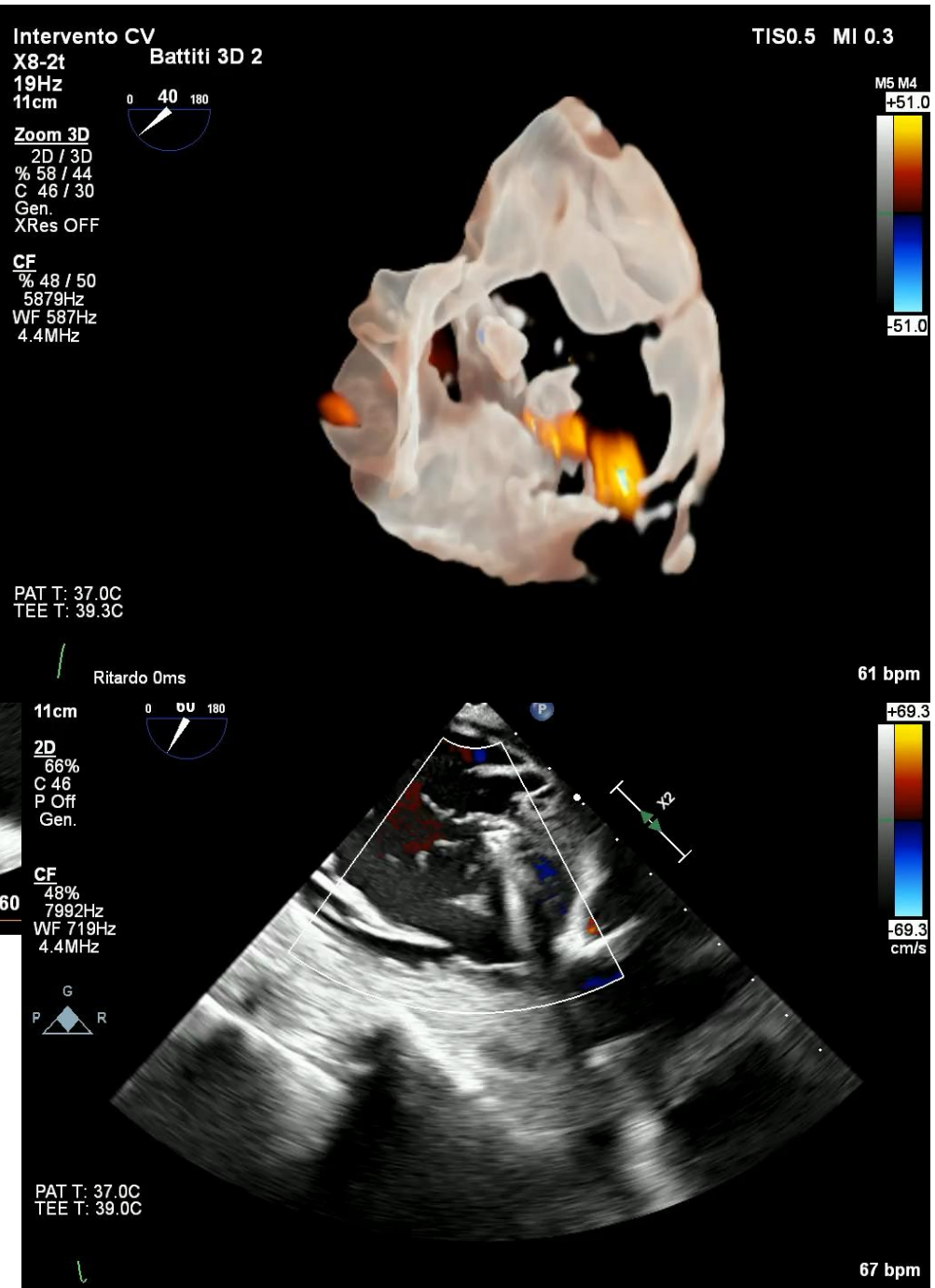
\*cases without true impingement/leaflet attachment require a valve-directed therapy and most cases will not resolve by lead removal only

# The procedure

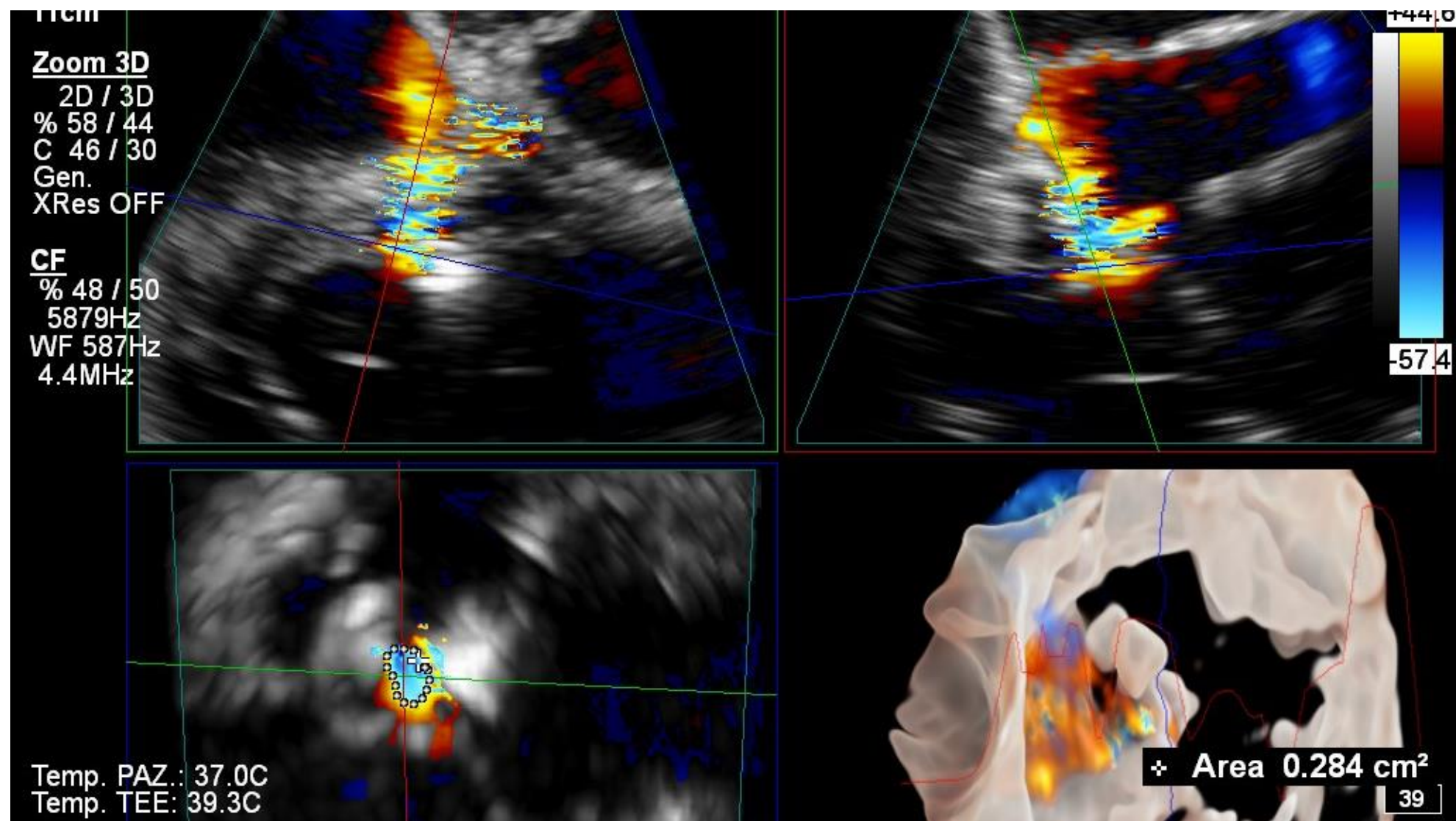
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Single XTW release between the anterior  
and septal leaflet  
Mild residual TR, 1 mmHg medium gradient



2







# The case: after T-TEER in the cath lab

- After T-TEER we documented a severe deterioration of the RV function
- Significant reduction of the biventricular stroke volume
- Systemic hypotension (MAP < 60 mmHg despite the start of inotropic therapy)
- Appearance of significant echocontrast in the left appendage and LA
- Development of pulmonary effusion
- AFTERLOAD MISMATCH??

Intervento CV

X8-2t  
53Hz  
18cm

2D  
61%  
C 46  
P Off  
Gen.



PAT T: 37.0C  
TEE T: 39.1C

TIS0.2 MI 0.5

M5



O.



TIS0.4 MI 1.2

M4



60 bpm

32 bpm

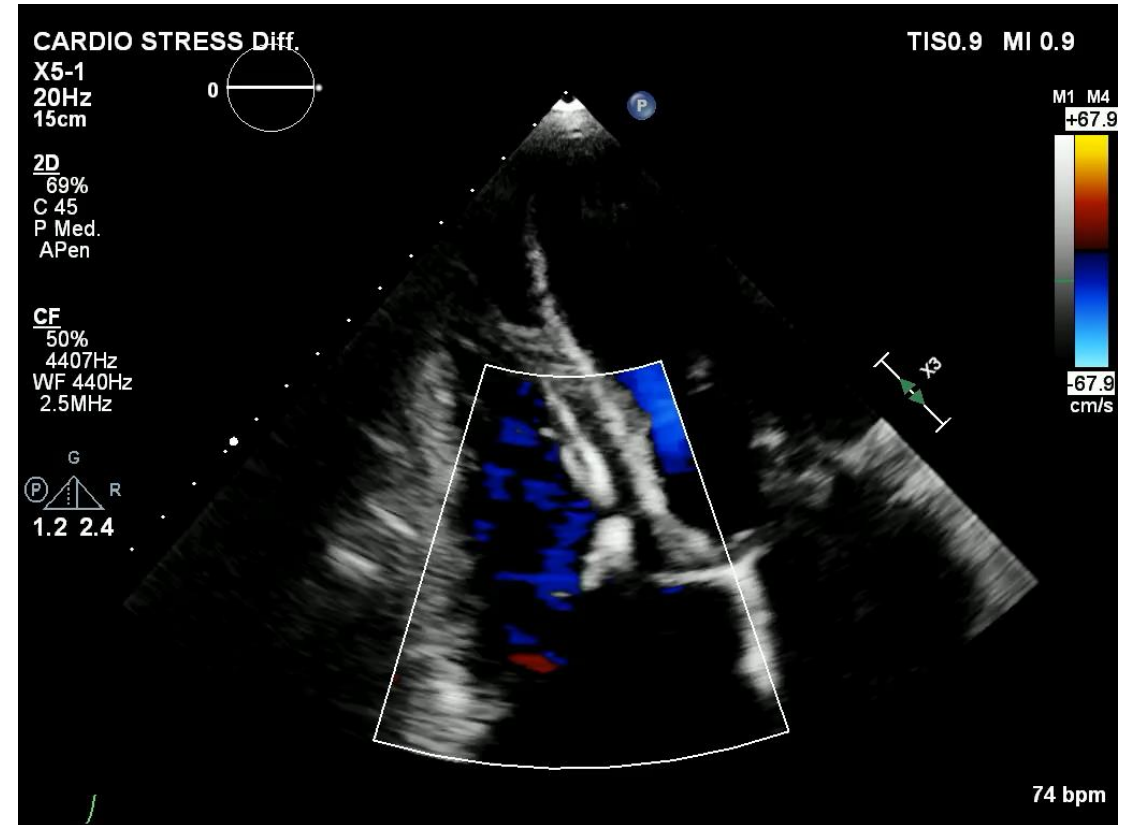
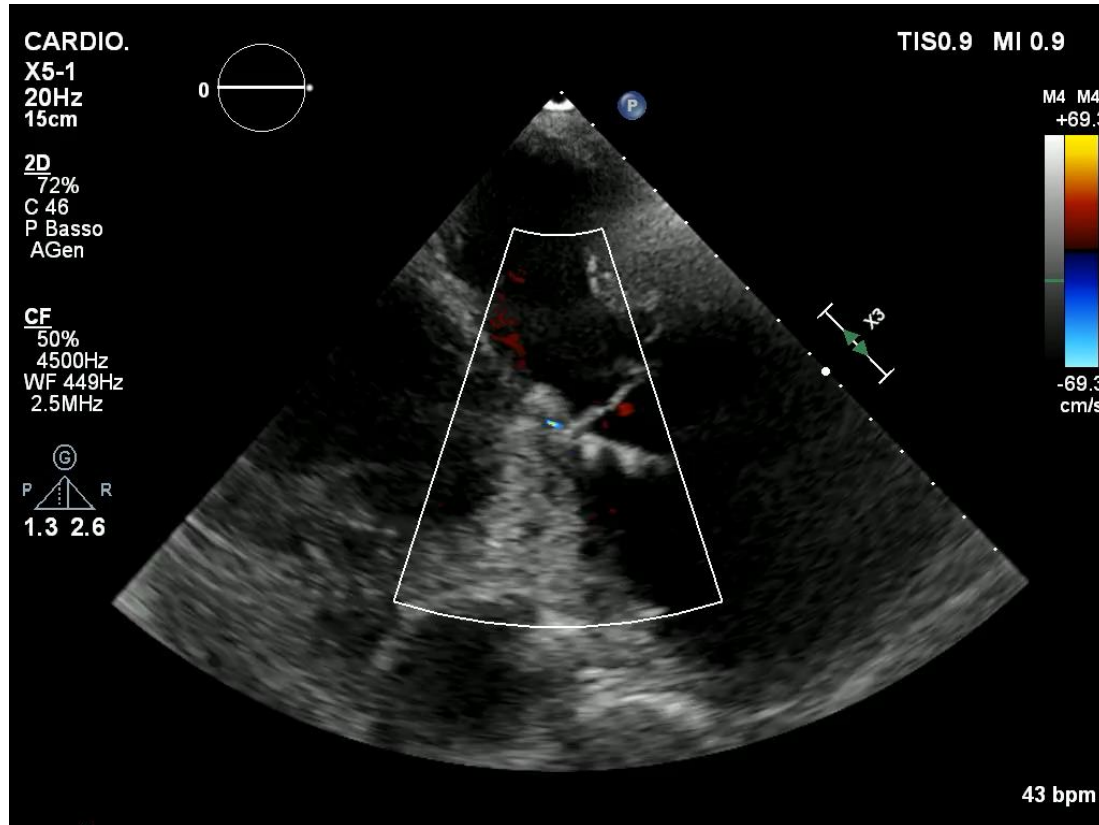


## The case: ICU admission

- Considering the significant biventricular failure and RV afterload mismatch the patient was transferred to CCU
- Dobutamine + IV diuretic and Continuous Positive Airway Pressure were started
- Progressive improvement of the clinical hemodynamic and echocardiographic parameters
- After 3 days in the CCU the patient was transferred to the Cardiac surgery Ward
- After titrating and optimizing MT and a cycle of calcium sensitizer (Levosimendan) the patient was discharged



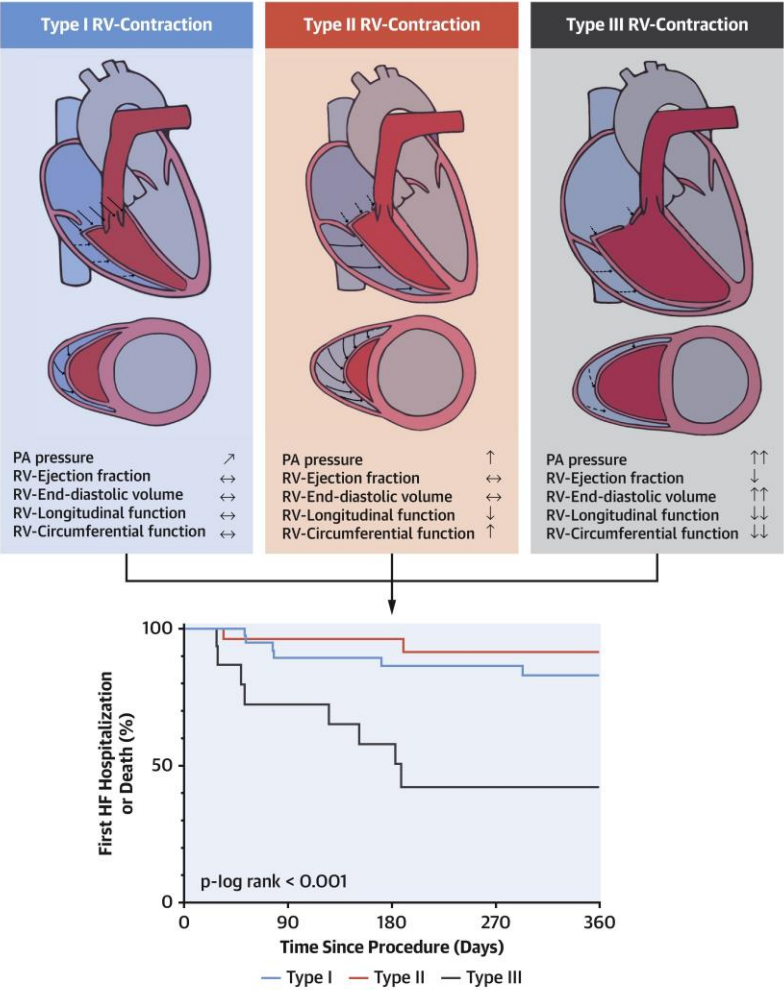
# The case: result



Discharge

3-months FU

**CENTRAL ILLUSTRATION: Features and Prognostic Implications of RV Contraction Patterns in Patients Undergoing Transcatheter Tricuspid Valve Repair**



Kresoja, K.-P. et al. J Am Coll Cardiol Interv. 2021;14(14):1551-61.

**Conclusions**

Global RV dysfunction is a predictor of outcomes among TTVR patients. Tricuspid regurgitation patients can be stratified into 3 types of RV contraction, in which a loss of longitudinal function can be compensated by increasing circumferential function, preserving RVEF and favorable outcomes.



# Conclusion

- Transcatheter TV repair is able to reduce significantly TR regurgitation in functional TR
- The presence of right ventricular dysfunction, even a mild impairment, may trigger hemodynamic deterioration after the reduction of TR
- Multiparametric RV evaluation is pivotal before planning a T-TEER and even more importantly before TTVI





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Thank you for  
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