

Interventional closure of perimembranous ventricular septal defects with left ventricular – right atrial communication

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Introduction

In perimembranous ventricular septal defects (pVSD) located below the attachment of the septal tricuspid valve (TV) leaflet, TV leaflets may be affected by the pVSD resulting in a communication between the left ventricle (LV) and the right atrium (RA) mimicking tricuspid regurgitation. To date it has not been established if interventional closure of these VSDs can be performed with a favourable outcome.

Methods

In 4 consecutive patients (aged 6-12 years) with a hemodynamically relevant pVSD associated with moderate LV-RA shunting, the pVSD was closed under fluoroscopic guidance by establishing an arteriovenous wire-loop via a femoral artery and advancing the delivery sheath from a femoral vein. Before device release (or if necessary withdrawal), residual shunting across the device and TV valve function was investigated by transthoracic echocardiography.

Results

In two patients, the anterior TV leaflet, in two patients, the anterior and the septal TV leaflet were affected by the pVSD. pVSD sizes of 4;5.5;8;8.5 mm were closed with a 4/4;6/6 Amplatzer duct occluder II;8;10 mm Amplatzer muscular VSD occluder device, respectively. There were no or only minor residual postinterventional LV/RV and LV/RA shunts. Diastolic TV function remained normal. No conduction disturbances were observed.

Conclusions

In 4 consecutive patients, interventional closure of pVSDs associated with LV-RA communication was successful. We conclude that in this type of defects, interventional closure should be attempted.