Case-Based Presentation

David Vancraeynest, MD, PhD, FESC
Institut Cardiovasculaire
Heart Valve clinic
Cliniques Universitaires Saint-Luc
UCLouvain

Nothing to disclose

49 years-old Woman – clinical context

49-year-old woman, **transferred from Algeria** for **heart failure** (lower limb edema and ascites →4L of transudate-type fluid) in the context of **known double valvulopathy**. She reported orthopnea for several months with abdominal discomfort

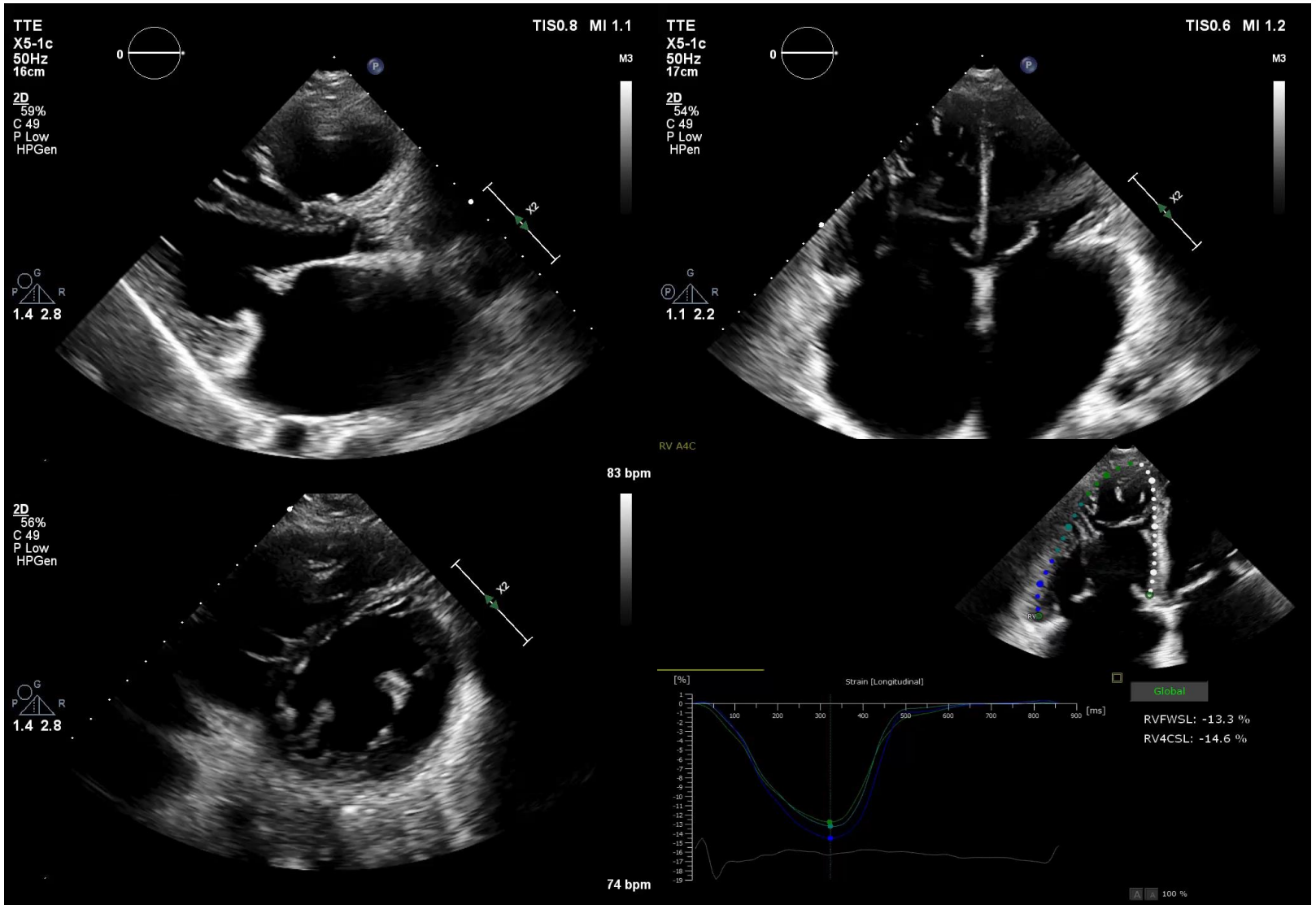
Past history of surgical correction of an atrial septal defect (ostium secundum) 2011

Physical Examination: Blood pressure: 88/56 mmHg, **Heart rate:** irregular, 70-90 bpm; **Weight:** 67 kg. **Height:** 162 cm. Cardiopulmonary auscultation**: systolic murmur** 3/6. **Systemic and pulmonary congestion** (breath sounds with bibasilar crackles, lower limb edema extending up to the flanks).

Laboratory Results : NT-proBNP: **3.805** pg/mL, Creatinine: 0.69 mg/dL; Sodium: **130** mmol/L, Potassium: **3.41** mmol/L; Troponin-T: **37** ng/L

Electrocardiogram: Atrial fibrillation at 70 bpm, RBB

49 years-old Woman – Echocardiography



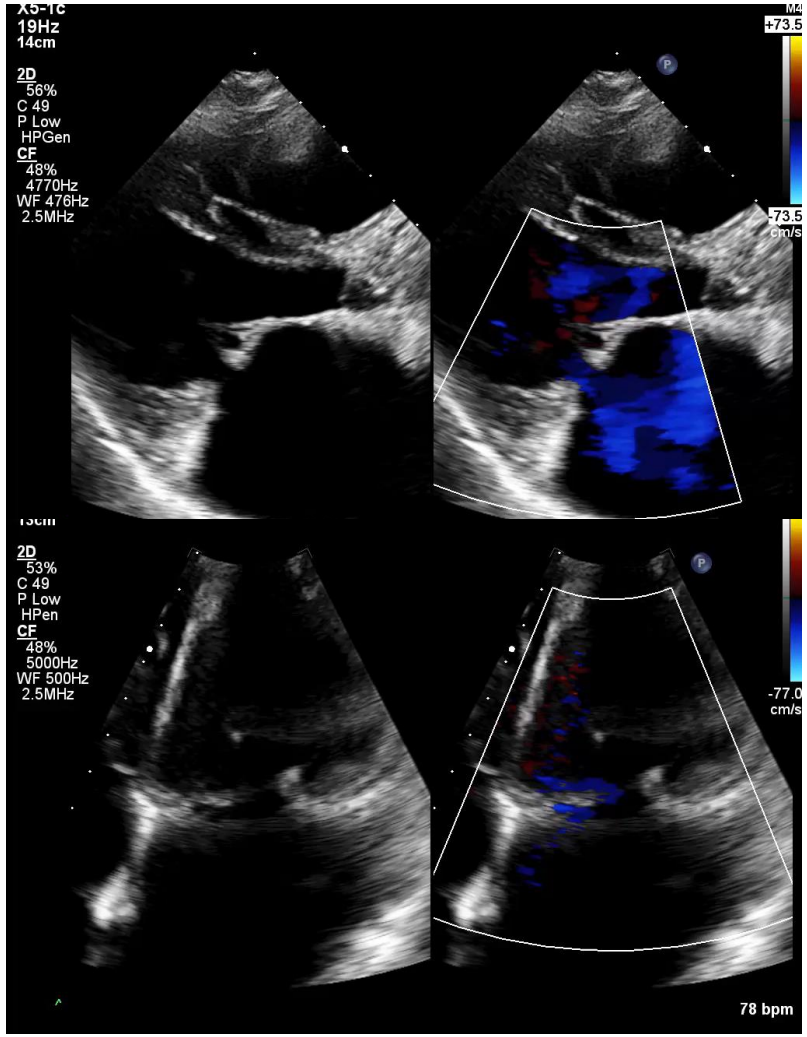
Sligthly **dilated LV**:
ED-Volume: 157 mL (**98 mL/m²**)
ES-Volume: 63 ml
Preserved systolic function: EF: **60**%

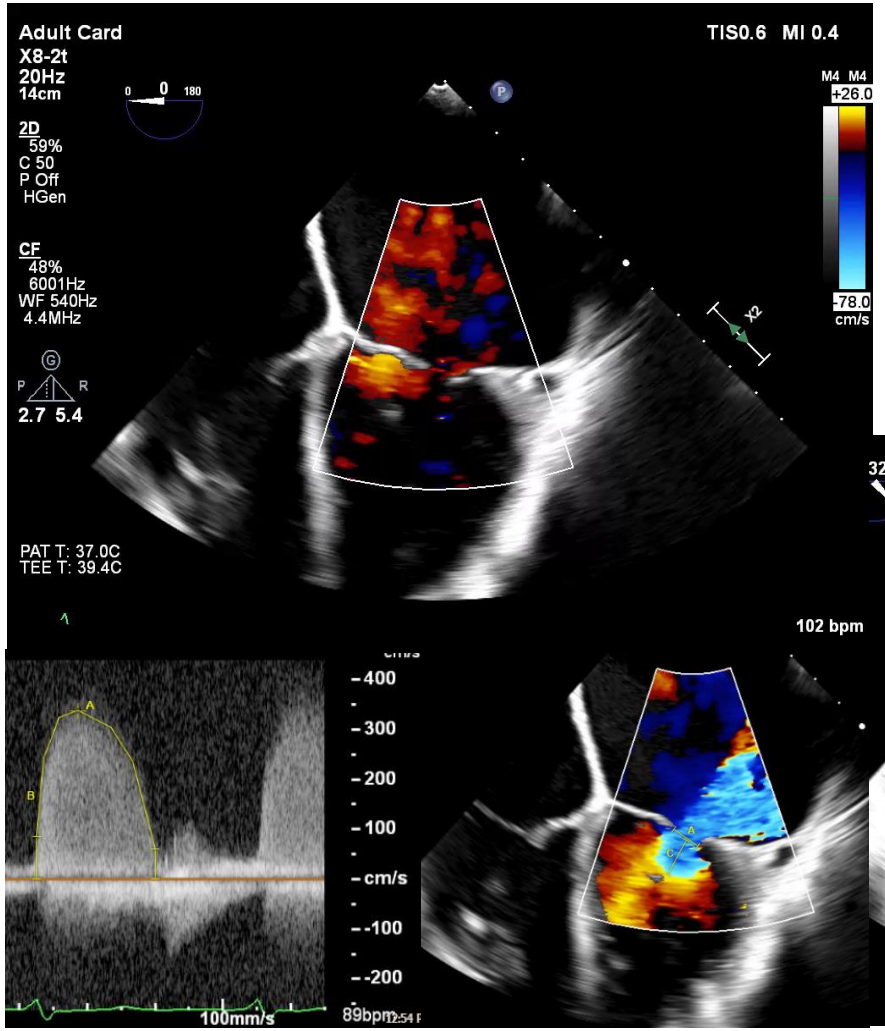
Dilated RV
Reduced RV function: GLS: **-14,6%**

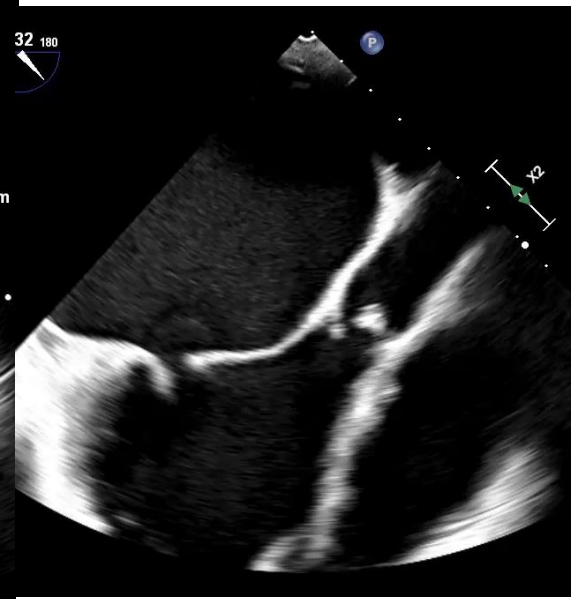
Indirects sign of **Pulmonary hypertension**

Marked **LA and RA dilatation**

49 years-old Woman – Echocardiography





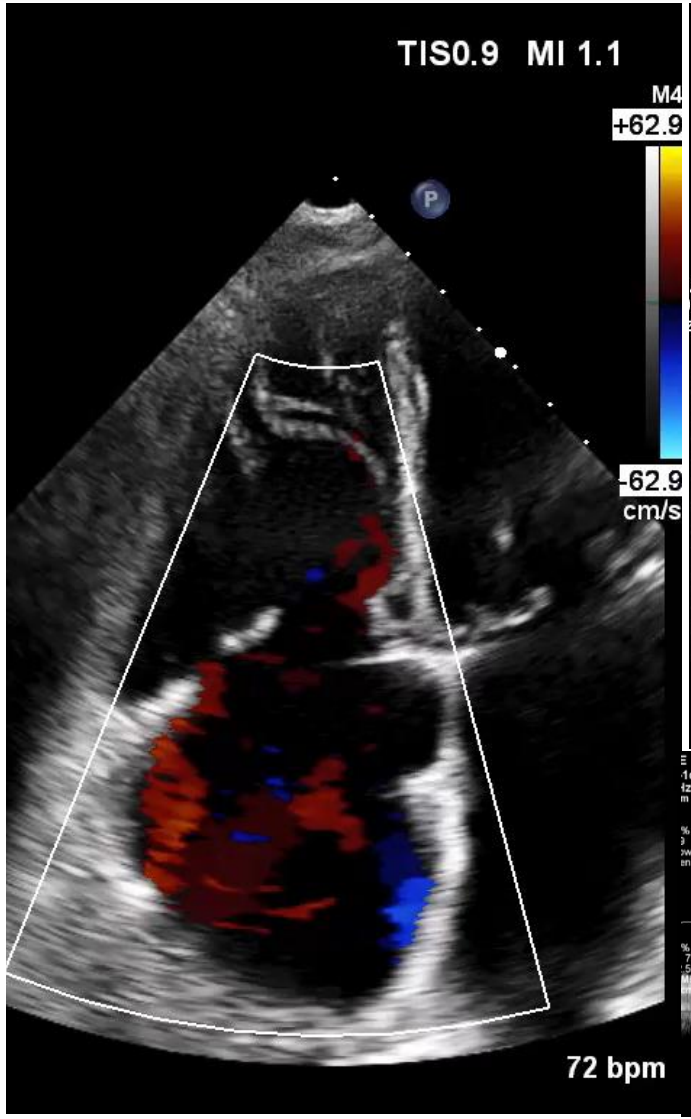


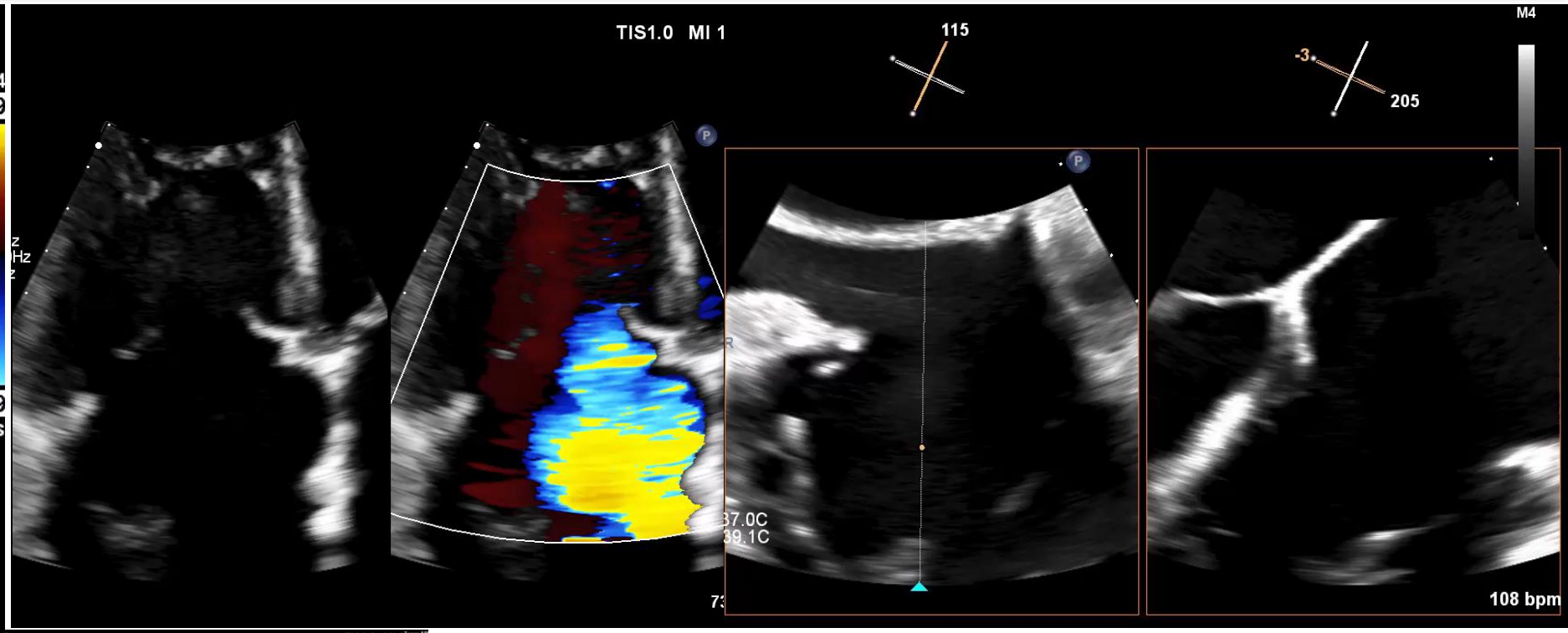
Excentric severe MR
VC: 8,8 mm
ERO: 67 mm²
RVol: 63 mL

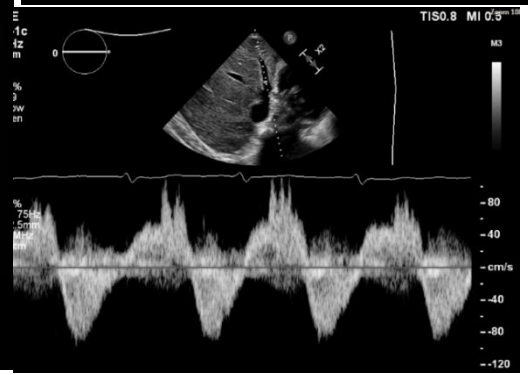
Dilated annulus: 42 mm

Restriction of the posterior (short) leaflet

49 years-old Woman – Echocardiography







Severe/massive TR: VC: 11 mm; ERO: 76 mm²; RVol: 57 mL/beat

Dilated annulus: **47** mm

Backflow in sus-hepatic veins

No residual atrial septal defect

49 years-old Woman – Catheterization

No coronary stenosis

Pressures: PAH group 2

Site	Systolic Pressure (mmHg)	Diastolic Pressure (mmHg)	Mean Pressure (mmHg)
Aorta	87	56	66
Pulmonary Capillary (PCWP)	–	–	**31**
Pulmonary Artery	49	26	**34**
Right Ventricle	54	8	–
Right Atrium	–	–	21

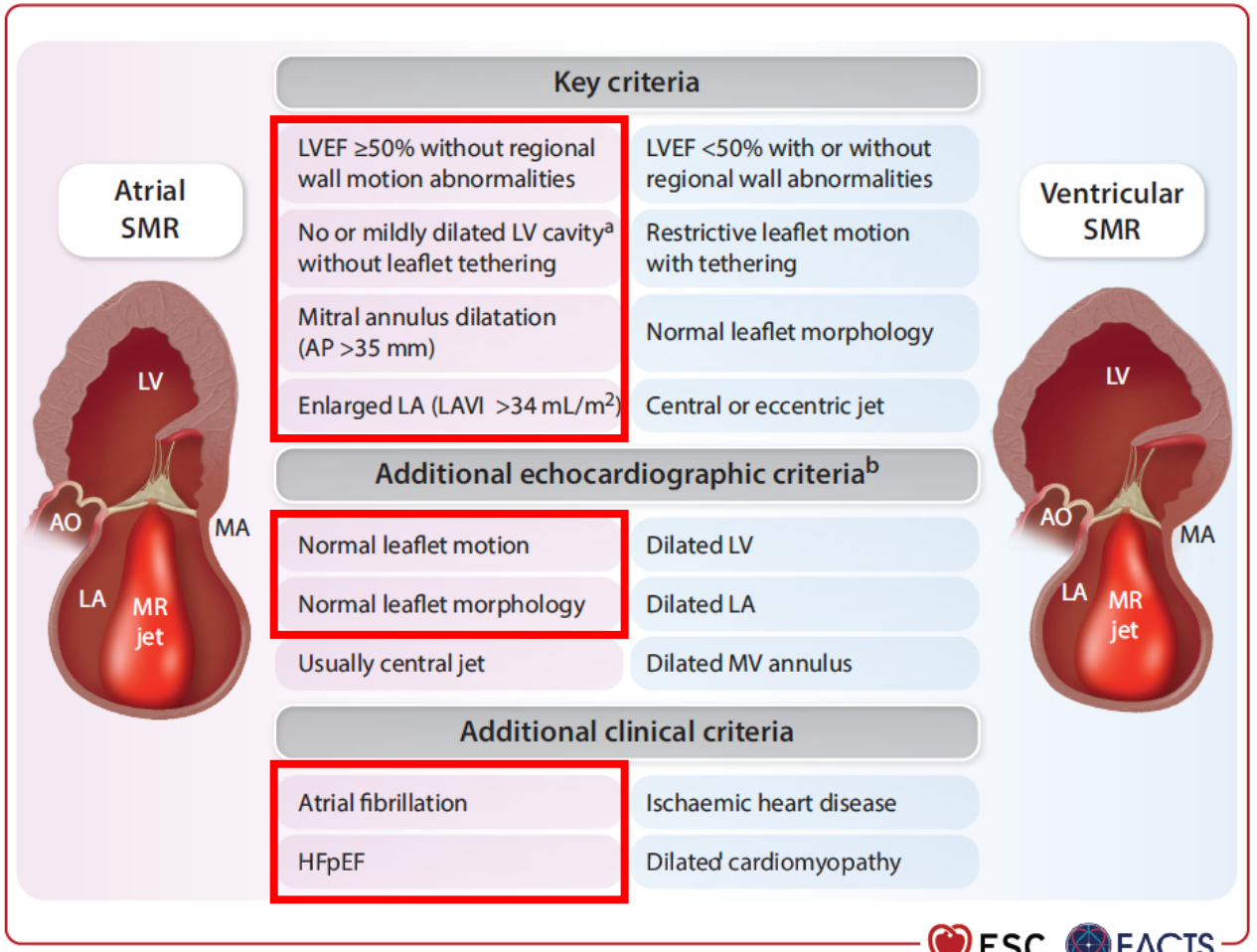
Cardiac output: **3,2** L/min

49 years-old Woman – Therapeutic decisions

Atrial septal defect → Afib → aSMR + aSTR

Heart failure management:

IV loop diuretics transitioned to oral, achieving 10 kg weight loss (67→57 kg): ***MILD EFFECT*** on MR or TR



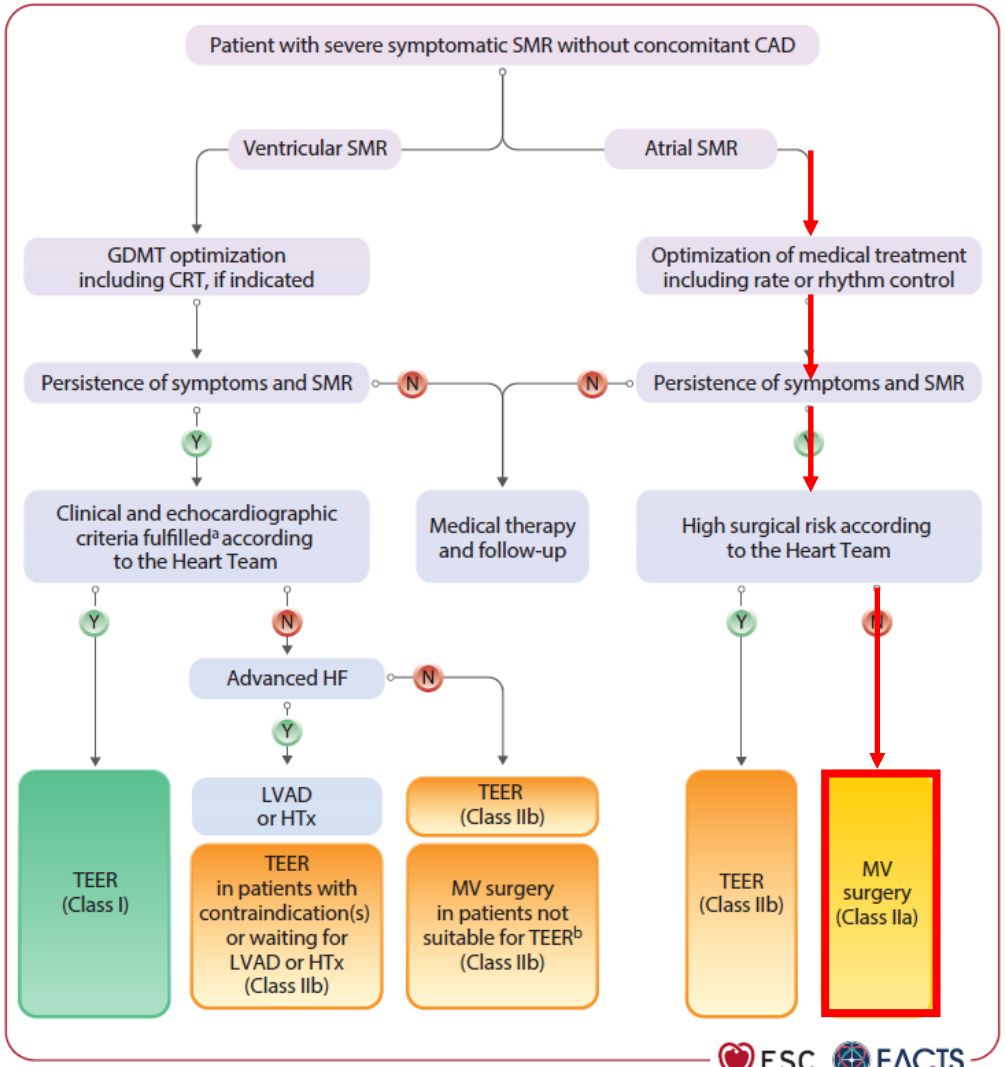
2025

49 years-old Woman – Therapeutic decisions

Atrial septal defect → Afib → aSMR + aSTR

Heart-Team decision: Surgical management: double surgical repair

EuroSCORE II: 5,06%
TriSCORE: 4/12 (8% risk)



2025

49 years-old Woman – Therapeutic decisions

Atrial septal defect → Afib → aSMR + aSTR

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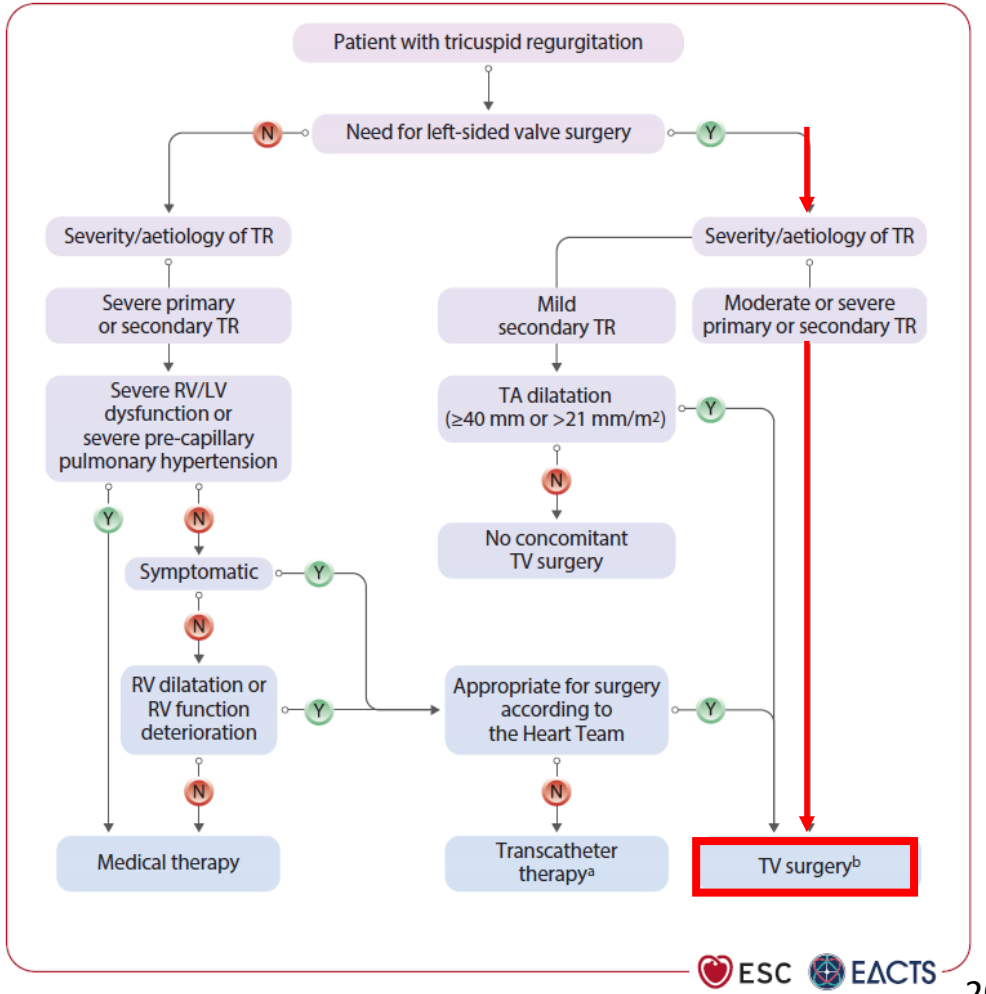
Protocol:

Mitral valve analysis: **markedly dilated annulus but flexible leaflets, the valve was not rheumatic.** Implantation of a 30 mm Physio I mitral ring.

Severely dilated tricuspid annulus. Annuloplasty with a 30 mm Contour 3D ring, with one 2-0 Tycron stitch between the two edges of the annulus to reduce the antero-septal length



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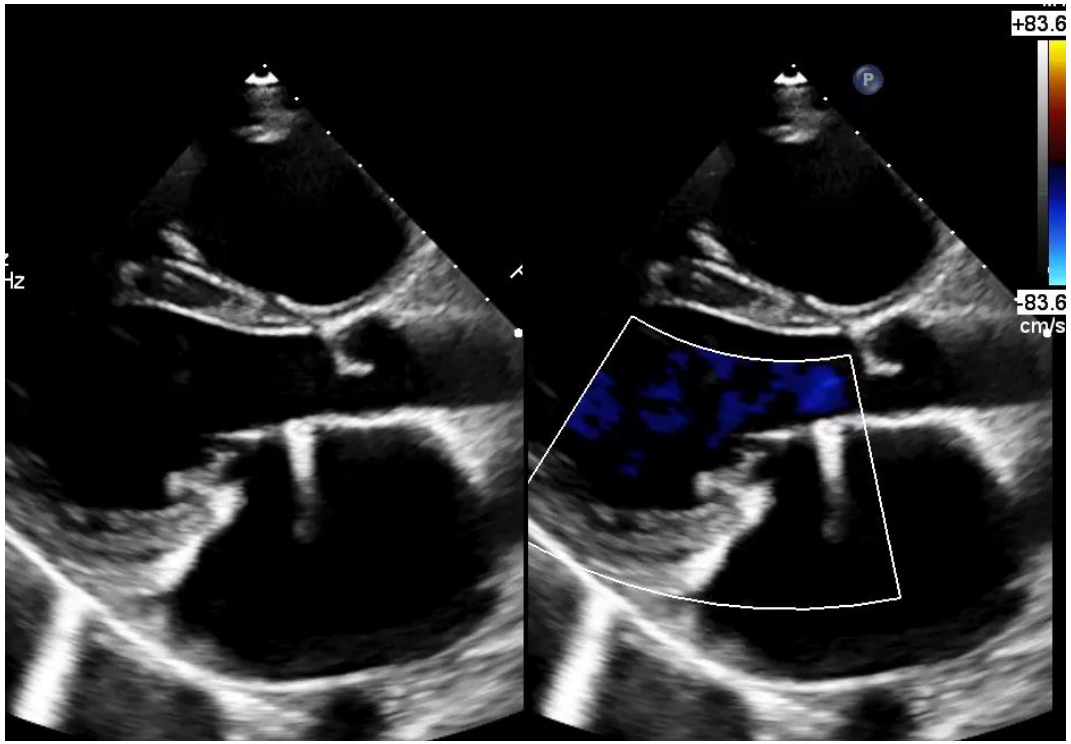
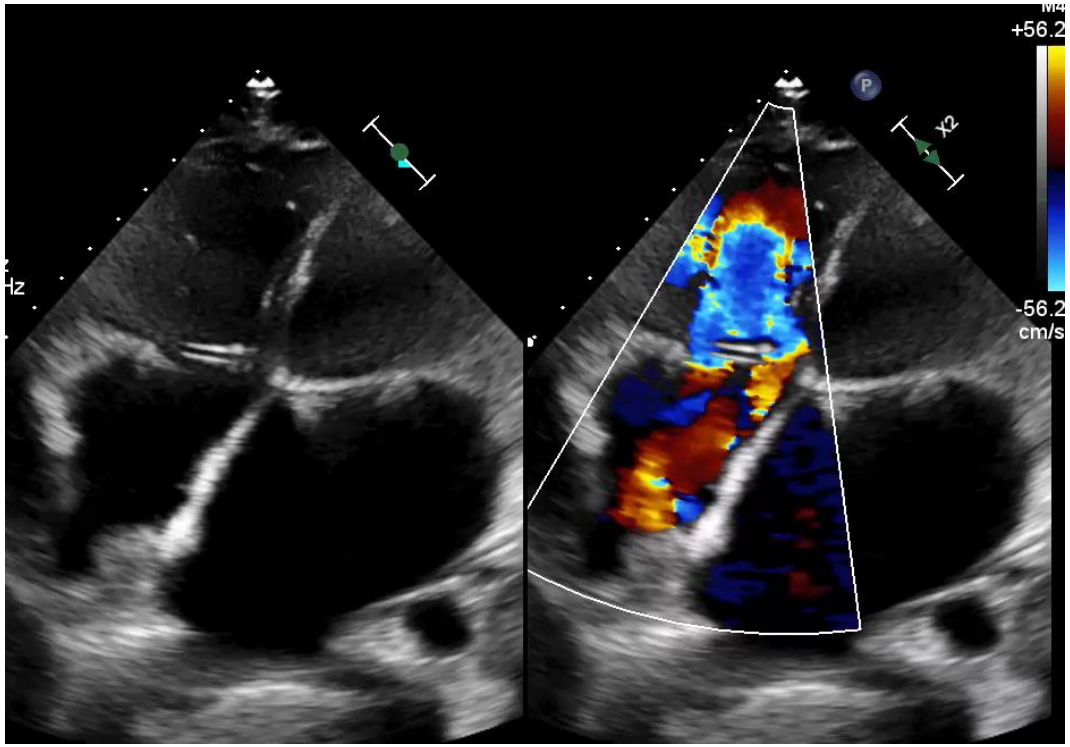
49 years-old Woman – Post-op





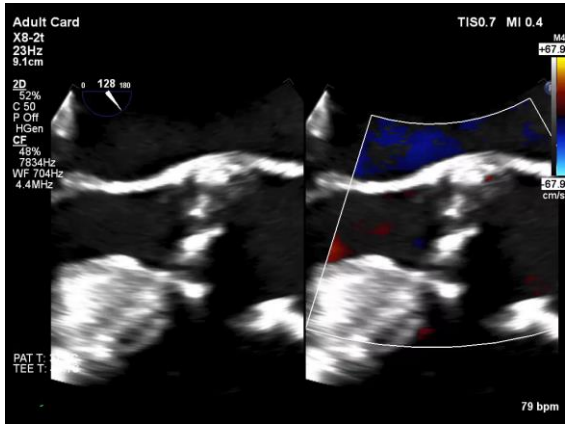
1 year F-up: the patient is doing well

89 years-old Woman – Clinical context

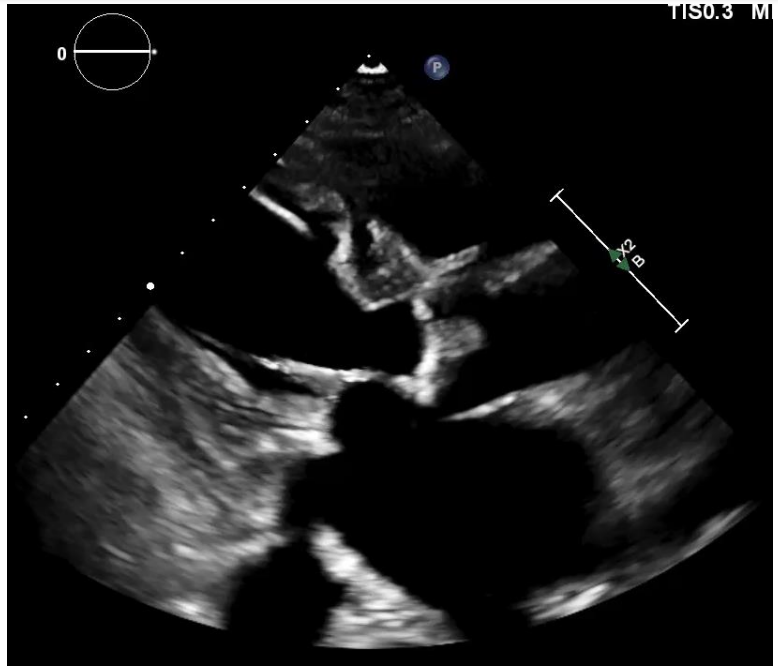
- **Past History:** Hypertension
- **Symptoms:** →outpatient clinic for angina pectoris + NYHA class II–III dyspnea
- **Physical examination**: Height: 160 cm, Weight: 53 kg, BSA: **1,54** m^2, Systolic murmur w/o second heart sound (S2), BP: 110/69 mmHg
- **Laboratory Results:** NT-pro-BNP: **975** pg/mL (expected <738 pg/mL); creatinin: 0,83 mg/dL.
- **ECG:** normal

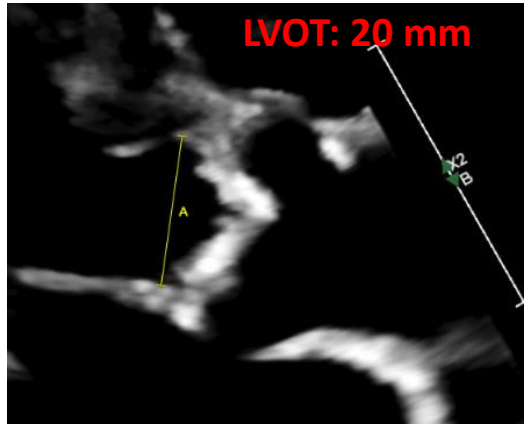
89 years-old Woman – Echocardiography

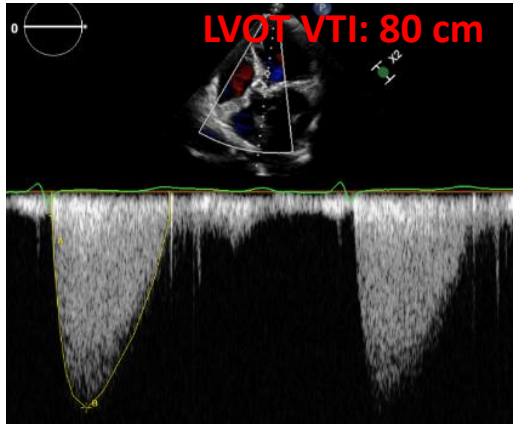
- **Severe paradoxical low flow, low gradient AS**:
  - V_{max}: **3,8** m/sec
  - Mean gradient: **31** mmHg
  - AVA: **0.55** cm^2 → **0,36** cm^2/m^2
  - Flow: **29** mL/m^2

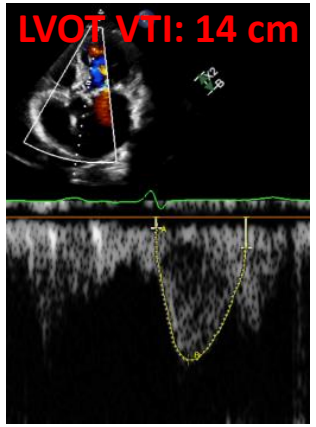


Why a low-Flow status?



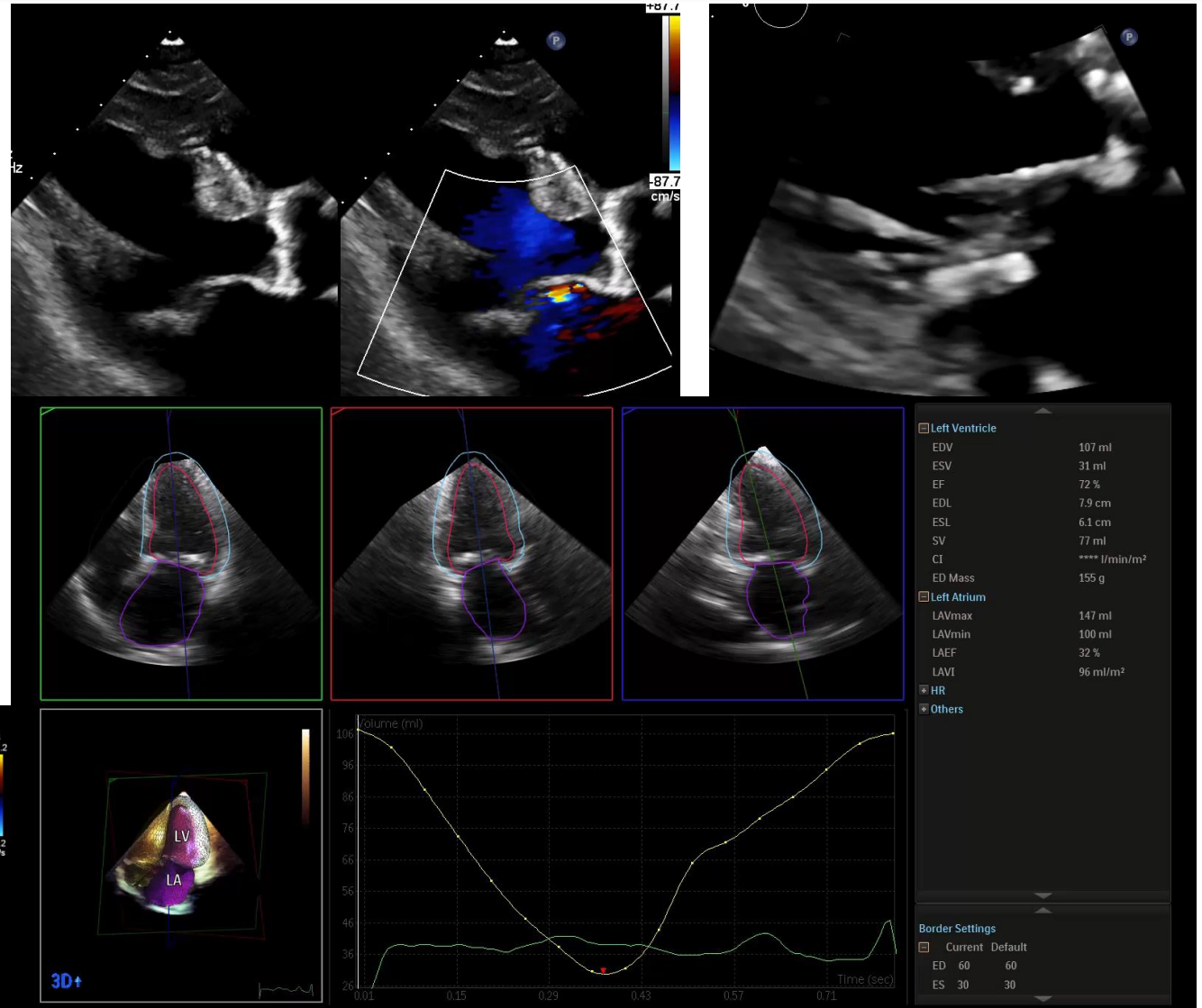


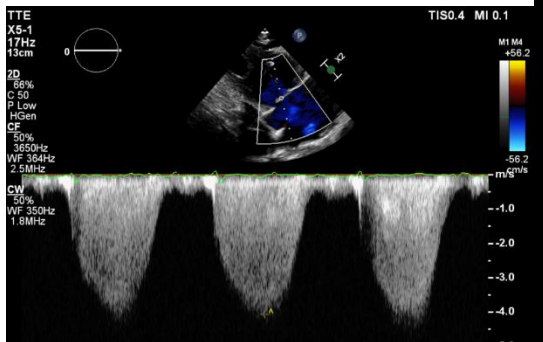




89 years-old Woman – Echocardiography

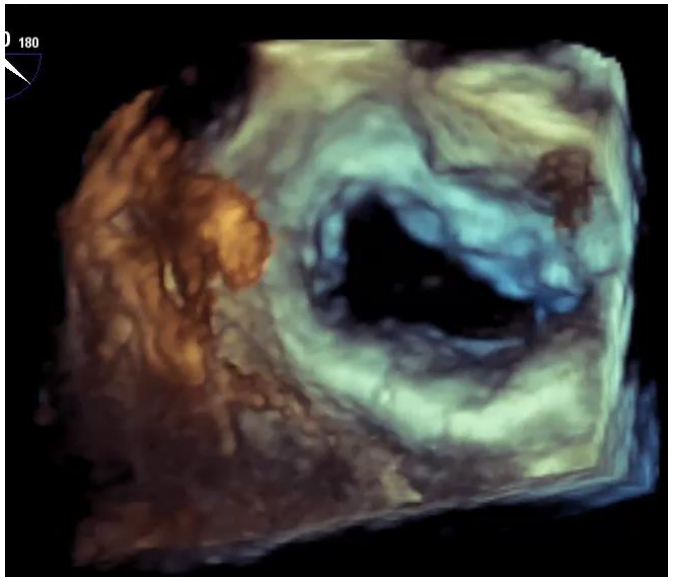
- **LVEF**: 72%
- **Posterior mitral valve prolapse (P3)** with chordae rupture causing significant eccentric regurgitation (ERO: **0.37** cm^2, regurgitant volume by PISA: **56** ml)
- Left atrial enlargement
- **Pulmonary hypertension** (systolic pressure > **74** mmHg)

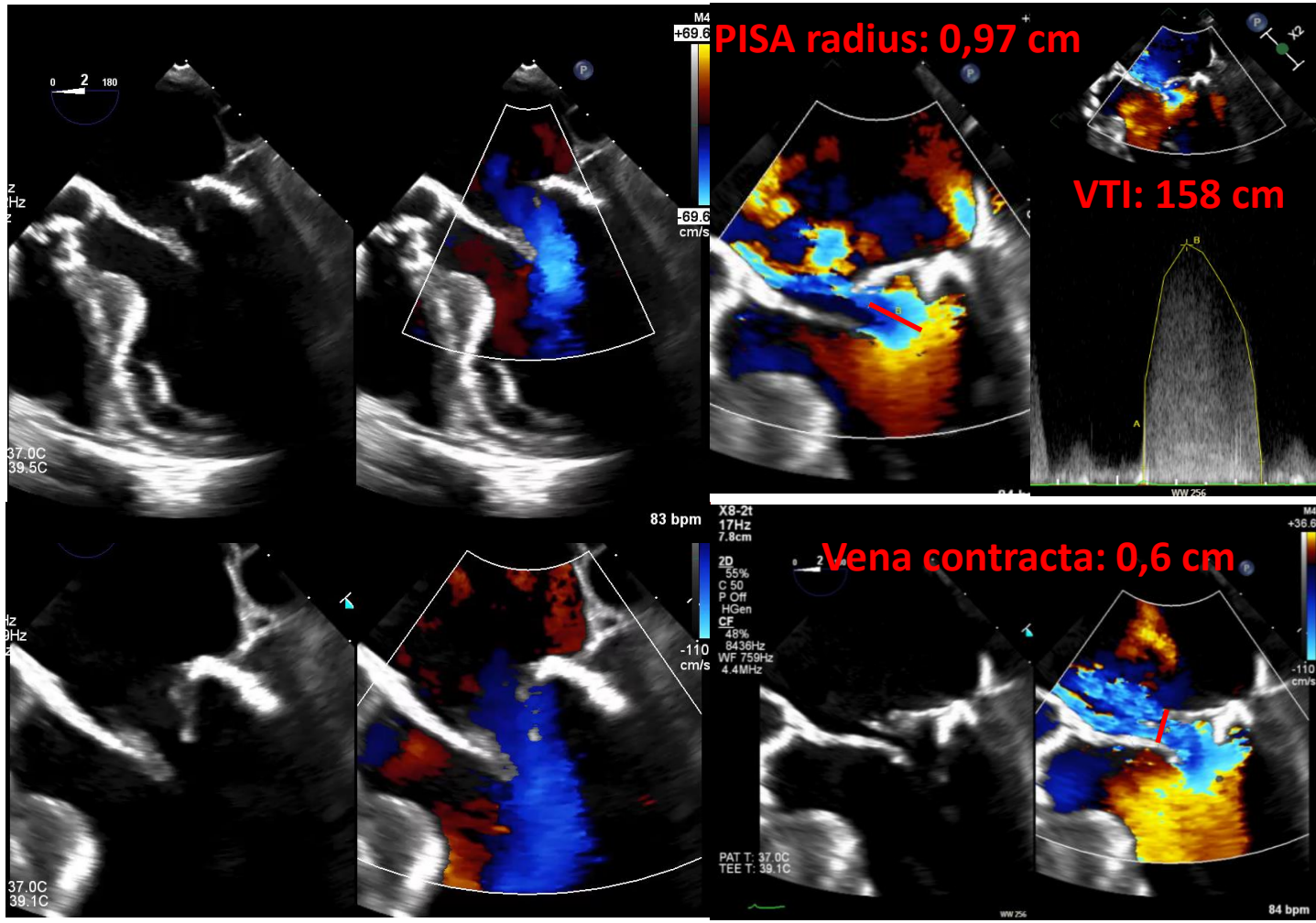




89 years-old Woman – Echocardiography

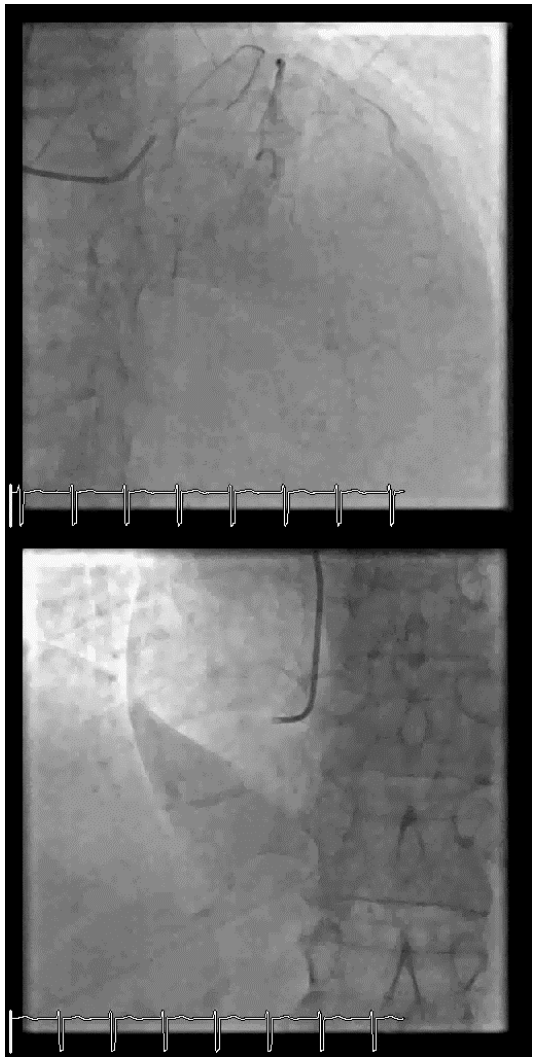
- Mitral annulus calcifications
- ***Posterior mitral valve prolapse (P3)*** with chordae rupture causing significant eccentric regurgitation (ERO: **0.37** cm², regurgitant volume by PISA: **56** ml)





89 years-old Woman – Heart Team evaluation

- **Coronary angiography:** Coronary arteries without significant lesions
- **Carotid Doppler ultrasound:** No stenosis
- **CT angiography:**
  - Calcium score: **1563**
  - Annulus measurements: diameter 20 × 27 mm (23.5 mm), area: 413 mm^2, perimeter: 74 mm
  - Coronary height: LMCA: 16 mm, RCA: 20 mm
  - Sinus diameter: 33–32–32 mm
  - **Vascular access: transfemoral access OK**
- **Geriatric assessment:** SHERPA: 5, **Clinical Frailty Scale: 3**: no contraindication to performing TAVI
- **STS score:** 8.99% / EuroSCORE II: 3,6%



89 years-old Woman – Heart Team decision

HEART TEAM DECISION :

Severe aortic stenosis + symptomatic severe mitral regurgitation

« According to Heart Team opinion and ESC guidelines, the patient was not eligible for surgical aortic valve replacement »

Staged procedure:

→First the downstream lesion: Percutaneous aortic valve replacement (TF-TAVI)→ Evolut FX 29

→after TAVI : reassess the mitral regurgitation (3 months) → indication for TEER? (work in progress…)

Multiple-VHD

- Multivalvular diseases are often complex and undertreated
- They can affect both young and older patients, and their prevalence is expected to increase
- Assessment is often challenging, as the hemodynamic impact of one valvular lesion can influence the evaluation of the other lesion through changes in preload or afterload
- Surgical risks are higher and, in some cases, encourage the consideration of staged procedures. However, the level of evidence remains limited

Thank you