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### Images in Cardiovascular Medicine

#### Malfunctioning Mitral Valve-in-Valve Bioprosthesis Assessment by 3-Dimensional Transesophageal Echocardiography

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An 85-year-old woman presented to the emergency department with symptoms of acute heart failure. The patient had an extensive cardiac history, including a bioprosthetic mitral valve replacement (Mosaic II, number 2) in 1994 and a transcatheter transapical Edwards SAPIEN THV 23 mitral valve implant within the mitral bioprosthesis (valve-in-valve implantation) in 2010 because of bioprosthetic valve failure.

Physical examination revealed heart failure signs, and blood analysis showed hemolytic anemia with 8 g/dL hemoglobin, low serum haptoglobin, and high levels of lactate dehydrogenase. With clinical suspicion of prosthetic valve hemolysis, a transesophageal echocardiogram was performed.

Two-dimensional echocardiography revealed absence of 1 of the 3 leaflets of the Edwards SAPIEN valve (Figures 1A and 2A, arrows, and Movie I in the online-only Data Supplement), and color Doppler imaging showed severe mitral transvalvular regurgitation, with 2 transvalvular regurgitant jets, 1 of them central and the other 1 eccentric (Figure 1B and Movie II in the online-only Data Supplement).

Three-dimensional echocardiography (view from left atrium) demonstrated the absence of the anterolateral leaflet (Figure 1C, diastole, Figure 1D, systole, arrows, Figure 2, 3-dimensional reconstruction) and also showed restrictive movement of the

anteromedial leaflet (see Movie III in the online-only Data Supplement), which was also seen in the 2-dimensional 2-chamber view (Movie IV in the online-only Data Supplement).

It is worth noting that no signs of endocarditis were found and that the patient did not present any embolic event.

Recently, transcatheter valvular techniques have emerged as an alternative in high-risk patients.<sup>1</sup> Few patients have been submitted to mitral transcatheter valve-in-valve implantation.<sup>2</sup> To the best of our knowledge, this is the first report of a bad outcome as a result of prosthesis dysfunction.

Transcatheter bioprostheses were first designed to be used in aortic position. The higher peak systolic stress in mitral position could explain the complication described here.

#### Disclosures

None.

#### References

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2. Seiffert M, Conradi L, Baldus S, Schirmer J, Knap M, Blankenberg S, Reichenspumer H, Treede H. Transcatheter mitral valve-in-valve implantation in patients with degenerated bioprostheses. *J Am Coll Cardiol Interv*. 2012;5:341-349.