

Interventional VSD closure using the Amplatzer Duct Occluder II™ in a small infant with concomitant Aortic Coarctation

*Gitter R. (1), Prandstetter C. (1), Mair R.(2), Tulzer G. (1),
Women and Children Hospital, Department for Pediatric Cardiology, Linz, Austria (1),
General Hospital, Department for Cardiothoracic Surgery, Linz Austria (2)*

Percutaneous VSD closure has become an established alternative to surgery. Sheath size and bulkiness of the occluders limitate this method for smaller children. The Amplatzer Duct-occluder-II™ is smooth, flexible and implantable through small sheaths. We report a case of VSD closure with this occluder.

Patient: A 5 month old girl with 4,5 kg was referred with signs of heart failure and pulmonary edema. Echocardiography revealed a singular 5mm midmuscular VSD with pulmonary hypertension. No additional intracardiac defects, the isthmic region was 2,5mm, with an instantaneous gradient of 50mmHg and a small open duct.

Surgical management of midmuscular VSDs may be difficult, especially when attempted without ventriculotomy. Interventional closure therefore seemed to be a promising alternative all the more coarctation was planned to be corrected by lateral access.

Procedure: The VSD was passed from the LV and a typical loop was formed. The 5F delivery system (TorqueVue low profile, AGA™) was introduced transvenously and advanced through the VSD into the left ventricle. An Amplatzer Duct occluder II with a length of 5mm and a the middle portion of 5mm was constituted and positioned under permanent transthoracic echo guidance. The soft appearance of the umbrella allowed exact positioning of the different parts, although the manœuvres had to be done very gently, not to pull the system out of the defect. Echo control showed an excellent alignment of both retention discs on the septum. Procedure time was 78 minutes, fluroscopy time 18 minutes. No procedural complication occured, no changes in ECG as well. Coarctation repair followed next day without complications.

Result: Two months after implantation the patient has still a mild to moderate slit like residual shunt at the inferior edge of the device. Nevertheless pulmonary pressure was normal, LV dimensions returned to upper limit of normal.

Discussion: VSD closure with flexible devices and reasonable sheath size can be an alternative to surgical closure even in small patients below 5kg. Procedure and fluro time will decrease along the learning curve, oversizing of the device may help in avoiding residual shunts.