Transcatheter aortic valve implantation with the Navitor Titan device: First Polish experience

Jarosław Trębacz[1], Robert Sobczyński[2], Janusz Konstanty-Kalandyk[2, 3], Maciej Stąpór[1], Michał Okarski[1], Bogusław Kapelak[2, 3], Paweł Kleczyński[1, 4], Jacek Legutko[1, 4]

[1]Department of Interventional Cardiology, St. John Paul II Hospital, Kraków, Poland
[2]Department of Cardiac Surgery and Transplantation, St. John Paul II Hospital, Kraków, Poland
[3]Department of Cardiac Surgery and Transplantation, Jagiellonian University Medical College, Institute of Cardiology, St. John Paul II Hospital, Kraków, Poland
[4]Department of Interventional Cardiology, Institute of Cardiology, Jagiellonian University Medical College, St. John Paul II Hospital, Kraków, Poland

Correspondence to:
Jarosław Trębacz, MD, PhD, Department of Interventional Cardiology, St. John Paul II Hospital, Prądnicka 80, 31–202 Kraków, Poland, phone: +48 504 299 395, e-mail: jartrebacz@gmail.com

Copyright by the Author(s), 2025

DOI: 10.33963/v.phj.102781

Received: September 9, 2024

Accepted: September 24, 2024

Early publication date: October 3, 2024

Transcatheter aortic valve implantation (TAVI) is indicated in a large population of patients with symptomatic severe aortic stenosis (AS) [1]. The Navitor Vision (Abbott, US) transcatheter aortic valve, the only CE-marked intraannular, self-expanding device, was designed for patients with an annular perimeter of 60–85 mm [2, 3]. The latest iteration of this system, Navitor Titan, was developed to accommodate annuli from 85 to 95 mm (Figure 1A).

We report the first Polish experience with transfemoral implantation of the Navitor Titan valve (Abbott, Plymouth, MN, US).

A 75-year-old male was admitted for elective TAVI. The Heart Team deemed the patient to be unsuitable for open-heart surgery due to previous posttraumatic lower limb amputation with significant walking impairment. On admission, he reported exercise dyspnea class III, according to the New York Heart Association functional classification. Transthoracic echocardiography (TTE) confirmed severe stenosis of a tricuspid aortic valve with a mean gradient of 38 mm Hg while left ventricular ejection fraction was significantly depressed to 35%. Peak systolic velocity through the aortic valve was 4.1 m/s with an atrioventricular area of 0.7 cm^2. Recent computed tomography angiography showed femoral and iliac arteries suitable for a transfemoral procedure while the perimeter of the aortic annulus was measured at 87.5 mm, with minimal and maximal diameter of 25.2 and 30.2 mm, respectively (Figure 1B). The valve was confirmed as tricuspid with moderate calcification at the margins of the leaflets (Figure 1C).

The procedure followed a standard minimalistic approach with the Navitor Titan 35mm chosen for our patient. A temporary 5F lead pacemaker was inserted into the right ventricle to enable stable fast and rapid pacing. Following our site policy for severely stenosed aortic valves, we performed predilatation using a 25 mm VACS-III (Osypka, Germany) semi-compliant balloon over a pre-shaped Safari S (Boston Scientific, US) guidewire. A rapid pacing of 120 beats per minute was used during device unsheathing. The implantation was imaged in a cusp overlap view. The first attempt resulted in a suboptimal valve position, which was assumed to be off-axis in the ascending aorta and too high in the left coronary cusp aspect, which could lead to aortic valve embolization after release (Figure 1D). Therefore, the valve was resheathed with no apparent difficulties and repositioned, leading to the optimal pre-release valve position (Figure 1E). No significant valve reorientation was observed after release. The valve position of 3 mm below the aortic annulus, depicted with three radiopaque markers in the lower part of the valve, was confirmed angiographically (Figure 1F), while TTE showed no perivalvular leak. The procedure was concluded by standard access site closure. The patient was ambulated the next day after the procedure with no procedure-related complications. At the 3 week follow-up, the patient reported improvement in exercise capacity with no adverse events. TTE showed an increase in left ventricular ejection fraction to 45%, mean aortic gradient of 8 mm Hg, with no perivalvular leak.

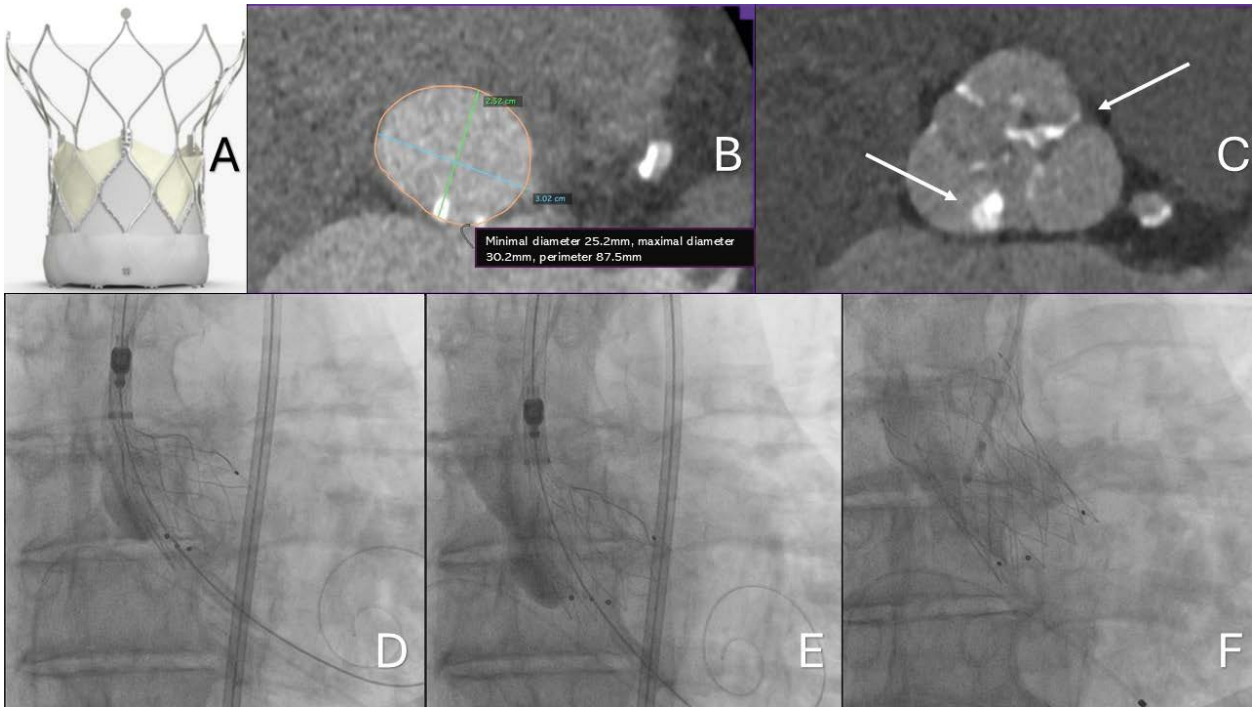

Figure 1. **A**. Navitor Titan valve. **B**. Aortic annulus anatomy based on computed tomography angiography. **C**. Tricuspid aortic valve with moderate calcification of the leaflets (white arrows). **D**. Suboptimal valve position. **E**. Optimal valve position after repositioning. **F**. Final valve position after release

Based on this very limited experience with Navitor Titan TAVI, we conclude that using this technology in the daily practice of a site with experience in Navitor TAVI is not challenging. We plan to confirm this observation with a prospective, nationwide, investigator-initiated Polish Navitor Titan Registry, as the number of centers ready to utilize this promising technology will inevitably increase.

Supplementary material

Supplementary material is available at https://journals.viamedica.pl/polish_heart_journal.

Article information

Conflict of interest: None declared.

Funding: None.

Open access: This article is available in open access under Creative Common Attribution-Non-Commercial-No Derivatives 4.0 International (CC BY-NC-ND 4.0) license, which allows downloading and sharing articles with others as long as they credit the authors and the publisher, but without permission to change them in any way or use them commercially. For commercial use, please contact the journal office at polishheartjournal@ptkardio.pl

REFERENCES

1. Vahanian A, Beyersdorf F, Praz F, et al. ESC/EACTS Scientific Document Group. 2021 ESC/EACTS Guidelines for the management of valvular heart disease. Eur Heart J. 2022; 43(7): 561–632, doi: 10.1093/eurheartj/ehab395, indexed in Pubmed: 34453165.
2. Grygier M, Olasińska-Wiśniewska A, Misterski M, et al. Navitor valve - a new TAVI solution for patients with aortic stenosis. Kardiol Pol. 2021; 79(11): 1278–1279, doi: 10.33963/KP.a2021.0086, indexed in Pubmed: 34392515.
3. Trębacz J, Sobczyński R, Konstanty-Kalandyk J, et al. Transcarotid access for transcatheter aortic valve implantation with a Navitor device. Kardiol Pol. 2023; 81(2): 205–206, doi: 10.33963/KP.a2023.0007, indexed in Pubmed: 36573607.