

Successful transfemoral transcatheter aortic valve implantation using the ACURATE neo for bicuspid aortic valve stenosis

Mizuki Miura^{1*}, Christian Templin², Francesco Maisano¹, and Maurizio Taramasso¹

¹Department of Cardiac Surgery, University Heart Center Zurich, Rämistrasse 100, Zürich, CH-8091, Switzerland; and ²Department of Cardiology, University Heart Center Zurich, Rämistrasse 100, Zürich, CH-8091, Switzerland

* Corresponding author. Tel: +41 44 255 32 98, Fax: +41 44 255 44 46, Email: mizumiura-circ@umin.ac.jp

A 69-year-old man with coronary artery disease, atrial fibrillation, and chronic obstructive pulmonary disease presented with dyspnoea (New York Heart Association Class III). Transthoracic echocardiography revealed severe aortic valve stenosis (AS) with a peak transaortic jet velocity of 4.2 m/s and a mean transvalvular gradient of 43 mmHg. The Society of Thoracic Surgeons (STS) predicted risk of operative mortality (PROM) was 3.1%. Type 0 bicuspid AS was detected in computed tomography (Panel A). Computed tomography angiogram images reveal an annulus perimeter of 73.4 mm (Panel B). In the device landing zone, perimeter of expected spread was 70.7 mm and minimum diameter of it was 25.1 mm (Panel C). Coronary height was normal (Panel D). Aortography showed a bicuspid AS (Panel E, [Supplementary material](#) online, [Video S1](#)). After pre-dilatation using 22-mm TrueDilatation Balloon (Bard Peripheral Vascular, Tempe, AZ, USA) (Panel F, [Supplementary material](#) online, [Video S2](#)), the supra-annular self-expandable ACURATE neo M (Boston Scientific Corporation, Natick, MA, USA) was implanted transfemorally (Panels G and H, [Supplementary material](#) online, [Videos S3](#) and [S4](#)). Aortography showed trivial paravalvular leak (Panel I, [Supplementary material](#) online, [Video S5](#)). Even in the current era of transcatheter aortic valve implantation (TAVI), TAVI for a bicuspid AS in low-risk patients is still controversial. Our case demonstrates the first reported successful case of TAVI for Type 0 AS using the ACURATE neo.

(Panel A) Computed tomography showing Type 0 bicuspid AS. (Panel B) Computed tomography showing an annulus perimeter of 73.4 mm. (Panel C) Perimeter of expected spread was 70.7mm and minimum diameter of it was 25.1mm in the device landing zone (9mm above the annulus). (Panel D) Computed tomography showing normal coronary height. LCA, left coronary artery; RCA, right coronary artery. (Panel E) Aortography showing a bicuspid AS. (Panel F) Pre-dilatation using 22-mm TrueDilatation Balloon (Bard Peripheral Vascular, Tempe, AZ, USA). (Panel G) Alignment of the valve position was done in a perpendicular view. (Panel H) An ACURATE neo M (Boston Scientific Corporation, Natick, MA, USA) was implanted transfemorally. (Panel I) Aortography showing trivial paravalvular leak.

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[Supplementary material](#) is available at *European Heart Journal* online.

