Symetis Acurate Aortic Valve-in-Valve Implantation for Early Degeneration of a Sapien THV Prosthesis

Philipp Kiefer, MD, Lukas Lehmkuhl, MD, Joerg Seeburger, MD, Marcel Vollroth, MD, Thilo Noack, MD, Thomas Schrötter, MD, Friedrich Wilhelm Mohr, MD, PhD, and David Holzhey, MD

Departments of Cardiac Surgery and Radiology, University of Leipzig, Heart Center, Leipzig, Germany

These images reflect a unique case of a 53-year-old woman who was readmitted to our hospital because of severe dyspnea (New York Heart Association functional class IV). Her medical history included mechanical mitral valve replacement and a triple coronary bypass operation in 2000. In 2010 she underwent transapical aortic valve implantation (Edwards Sapien THV 26 mm; Edwards Lifesciences, Irvine, CA) for aortic stenosis resulting from multiple comorbidities such as porcelain aorta (Fig 1A, computed tomographic reconstruction), chronic kidney failure, and high-grade arterial occlusive disease. Her current presentation included a degenerated aortic valve prosthesis (Pressure gradient maximum/mean: 56/31 mmHg, grade II central insufficiency; Fig 1B) and an even worsened general state (impaired left ventricular function of 25%, tricuspid insufficiency grade III, pulmonary hypertension, bilateral below-the-knee amputation; logistic EuroSCORE of 38%, and Society of Thoracic Surgeons score of 16%). The multidisciplinary team, together with the patient, decided that reoperative transapical aortic valve implantation should be performed. With preoperative measurements showing that the first prosthesis was not fully expanded (24.5 mm) and the option to implant without rapid pacing because of impaired left ventricular function, the choice was made to use a small Symetis-Acurate valve (Symetis, Lausanne, Switzerland).

Transapical access was achieved without any complications. The Symetis-Acurate valve was released within the old Sapien valve (Fig 1C), with its characteristic “upper-crown” resting on top of the Sapien stent. Initial invasive measurements showed a residual peak gradient of 25 mmHg. Thus dilation using a 24-mm balloon was performed once. Final angiography revealed no residual aortic insufficiency and a peak gradient of 9 mmHg (Fig 1D).

The postoperative course was uneventful, and the patient was discharged on postoperative day 10.