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

Short title: Navitor Titan TAVI

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Transcatheter aortic valve implantation (TAVI) is indicated in a wide population of patients with symptomatic severe aortic stenosis (AS) [1]. Navitor Vision (Abbott, US) transcatheter aortic valve, the only CE-marked intraannular, self-expanding device, was designed for patients with an annular perimeter of 66–85 mm [2, 3]. The latest iteration of this system, Navitor Titan, was developed to accommodate annuli from 85–95 mm (Figure 1A).

We report the first Polish experience with transfemoral implantation of Navitor Titan valve.

A 75-year-old male was admitted for an 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. At admission, he reported exercise dyspnea class III according to 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 function was significantly depressed to 35%. Peak systolic velocity through aortic valve was 4.1 m/s with atrioventricular area 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 tricuspid with moderate calcification at margins of leaflets (Figure 1C).

The procedure followed a standard minimalistic approach with the Navitor Titan 35mm being chosen for our patient. A temporary 5 F 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 cusps overlap view. The first attempt resulted in a suboptimal valve position, which was assumed to be off-axis in an ascending aorta and too high in a left coronary cusp aspect, which could lead to an aortic valve embolization after release (Figure 1D). Therefore, the valve was re-sheathed with no apparent difficulties and repositioned, leading to the optimal pre-release valve position (Figure 1E). No significant valve reorientation was observed after rapid-pacing assisted release. Valve position of 3 mm below 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. Procedure was concluded by a standard access site closure. The patient was ambulated the next day after the procedure with no procedure-related complications. At 3 weeks follow-up patient reported improvement of exercise capacity with no adverse events. TTE showed an increase in left ventricular ejection fraction to 45%, mean aortic gradient of 8 mmHg, with no perivalvular leak.

Based on a very limited experience of Navitor Titan TAVI we conclude that incorporation of 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 sites 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

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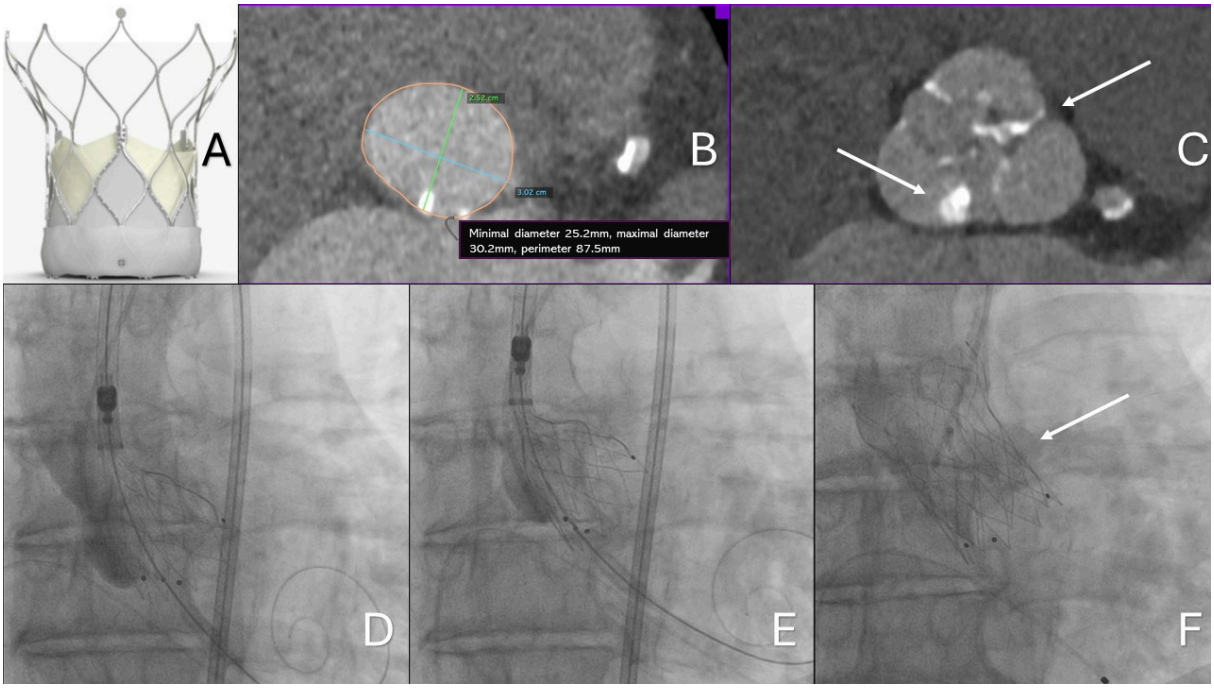

Figure 1. A. Navitor Titan valve. **B**. Aortic annulus anatomy based on computed tomography angiography. **C**. Tricuspid aortic valve with moderate calcification of leaflets (white arrows). **D**. Suboptimal valve position. **E**. Optimal valve position after repositioning. **F**. Final valve position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