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## Before and after: sinus venosus atrial septal defect

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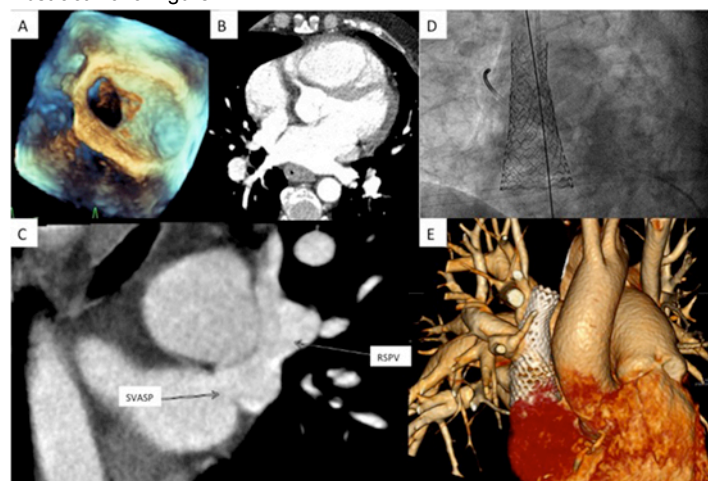
**Introduction:** The diagnosis of sinus venosus atrial septal defect (SVASD) is complex and requires special imaging. Surgery is the conventional treatment; however, transcatheter repair may become an attractive option.

**Case report:** A 60 year-old woman was admitted to the cardiology department with several episodes of paroxysmal atrial flutter, atrial fibrillation and atrioventricular nodal reentrant tachycardia. She reported a 10-year history of occasional palpitations which had not been studied. A transthoracic echocardiography revealed severe right ventricle dilatation and moderate dysfunction. Right volume overload appeared to be secondary to a superior SVASD with partial anomalous pulmonary venous drainage. A transesophageal echocardiography confirmed the diagnosis revealing a large SVASD of 16x12 mm (Figure A) with left-right shunt (Qp/Qs 2.2) and two right pulmonary veins draining into the right superior vena cava. Additionally, it demonstrated coronary sinus dilatation secondary to persistent left superior vena cava. CMR and cardiac CT showed right superior and middle pulmonary veins draining into the right superior vena cava 18 mm above the septal defect (Figures B and C).

After discussion in clinical session, a percutaneous approach was planned to correct the septal defect and anomalous pulmonary drainage. For this purpose, anatomical data obtained from CMR and CT was needed to plan the procedure. During the intervention two stents graft were deployed in the right superior vena cava. The distal stent was flared at the septal defect level so as to occlude it while redirecting the anomalous pulmonary venous flow to the left atrium (Figure D). Control CT confirmed the complete occlusion of the SVASD without residual communication from pulmonary veins to the right superior vena cava or the right atrium (Figure E). Anomalous right superior and middle pulmonary veins drained into the left atrium below the stents. Transthoracic echocardiographies showed progressive reduction of right atrium and ventricle dilatation. The patient also underwent successful ablation of atrial flutter and intranodal tachycardia. She is currently asymptomatic, without dyspnea or arrhythmic recurrences.

**Conclusions:** In this case, multimodality imaging played a key role in every stage of the clinical process. First, it provided the diagnosis and enabled an accurate understanding of the patient's anatomy, particularly of the anomalous pulmonary venous connections. Secondly, it allowed a transcatheter approach by supplying essential information to guide the procedure. Finally, it assessed the effectiveness of the intervention and the improvement in cardiac hemodynamics during follow-up.

Abstract P649 Figure.



**Representative case images:** 3D Transesophageal echocardiography (Fig A) and CT axial plane (Fig B) showing the septal defect. Anatomical relationship between SVASD and right superior pulmonary vein (RSPV) in CT (Fig C). Angiography during the procedure (Fig D). 3D CT reconstruction post-procedure (Fig E).