

IMAGES IN INTERVENTION

# Interventional Treatment of a Failing Pulmonic and Tricuspid Bioprosthesis in Hedinger Syndrome



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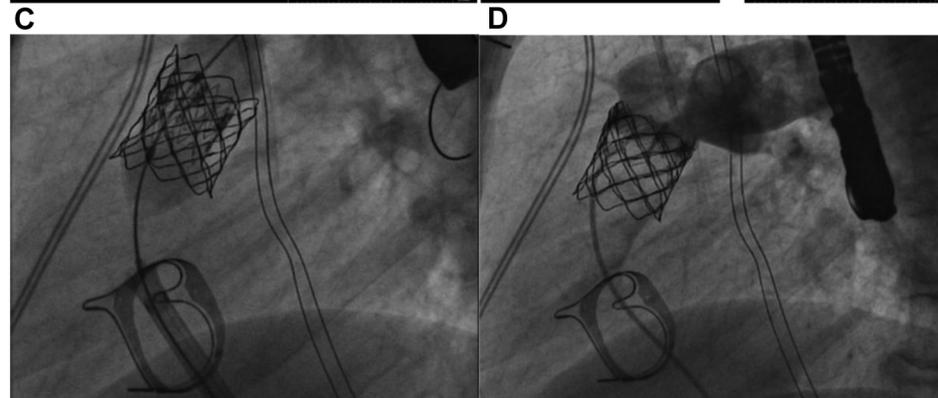
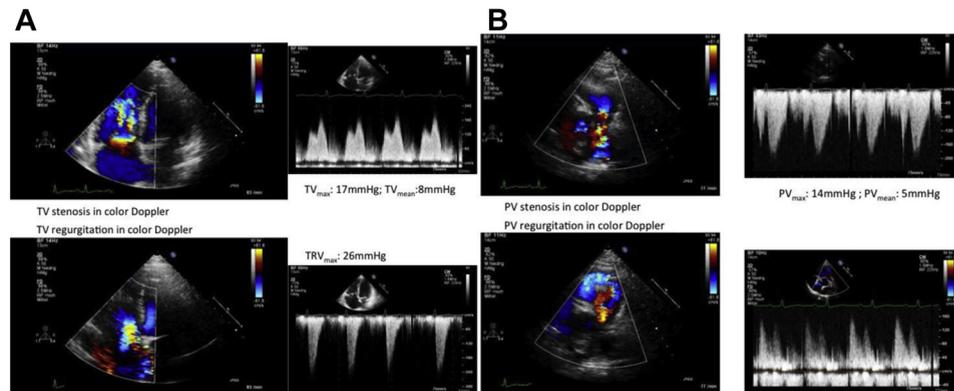
**H**edinger syndrome is a paraneoplastic disease encountered in metastatic neuroendocrine tumor and is often the cause for the fatal outcome in this disease. Diagnostic work-up of a 59-year-old woman was initiated after finding of typical features of the tricuspid and pulmonic valves (TV and PV) on routine echocardiography before treatment of breast cancer (**Figures 1A and 1B, Online Videos 1 and 2**). After surgical removal of the neuroendocrine tumor, valvular disease was treated with a surgical 29-mm Perimount valve (Carpentier-Edwards, Irvine, California) in TV and a 25-mm Freestyle valve (Medtronic, Minneapolis, Minnesota) in PV position. Two years later, the patient presented again with leg-swelling and dyspnea and stenosis of the PV replacement. This was treated with pulmonary artery stenting and implantation of a 23-mm Edwards Sapien XT valve (Edwards Lifesciences, Irvine, California) in the PV replacement (**Figures 1C and 1D, Online Video 3 and 4**). After an additional 2 years, the patient presented again with severe dyspnea and New York Heart Association functional classes III and IV heart failure symptoms with diagnosis of severe degeneration of the tricuspid valve replacement (TVR) with a combined stenosis and regurgitation. Due to the increased surgical risk,

interventional treatment was decided by the heart team. The fast degeneration of the bioprosthesis is a feature often encountered in carcinoid heart disease making reintervention necessary, which can be safely performed with the interventional approach. After establishing a venous femoral access on both sides, the TVR was crossed with a Safari wire (Boston Scientific, Natick, Massachusetts) via a JR-4 catheter (Boston Scientific, Marlborough, Massachusetts) and the TVR pre-dilated with a LOMA-Vista 26-mm balloon (Loma Vista Medical, Burlingame, California). After pre-dilation the TVR was treated with a 29-mm Edwards Sapien-3 valve (**Figures 1E and 1F, Online Videos 5 and 6**). The procedure was done under rapid pacing via the coronary sinus. After 3 months, the patient was completely relieved of symptoms and showed no regurgitation or stenosis of the valve-in-valve placed prosthesis and returned to everyday activity.

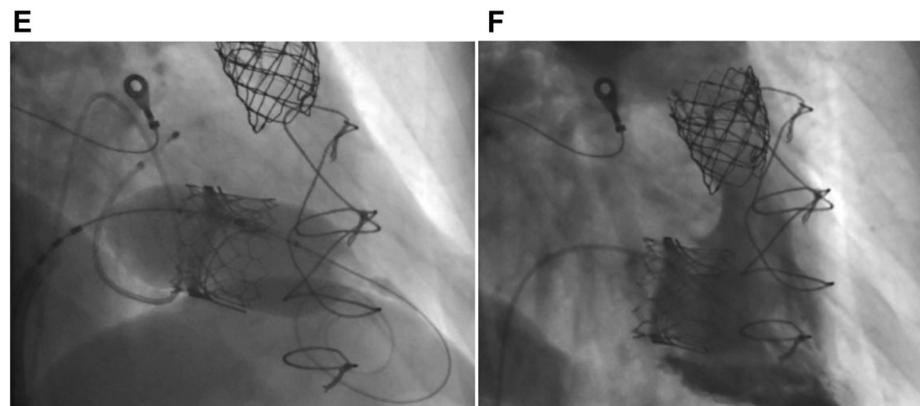
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**FIGURE 1** Treatment of a Failing Pulmonic and Tricuspid Bioprosthesis in Hedinger Syndrome

Gradients from echocardiography: PV<sub>max</sub>: 19mmHg; PV<sub>mean</sub>: 11mmHg; invasive gradient after valve in valve implantation: PV<sub>invasive</sub>: 20mmHg



Gradients from echocardiography: TV<sub>max</sub>: 5mmHg; TV<sub>mean</sub>: 3mmHg. Invasive gradient after valve in valve implantation: TV<sub>invasive</sub>: 10/2mmHg

**A** and **B** show the echocardiography at diagnosis of Hedinger Syndrome with tricuspid valve regurgitation (**A**) and stenosis of the pulmonic valve (**B**). [Online Videos 1](#) and [2](#) show loops of the echo study. **C** and **D** document the implantation of the Edward Sapien XT (23 mm) valve into the position of the surgical pulmonic bioprosthesis (**C**). (**D**) shows the pulmonic angiography after implantation. [Online Videos 3](#) and [4](#) illustrate the procedure described. (**E** and **F**) illustrate the implantation of the Edwards Sapien 3 valve into the biological tricuspid valve replacement (**E**) and further the right ventricular angiography after implantation (**F**). [Online Videos 5](#) and [6](#) show the described procedure.