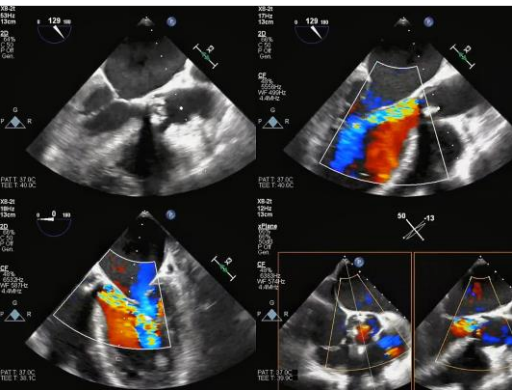


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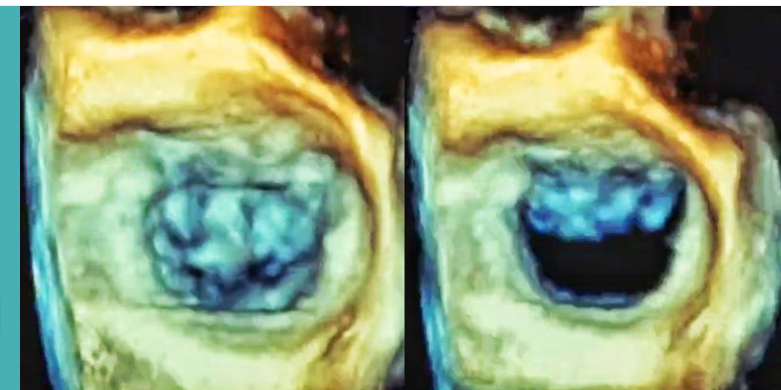


Clinical Presentation & Diagnostic Challenge

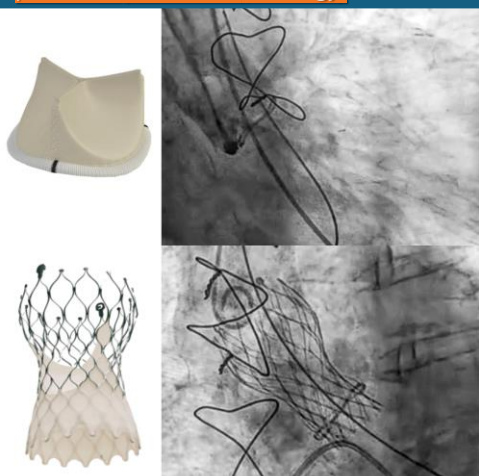
79-year-old woman with previous CABG and surgical AVR with a **21-mm Trifecta bioprosthesis**, admitted for **acute decompensated heart failure** and severe **dyspnoea** (BNP 15,369 pg/mL).

TTE showed signs of systemic congestion, **LVEF 45%**, **moderate prosthetic aortic stenosis** (mean gradient 18 mmHg), **severe aortic regurgitation** (PHT <200 ms), moderate primary mitral regurgitation due to fibrotic degeneration and prolapse of the A2 scallop of the anterior mitral leaflet.

TTE could not reliably distinguish an **intraprosthetic from a paravalvular regurgitation**, leaving the mechanism of prosthetic dysfunction unresolved.



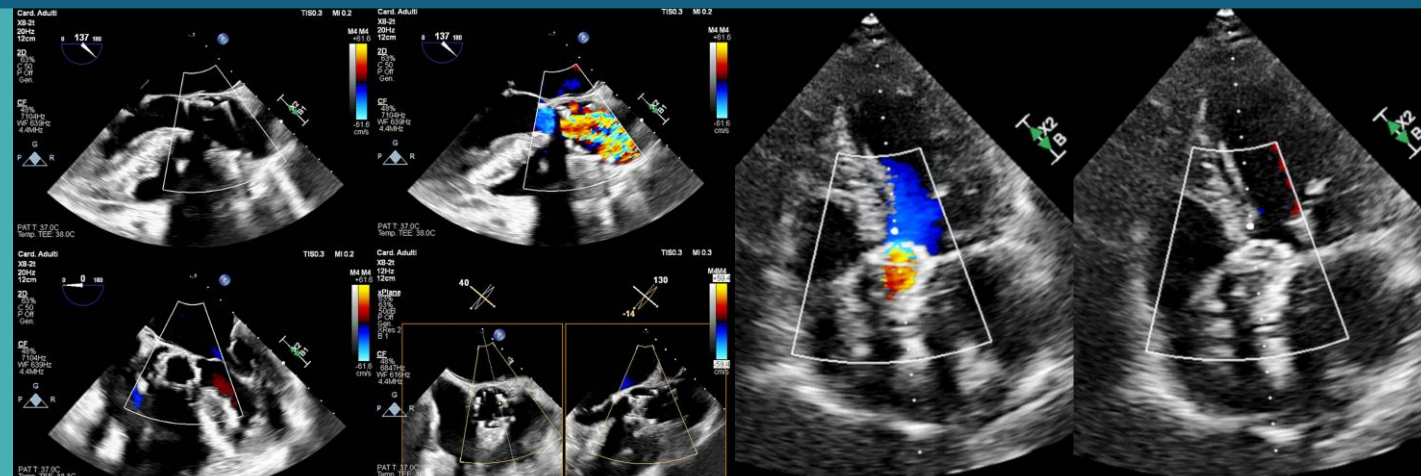
TEE provided the key diagnostic information demonstrating fibrosclerotic degeneration with thickened and hypomobile bioprosthetic leaflets and confirming a **mixed structural valve degeneration: moderate prosthetic stenosis with severe intraprosthetic aortic regurgitation** (VC 9 mm; PHT 180 ms; ROA 0.9 cm²). TEE therefore identified the **mechanism of prosthetic failure**, distinguishing structural leaflet degeneration from alternative causes such as paravalvular regurgitation or prosthetic thrombosis. Based on imaging findings, clinical status, previous cardiac surgery and overall surgical risk, the **Heart Team selected ViV-TAVI as the preferred treatment strategy**.



ViV-TAVI & Clinical Outcome

A **23-mm Evolut FX** self-expanding transcatheter valve was successfully implanted within the degenerated **21-mm Trifecta** bioprosthesis. Post-procedural echocardiography showed correct valve positioning, no significant paravalvular leak, marked reduction of regurgitation and satisfactory transvalvular haemodynamics.

At **9-month follow-up**, the patient remained asymptomatic, with **no HF rehospitalizations or major cardiovascular/valve-related events**. TEE demonstrated stable valve position, preserved leaflet mobility and no significant transvalvular or paravalvular regurgitation.



Multimodality echocardiography was pivotal for diagnosing structural valve degeneration and for defining its mechanism, guiding Heart Team decision-making and supporting successful ViV-TAVI planning.