

TRANSCATHETER OCCLUSION OF SINUS VENOUS ATRIAL SEPTAL DEFECT - NEW THERAPEUTIC OPTION?

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BACKGROUND

Sinus venosus atrial septal defect (SVASD) is located at the superior vena cava (SVC)-right atrium (RA) junction. It is commonly associated with partial anomalous drainage of the RUPV in SVC and therefore until now, surgical closure was the only therapeutic option, with excellent results.

OBJECTIVE

The authors report a successful case of transcatheter closure of sinus venosus atrial septal defect (SVASD).

METHODS

A fifty-three-year-old female patient, complaining of tiredness on exertion, was sent to cardiac evaluation. Transthoracic echo (TTE) and, subsequently, transesophageal echo (TEE) was performed. Informed consent was obtained and the patient was sent to the cath lab. The procedure was performed under general anesthesia, under TEE guidance. Both femoral veins and left femoral artery were punctured. Right and left heart catheterization were performed and, SVC and RUPV angiograms were obtained. A valvuloplasty balloon was tracked over a extra-stiff guidewire in the SVC and inserted, occluding the SVC and the SVASD with simultaneous, RUPV injections through a catheter inserted on the left venous access. The pulmonary vein catheter was withdrawn and a covered balloon-expandable stent, was inserted and implanted in the SVC, under TEE guidance, occluding the SVASD.

RESULTS

TEE and angiography showed a 14 mm SVASD. The RUPV drained on the SVC. SVASD-SVC was test-occluded with a 22-4 ZMed balloon and RUPV injection showed unobstructed right superior venous return to the left atrium (LA). The pulmonary vein catheter was withdrawn and an 8ZIG 45 covered CP stent, mounted on a 22/4 BIB balloon inside a 14F Mullins sheath was tracked over an extra-stiff guidewire and implanted in the SVC, under TEE guidance. The stent was carefully positioned with its upper end above the SVC-RUPV junction, below the origin of both innominate and azygos veins. The proximal end was carefully positioned as to cover the lower end of the defect. Control TEE, immediately after procedure showed that the device was correctly positioned in SVC and the septal defect was completely closed. TEE also showed SVC flow directed only to RA and RUPV flow directed only to LA. The procedure was uneventful and there were no complications.

CONCLUSION

Transcatheter occlusion of SVASD was possible, safe and effective in our patient. Use of covered stents for SVASD closure has the potential to become an alternative to surgery, in cases where septal defect closure promotes unobstructed RUPV flow to LA.