

Interventional closure of Sinus Venosus ASD

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Introduction: Superior sinus venosus atrial septal defect (SVASD) is commonly associated with partial anomalous pulmonary venous drainage (PAPVD). In selected patients, it is possible to correct this anomaly by deploying a covered stent at the level of the superior vena cava (SVC) and right atrial (RA) junction. **Objectives:** We describe the first series of percutaneous SVASD and PAPVD correction using a two-step simulation for procedural planning

Methods: Patients with SVASD and right PAPVD with a clinical indication for correction were selected. They underwent a two-step evaluation consisting in an ex-vivo procedural simulation on a 3D-printed model followed by an in-vivo simulation using balloon inflation in the targeted stent landing zone. The percutaneous procedure consisted in deploying a 10 Zig custom-made covered stent in the SVC-RA junction

Results: Five patients were referred for pre-procedural anatomical evaluation and were deemed suitable for percutaneous correction. The procedure was successful in all patients with no residual interatrial shunt and successful redirection of the pulmonary venous drainage to the left atrium. At a median clinical follow-up of 8.1 months (2.6-19.8), no adverse events were noted and all patients showed clinical improvement. During follow-up, transthoracic echocardiography and MDCT in 4 patients or invasive angiography in one patient demonstrated a patent SVC stent, no residual SVASD and unobstructed PV drainage in all patients.

Conclusions: In carefully selected patients using a two-staged simulation strategy, percutaneous correction of SVASD with PAPVD is feasible, safe and led to favourable midterm outcomes.

