FEops HEARTguide™ Case Report: TAVI

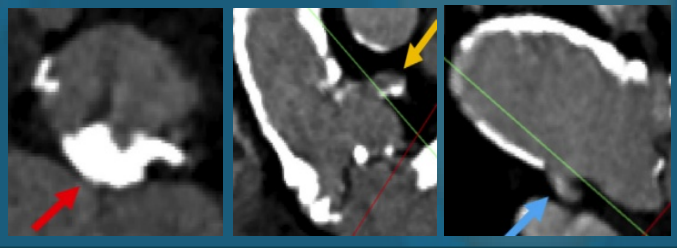
Operator: Dr. Axel Unbehaun

Department of Cardiothoracic and Vascular Surgery, German Heart Center Berlin, Germany

A 56-year-old male patient with a porcelain aorta who underwent aortic valve bypass presents a severe aortic regurgitation.

Challenge

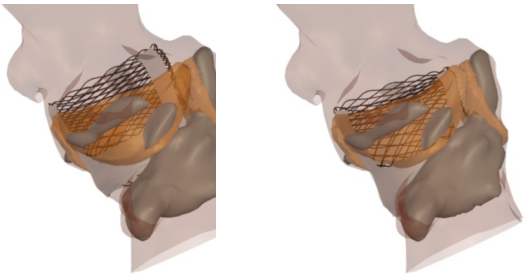
1) Native aortic valve regurgitation
2) Porcelain aorta
3) Hostile device landing zone (DLZ) with severe calcification of the thoracic aorta, the aortic annulus (red arrow), and the LVOT



DEUTSCHES HERZZENTRUM BERLIN®
STIFTUNG DES BÜRGERLICHEN RECHTS

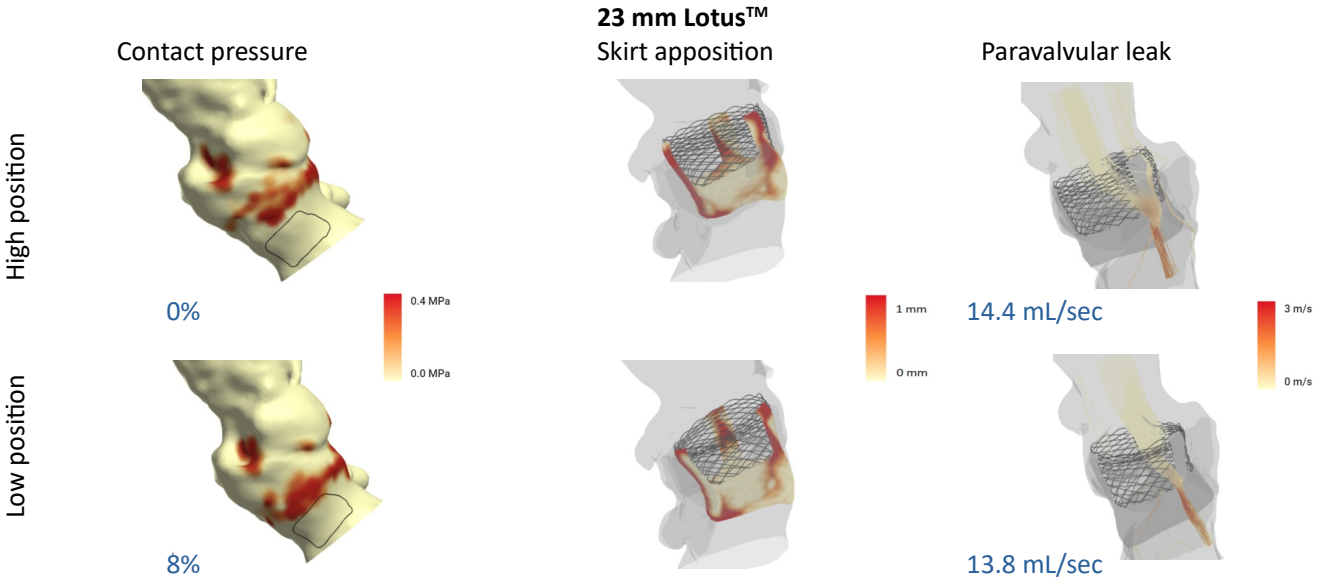
Solution

FEops HEARTguide™ provides patient-specific computer simulations. With respect to challenging device landing zone, the impact of two different TAVI positions on predicted PVL, skirt apposition and contact pressure are simulated retrospectively.



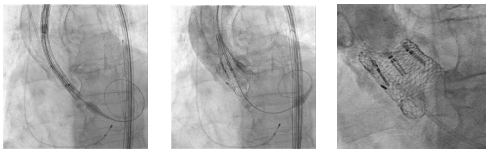
High position *Low position*

FEops HEARTguide™ simulations



Result

A 23-mm LOTUS Edge device was implanted in a high position. Retrospective simulations validated the strategy. Peri-procedural echo and angiography and post procedural MRI showed a residual mild PVL, in line with the predicted one. No atrioventricular block occurred.



Positioning sequence

"A meticulous TAVI planning strategy is a prerequisite to achieve device success in patients who present with hostile DLZ. Predictive simulation software was found to be precise. FEops HEARTguide™ is an extremely helpful tool to optimize TAVI results."

- Unbehaun et al. JACC Case Rep. 2020 (in press) *https://doi.org/10.1016/j.jaccas.2020.06.034*