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Transcathether implantation of Edwards Sapien 3 valve in a tricuspid annuloplasty ring

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A 78-year old female patient with a medical history of diabetes, hypertension, permanent atrial fibrillation (AF) and chronic obstructive pulmonary disease was referred to the Heart team. In 2015, she underwent mitral valve plasty, tricuspid valve plasty and Maze surgery due to severe mitral regurgitation, tricuspid regurgitation (TR), pulmonary hypertension and permanent AF. The patient suffered from peri-operative mediastinitis and late-stage tamponade, for which the debriment, removal of steel wires and bilateral pectoral plasty were consequently performed during the procedure. The patient was not completely symptom-free after the surgery and since six months ago the dyspnea had been progressively deteriorated and she was recently hospitalized. The New York Heart Association class was deemed III and the patient also presented orthopnea and ankle oedema. Transthoracic echocardiography revealed a severely enlarged right heart with severe tricuspid regurgitation (maximal velocity of 3.8 m/s) and significant tenting of the leaflets. The function of the left ventricle and mitral plasty were normal. Considering the multiple co-morbidities and previous complicated heart surgery, the patient was deemed inoperable and the Heart team reached consensus for a percutaneous approach of a Edwards Sapien 3 valve implantation in the tricuspid plasty ring.

The procedure was performed under general aenesthesia with the guidance of transoesophageal echocardiography (TOE) and fluoroscopy. The28 mm Carpentier-Edwards Physio ring on the triscupid position was clearly visualised with 3D TOE. After a pre-dilatation with a 28 mm balloon, a 29 mm Edwards Sapien 3 valves (Edwards Life Sciences) was delivered via the right femoral artery. There was yet mild to moderate paravalvular leakage (PVL) at the septal segment opening of the ring even after a post-dilatation. Therefore a 4 × 15 mm AMPLATZER Vascular Plug III (St. Jude Medical, Abbott) was implanted with final results of trace PVL and a transvalvular pressure gradient of 1 mmHg.
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