




Images in
Cardiovascular Medicine



Controlled Valve Slide-Over Using a Buddy Balloon: “Shoehorn Technique”

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 OPEN ACCESS

Received: Oct 20, 2020
Revised: Nov 26, 2020
Accepted: Jan 12, 2021

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A 91-year-old woman with severe aortic stenosis was referred for transfemoral transcatheter aortic valve implantation (TAVI). Multi-detector computed tomography imaging revealed severe calcification at the non-coronary cusp (NCC) (**Figure 1A-C**). After placing a Safari2 (Boston Scientific, Marlborough, MA, USA) small curve wire in the mid-left ventricle (LV), balloon aortic valvuloplasty (BAV) was performed using VACSII 16×40 mm (OSYPKA, Rheinfelden, Germany) (**Figure 1D**). A SAPIEN 3 (Edwards Lifesciences, Irvine, CA, USA) 23 mm was unable to cross the aortic valve (AV) (**Figure 1E**). Changing bias by pulling or pushing the Safari2 wire or flexing the Commander delivery system (Edwards Lifesciences) did not allow the transcatheter heart valve (THV) to pass. Consequently, we inserted another stiff wire (EGoist; Asahi Intecc, Nagoya, Japan) into the LV via contralateral femoral artery, and performed repeat BAV (**Figure 1F**); however, the THV system did not cross. Then, we repeated BAV while simultaneously pushing the THV during balloon deflation. The system was successfully slipped over the AV (**Figure 1G, Supplementary Video 1**), and the SAPIEN 3 was implanted (**Figure 1H**).

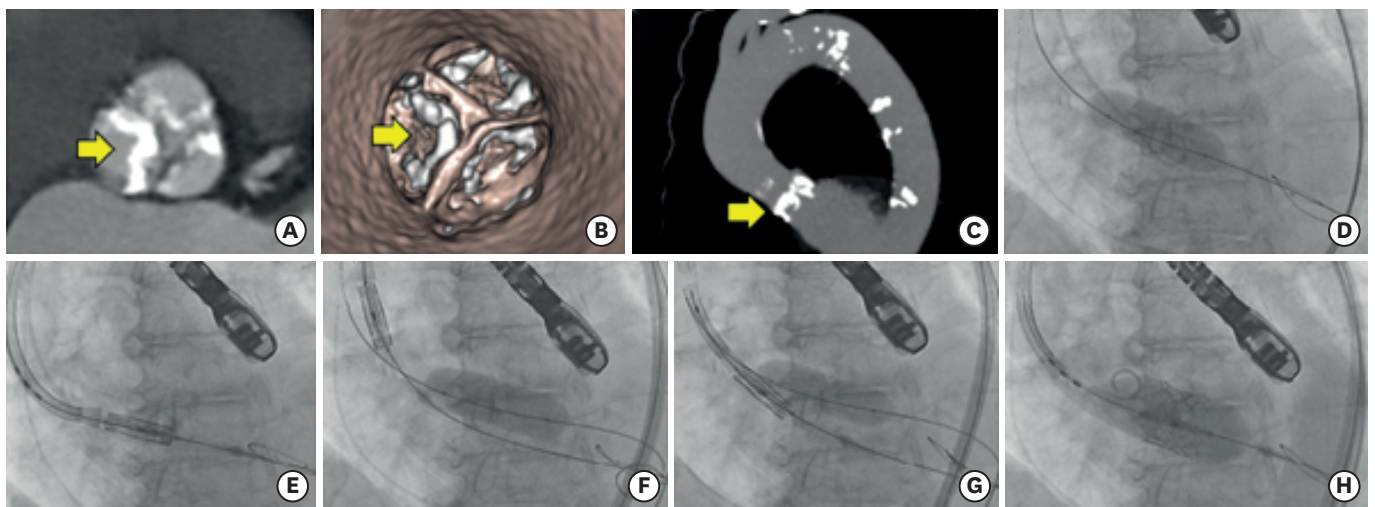



Figure 1. Transfemoral TAVI for very severe aortic stenosis. (A-C) 3D computer tomography reconstruction shows severe calcification at non-coronary cusp (yellow arrow). (D) BAV was performed. (E) Failure of a SAPIEN 3 (Edwards Lifesciences) 23 mm to cross the AV. (F) Repeat BAV. (G) Simultaneous pushing the system during balloon deflation and slipping over the AV. (H) Implantation of the SAPIEN 3 23 mm.
AV = aortic valve; BAV = balloon aortic valvuloplasty; TAVI = transcatheter aortic valve implantation.

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Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

Conflict of Interest

The authors have no financial conflicts of interest.

Author Contributions

Investigation: Hachinohe D, Shitan H, Kaneko U, Kobayashi K, Mitsube K, Kawamura T; Supervision: Fujita T; Writing - original draft: Hachinohe D; Writing - review & editing: Hachinohe D, Shitan H, Kaneko U, Kobayashi K, Mitsube K, Kawamura T, Fujita T.

Even after performing pre-BAV, a situation such as failure in delivering a THV through a severely stenotic AV is occasionally encountered. If the system is pushed too forcefully, it may result in aortic fracture or dissection. Transapical approach or snare technique may overcome such difficult situations; however, these methods are more complex and invasive, with serious potential complications. This simple technique enables to deliver a THV through a bulky native AV very easily and safely without the need for any complicated techniques.

SUPPLEMENTARY MATERIALS

Supplementary Video 1

Simultaneous pushing the system during balloon deflation and slipping over the AV.

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