

## REFERENCES

1. **Aortic annulus eccentricity before and after transcatheter aortic valve implantation: Comparison of balloon-expandable and self-expanding prostheses.** Schuhbaeck A, Weingartner C, Arnold M, Schmid J, Pflederer T, Marwan M, Rixe J, Nef H, Schneider C, Lell M, Uder M, Ensminger S, Feyrer R, Weyand M, Achenbach S. - Eur J Radiol. 2015 Jul;84(7):1242-8. doi: 10.1016/j.ejrad.2015.04.003. Epub 2015 Apr 18.



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ACURATE neo™ transfemoral transcatheter aortic valve  
implantation in a patient with an elliptical annulus.

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## TF Case Report



**Deutsches Herzzentrum München**  
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With the courtesy of:  
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## INTRODUCTION

Severe aortic valve stenosis patients at high risk for conventional surgery are increasingly treated by Transcatheter Aortic Valve Implantation (TAVI).

Patient anatomy is key to determine the most appropriate TAVI bioprosthesis to be implanted. The relevance of a non-circular geometry of the aortic annulus for the long-term outcome of TAVI is still unknown.

However, comparison of balloon-expandable and self-expanding heart valves have shown that balloon expandable valves are more

## PATIENT DATA MEDICAL HISTORY

- 81 Year-Old Female
  - NYHA Class II
  - BMI: 21.3
  - LVEF: 60 %
  - Mean Gradient: 48mmHg
  - Ava: 0.87cm<sup>2</sup>
  - EuroSCORE I: 8.44 %
  - EuroSCORE II: 5.84 %
- Calcification of Aortic Root

## CASE PRESENTATION

We present a 81 year-old female patient with a severe aortic stenosis.

Echocardiography showed a normal LVEF, an aortic valve area of 0.87cm<sup>2</sup> and a mean gradient of 48mmHg.

Cardiac computed tomography revealed an annulus diameter of 15.3 x 24.5mm with a perimeter derived effective diameter of 19.9mm (Fig. 1 & 2). Ilio-femoral and aortic artery evaluation affirmed the safety of a transfemoral approach.

likely to demonstrate a circular shape after implantation while self-expanding valves conform more to the natural anatomy of the annulus<sup>1</sup>.

This case report demonstrates the benefits of the self-expanding technology and the great performance of the Symetis ACURATE *neo*<sup>™</sup> in a patient with an elliptical annulus.

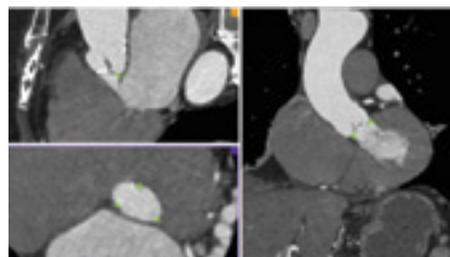


Fig 1: Measurement of the aortic annulus

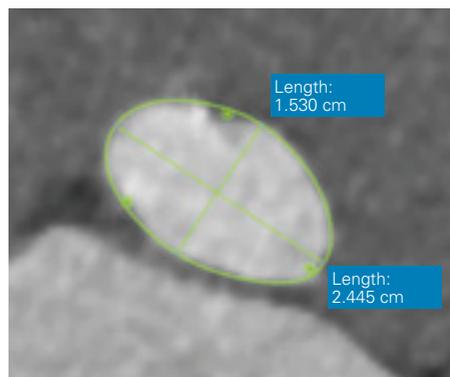


Fig 2: Elliptical aortic annulus: min and max diameter

## CASE STRATEGY & EXECUTION

Given the diameter and shape of the aortic annulus of the patient, it was decided to use the self-expanding ACURATE *neo*<sup>™</sup> bioprosthesis in size S.

After pre-dilatation with a 20mm valvuloplasty balloon, the ACURATE *neo* was positioned (Fig. 3) and released with its usual 2 steps/top-down deployment.

First, the upper crown and the stabilization arches opened in the aorta (Fig. 4), to avoid the obstruction of anterograde blood flow during positioning.

Then, full release with self-deployment of the lower crown in the left ventricle followed, thereby protecting from uncontrolled device movements and/or embolization (Fig. 5).

## RESULTS

Final angiography confirmed perfect position of the valve with no trace of paravalvular leak (grade 0), after a post-dilation with a 20mm balloon (Fig. 6).

## KEY TAKE AWAYS

The implantation of the Symetis ACURATE *neo* bioprosthesis in this patient with an elliptical annulus was successful due to its ease of use and self-expanding deployment design. Unlike other self-expanding devices, the “top-down” release concept of ACURATE *neo*, from the aortic side rather than from the LVOT, with subsequent deployment of the sub-annular portion:

- provides a significant improvement in stability during valve positioning
- minimizes hemodynamic compromise during deployment



Fig 3: Positioning of the ACURATE *neo* size S bioprosthesis



Fig 4: Half-release of the ACURATE *neo* valve

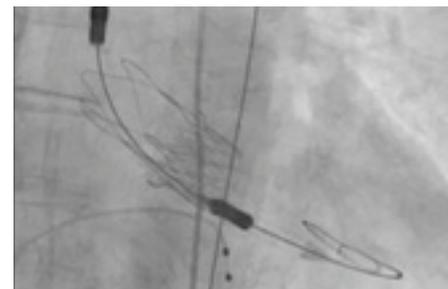


Fig 5: Full-release of the ACURATE *neo* valve

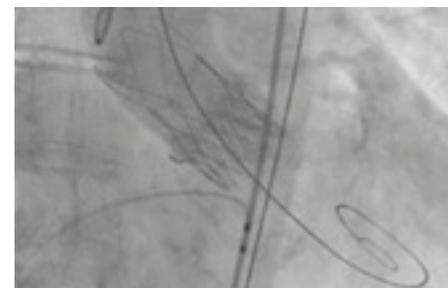


Fig 6: Final angiography