Background: Transcatheter perimembranous VSD occlusion is used to close perimembranous VSDs (PMVSDs) using the Amplatzer muscular ventricular septal defect occluder (AMVSDO). Methods: Thirteen patients, aged 1.5 to 14 years, with PMVSDs underwent transcatheter closure using the AMVSDO. The device consists of two low profile discs made of Nitinol wire mesh with a 7 mm connecting waist. The orifice size (waist diameter) was selected to be equal to the balloon "stretched" diameter of the defect. A 7F to 8F sheath was used for the delivery of the AMVSDO. Fluoroscopy and transesophageal echocardiography were used for the guidance of the procedure. Results: The "stretched" diameter of the defect ranged from 6 to 14 mm. Complete occlusion of the communication occurred in 26/28 patients (93% closure rate). The majority of patients with a single PMVSD were treated with this method. Conclusions: Transcatheter patch perimembranous VSD occlusion, is effective and safe. The right heart shows signs of remodelling even in these elderly subjects.

Background: Transcatheter patch perimembranous VSD occlusion is used to close perimembranous VSDs (PMVSDs) in children using a device that is a modified ring-shaft device. Methods: Fifty patients, aged 1.5 to 14 years, with PMVSDs underwent transcatheter closure using the AMVSDO. The device consists of two low profile discs made of Nitinol wire mesh with a 7 mm connecting waist. The left-sided disc is 5 mm larger than the waist. The waist diameter was chosen to be 1.2 mm larger than the PMVSD diameter. A 7F or an 8F sheath was used for the delivery of the AMVSDO. Fluoroscopy and transesophageal echocardiography were used for the guidance of the procedure. Results: The PMVSD diameters ranged from 2 to 8 mm. The device diameters ranged from 4 to 10 mm. Overall total occlusion rate was 92.3%. The main complication was embolization of the device in 1/13 patients. Transcatheter retrieval was unsuccessful. Conclusions: The AMVSDO appears to be a promising device for the transcatheter closure of PMVSDs in children. Further studies are required to document its safety, efficacy, and long-term results in a larger number of patients.

Background: The design of previously used devices for transcatheter closure of perimembranous muscular VSDs is not ideal for this purpose and their use has been associated with several drawbacks. The aim of this study was to close PMVSDs in children using a novel device that is a modified ring-shaft device. Methods: Twenty-eight patients, aged 4 months to 16 years, with PMVSDs underwent transcatheter closure using the AMVSDO. The device consists of two low profile discs made of Nitinol wire mesh with a 7 mm connecting waist. The waist diameter was selected to be equal to the balloon "stretched" diameter of the defect. A 7F to 8F sheath was used for the delivery of the AMVSDO. Fluoroscopy and transesophageal echocardiography were used for the guidance of the procedure. Results: The "stretched" diameter of the defect ranged from 6 to 14 mm. Complete occlusion of the communication occurred in 26/28 patients (93% closure rate). Two low profile discs made of Nitinol wire mesh with a 1.5 mm connecting waist. The left-sided disc is 5 mm larger than the waist. The waist diameter was chosen to be 1.2 mm larger than the PMVSD diameter. A 7F or an 8F sheath was used for the delivery of the AMVSDO. Fluoroscopy and transesophageal echocardiography were used for the guidance of the procedure. Results: The "stretched" diameter of the defect ranged from 6 to 14 mm. Complete occlusion of the communication occurred in 26/28 patients (93% closure rate). The majority of patients with a single PMVSD were treated with this method. Conclusions: Transcatheter patch perimembranous VSD occlusion, is effective and safe. The right heart shows signs of remodelling even in these elderly subjects.