

Worsening of mitral regurgitation after successful transcatheter tricuspid valve repair

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Transcatheter tricuspid valve edge-to-edge repair (TEER) has recently become an important method of treatment in a growing population of patients with tricuspid regurgitation (TR). Tricuspid and mitral valve diseases often coexist [1], and in patients with concomitant severe TR and severe mitral regurgitation (MR)

the latter should be the first to be treated. Considering the paucity of sufficient clinical evidence, the optimal means of treatment in patients with severe TR and moderate MR remains uncertain. The presented case highlights a previously unrecognized possibility of MR development after percutaneous TR reduction.

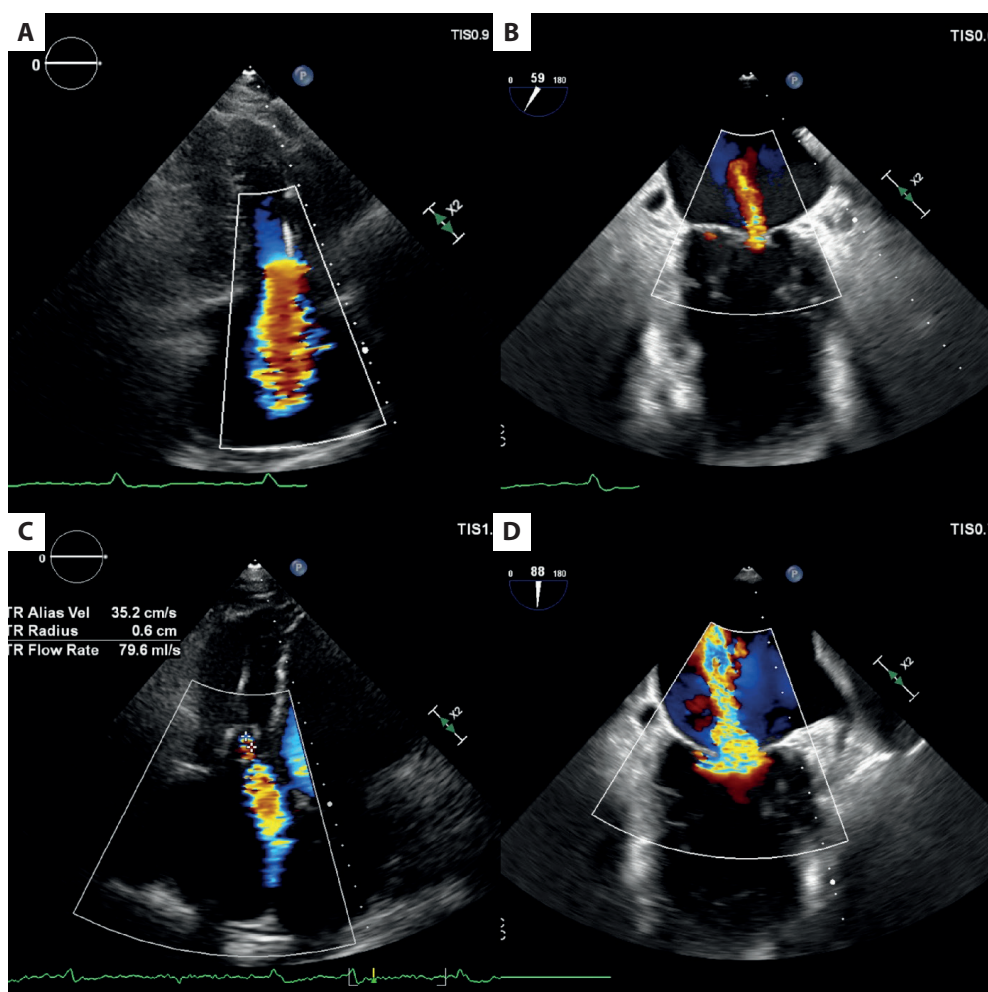


Figure 1. Tricuspid and mitral regurgitation (TR/MR) before and after treatment. **A.** Severe TR in preprocedural transesophageal echocardiography (TEE). **B.** Periprocedural TEE image of MR before TR treatment. **C.** TR reduction in postprocedural TEE. **D.** Periprocedural TEE image of acute MR worsening after TR reduction

A 72-year-old male with chronic heart failure with reduced ejection fraction was admitted for the assessment of valvular heart disease. His quality of life was significantly reduced by frequent rehospitalizations for heart failure exacerbations. Transthoracic echocardiography showed an ejection fraction of 35%; moderate MR (MR ERO 0.25 cm²; MR vol 36 ml) and severe TR (TR ERO 0.85 cm²; TR vol 51 ml). Based on transesophageal echocardiography (Figure 1; Supplementary material, *Videos S1–S4*), the patient was deemed suitable for TEER and due to the moderate character of the MR, an isolated tricuspid valve repair was planned. During the subsequent procedure, two implants (PASCAL Ace, Edwards Lifesciences, Irvine, CA, US) were placed — one in the antero-septal position and the other between the posterior and septal leaflets. Periprocedural echocardiography confirmed a significant reduction of TR (Supplementary material, *Video S5*), but showed an acute worsening of MR (MR ERO 0.48 cm²; MR vol 49 ml; Supplementary material, *Video S6*). The MR worsening did not result in clinically relevant consequences, and partly resolved after intensive diuretic therapy. On the day of discharge, transthoracic echocardiography showed TR ERO 0.36 cm²; TR vol 21 ml and MR ERO 0.32 cm²; MR vol 33 ml.

Worsening of MR has been previously described in a patient undergoing surgical TR treatment [2]. This phenomenon can be partly attributed to the acute increase of right ventricular stroke volume after significant reduction of TR. It can lead to a transient rise in left heart preload, and thus MR exacerbation.

Currently, there are no clear guidelines indicating the optimal treatment strategy in patients with severe TR and concomitant moderate MR. In our patient, the observed exacerbation of MR resolved after pharmacological treatment. However, the presented case illustrates a previously unrecognized potential problem that might indicate the need for a more liberal approach to MR treatment in patients who are considered for transcatheter TR repair.

Supplementary material

Supplementary material is available at https://journals.viamedica.pl/polish_heart_journal.

Article information

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