A Novel 3-Dimensional Echocardiographic Transillumination Rendering With Transparency in the Evaluation of Paravalvular Leak After Transcatheter Aortic Valve Implantation

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Paravalvular leak (PVL) after transcatheter aortic valve implantation (TAVI) has been associated with poor prognoses, and its diagnosis is important when deciding strategies that consider post-dilatations to minimize the PVL.¹ Recently, 3-dimensional (3D) echocardiography transillumination with transparency (TrueVue Glass; Philips, Andover, MA, USA) allows new photorealistic imaging of cardiac structures, which may be viewed through tissue.²

An 83-year-old male with aortic stenosis underwent TAVI. Mild-to-moderate PVL was observed after the valve implantation (**Figure A–C**). In a TrueVue Glass (**Figure C**, **Supplementary Movie 1**), the location, width, and jet direction through the left ventricle of the PVL were clearly depicted; PVL decreased after post-dilatation (**Figure D–F**, **Supplementary Movie 2**).

3D color Doppler echocardiography is useful for evaluating PVL because it can be used without anatomical restriction. However, the image analysis is time-consuming and it is not widely used for intraprocedural echocardiography. By using a TrueVue Glass, it is possible to clearly demonstrate the regurgitant origin and trajectory in real-time. Although the vena contracta width can be easily

obtained from this image, there have been no published cut-off values for determining the severity of a PVL, and further studies are needed.

Disclosures

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Supplementary Files

Supplementary Movie 1. TrueVue Glass before post-dilatation.

Supplementary Movie 2. TrueVue Glass after post-dilatation.

Please find supplementary file(s);
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Figure. 2D and 3D color Doppler echocardiography showed mild-to-moderate paravalvular leak (PVL) at 11 to 1 o'clock (**A** and **B**, red arrows), which was reduced by post-dilatation (**D** and **E**, red arrows), but the jet origin and direction were not identified. A TrueVue Glass showed jet origin and direction before (**C**, red arrow) and after post-dilatation (**F**, red arrow).