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Rescue Without Redo Surgery: Transcatheter Valve-in-Valve Replacement for Degenerated Tricuspid Bioprosthesis

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Introduction: Transcatheter tricuspid valve replacement (TTVR) is an emerging procedure for the treatment of severe degeneration of biologic prostheses, especially in the setting of high surgical risk. Durability remains a concern, with risks of structural degeneration, obstruction, or severe regurgitation. Based on the limited literature, valve-in-valve (ViV) TTVR seems to be a valid option in such cases[1].

Case report: 71-year-old female who previously underwent implantation of a bioprosthetic valve (St. Jude Biocor Mitral 33 mm) in 2014 for severe tricuspid regurgitation (TR) due to Ebstein anomaly presented to our Department in April of 2026 for an acute heart failure episode, mostly with symptoms of low cardiac output. In 2023, she had repeated left-sided acute heart failure episodes for which she was treated in our Clinic. Diagnostic work-up revealed severe mitral regurgitation (MR), predominantly due to posterior cusp restriction and annular dilatation. The biologic tricuspid prosthesis was functioning properly. The Heart team decided on transcatheter edge-to-edge repair (Mitraclip) due to comorbidities including multiple sclerosis, and she was implanted with 1 clip with a good result (**Figure 1**). Echocardiography in April of 2026 revealed normal systolic function of the left ventricle, adequate position of the clip on the mitral valve with mild to moderate MR without significant stenosis, dilated right ventricle with moderate systolic dysfunction and severe degeneration of the tricuspid prosthesis with significant tricuspid stenosis and a mean pressure gradient up to 7 mmHg, without TR (**Figure 2** and **Figure 3**). The Heart Valve team declined redo surgery because of high periprocedural risk and based on the anatomy, concluded the patient was suitable for implantation of an additional

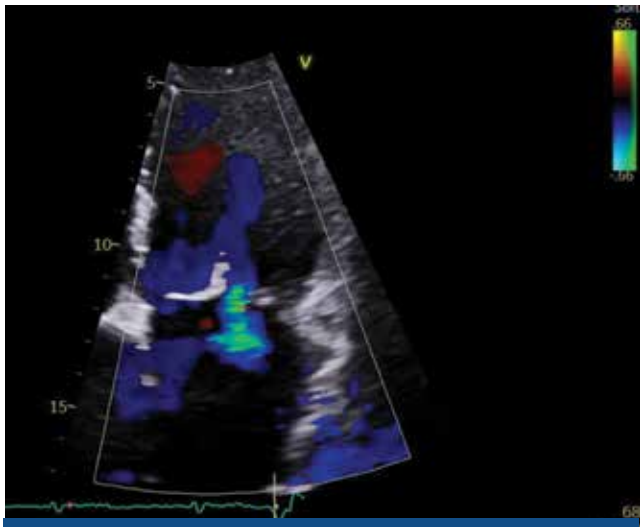


FIGURE 1. Mitral valve after Mitraclip with mild mitral regurgitation.

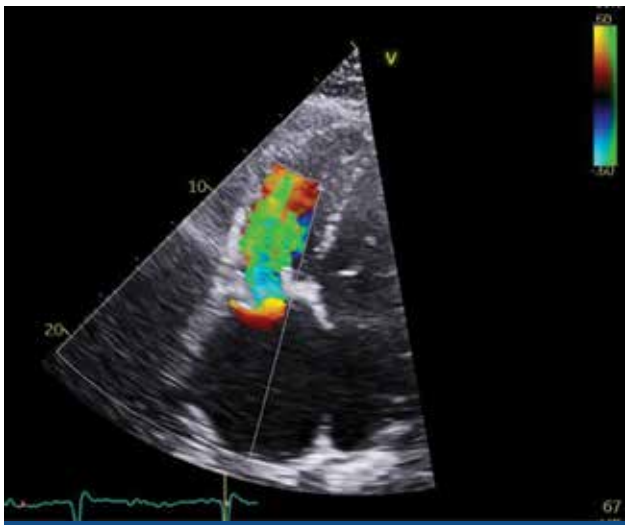


FIGURE 2. Significant tricuspid stenosis.

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prosthesis in the tricuspid position using the ViV technique. The procedure was successfully performed in May 2026, with implantation of a balloon-expandable (32 mm) valve via femoral venous access. The new valve was properly positioned and anchored within the tricuspid annulus, without paravalvular leak or other complications (**Figure 4**). Immediate postprocedural hemodynamics revealed a significant reduction in the pressure gradient. At the last ambulatory visit in September, the patient had improved functional status and was doing well.

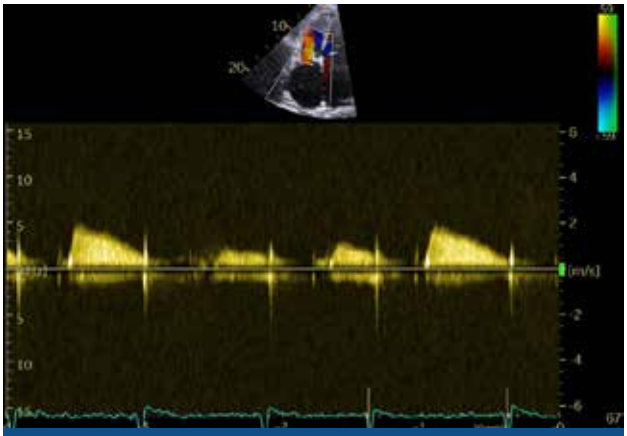


FIGURE 3. Continuous wave Doppler showing significant tricuspid stenosis.



FIGURE 4. New prosthesis after valve-in-valve transcatheter tricuspid valve replacement procedure.

Conclusion: Transcatheter treatment for a failing tricuspid valve prosthesis seems a reasonable option in properly selected patients[2]. Proper preprocedural planning with multimodality imaging is paramount to prevent complications and ensure proper results.

LITERATURE

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