

Images in Cardiovascular Medicine



Infolding Distortion of Evolut R Valve after Transcatheter Aortic Valve Replacement

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OPEN ACCESS

Received: Dec 11, 2019

Accepted: Dec 27, 2019

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Funding

This study was supported by a grant of the Bio & Medical Technology Development Program

A 74-year-old male was planned to receive transcatheter aortic valve replacement (TAVR) for symptomatic severe aortic valve stenosis. He had type-I functional bicuspid aortic valve (AV) and severe calcification at 3 cusps. Perimeter at annulus was 84.0-mm. Pre-procedural balloon valvuloplasty (BVP) using 23-mm diameter Z-med (B. Braun Medical Inc., Allentown, PA, USA) was done, followed by 34-mm Evolut R (Medtronic, Minneapolis, MN, USA) implantation without recapture. However, serial fluoroscopy revealed vertical line on valve strut, and it was infolding distortion of Evolut R (**Figure 1**). Infolding distortion persistently remained despite post-procedural BVP using 23-mm Z-med. Patient was hemodynamically stable with mild paravalvular leakage (PVL). Serial echocardiography after 1 day post-TAVR also showed valve distortion with mild PVL (**Figure 2**). The valve distortion remained on computed tomography after 5 months (**Figure 3, Supplementary Videos 1 and 2**). Because patient's hemodynamics was not too bad (peak AV velocity was decreased from 5.06 to 3.13 m/s, and mean pressure gradient was decreased from 60.8 to 20.9 mmHg; from initial to 5 months, respectively), we treated him medically.

Self-expandable TAVR valve have a risk of valve infolding.¹⁾ Risk factors of valve infolding in this case were large valve size and annulus calcification. Some papers have reported CoreValve infolding.²⁾³⁾ However, there are few reports of newer-generation Evolut R infolding

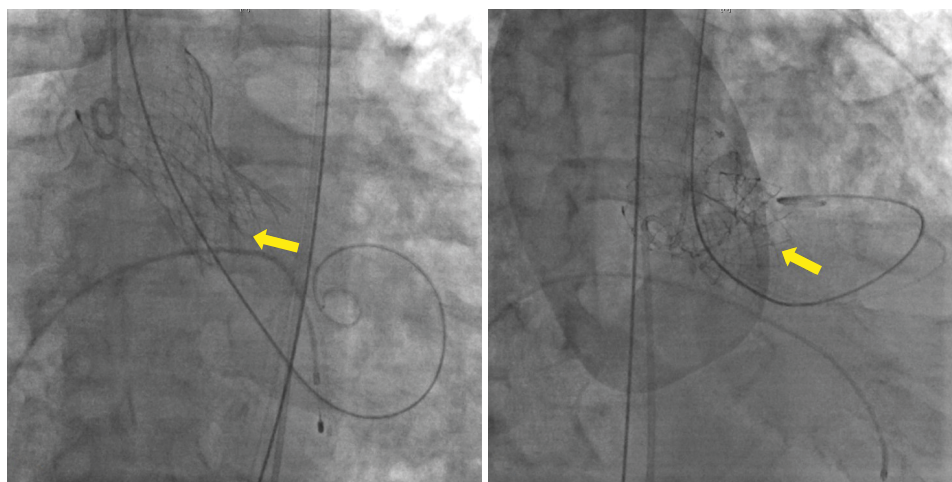


Figure 1. Infolding distortion of Evolut R valve strut (arrow).

of the NRF funded by the Korean government, MSIP (2017M3A9E8023020).

Conflict of Interest

The authors have no financial conflicts of interest.

Author Contributions

Conceptualization: Kim MC; Data curation: Kim MC, Kim JH; Formal analysis: Kim MC, Kim JH; Supervision: Cho KH, Sim DS, Hong YJ, Ahn Y, Jeong MH; Visualization: Kim MC, Cho KH; Writing - original draft: Kim MC, Kim JH; Writing - review & editing: Kim MC, Kim JH

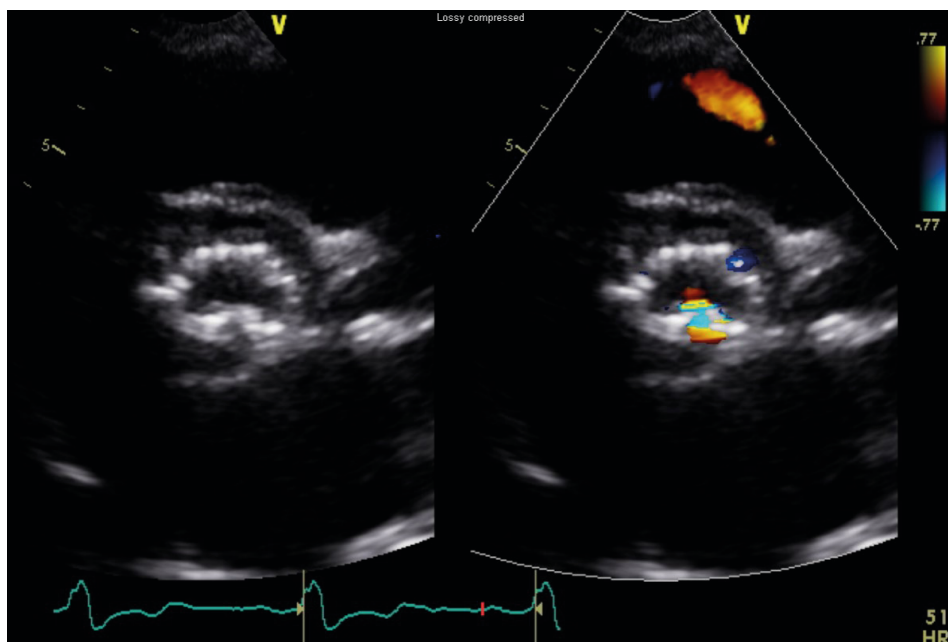


Figure 2. Serial echocardiography after 1 day post-TAVR revealed valve distortion (Left) with mild paravalvular leakage (Right).

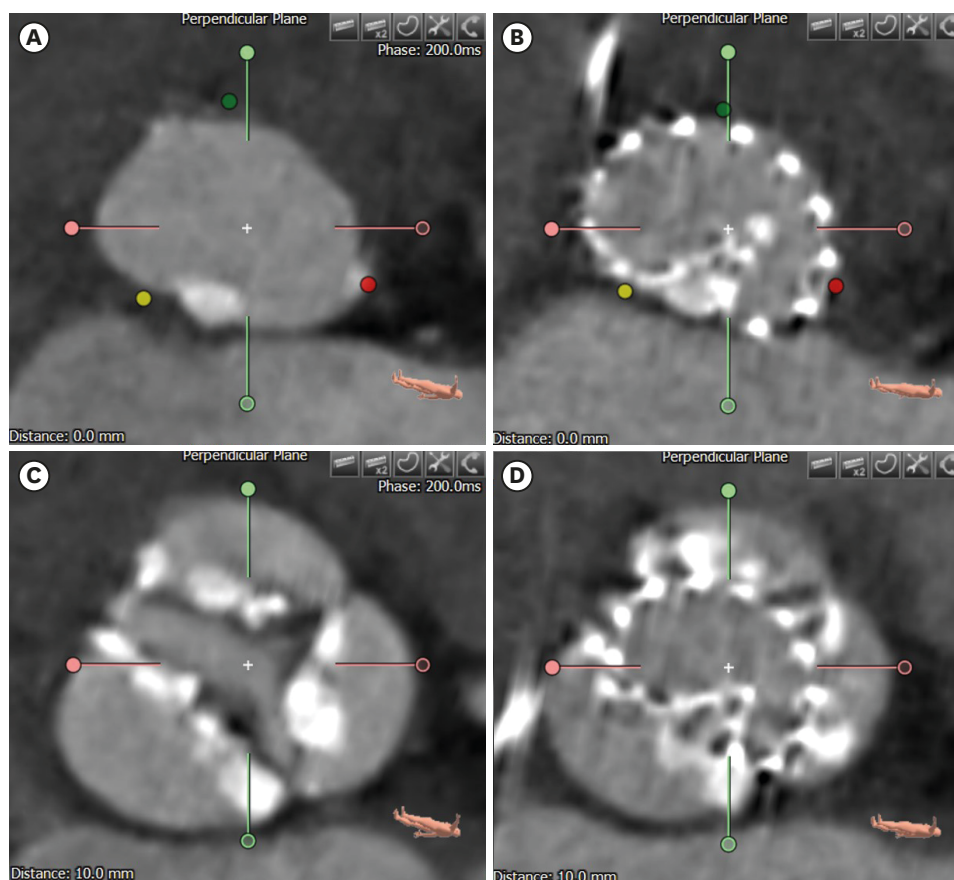


Figure 3. Computed tomography images between and after TAVR. Images at annulus level: (A) pre-TAVR and (B) post-TAVR and at Valsalva sinus level: (C) pre-TAVR and (D) post-TAVR. TAVR = transcatheter aortic valve replacement.

because fluoroscopic inspection is routine clinical practice before valve implantation.⁴⁾ Although the most case of valve infolding was successfully managed with BVP,⁵⁾ asymptomatic patients without significant PVL can be managed medically.

SUPPLEMENTARY MATERIALS

Supplementary Video 1

Reconstruction of computed tomography images at 5-months post-transcatheter aortic valve replacement: axial images.

[Click here to view](#)

Supplementary Video 2

Reconstruction of computed tomography images at 5-months post-transcatheter aortic valve replacement: 3-dimensional reconstruction.

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