

STRUCTURAL HEART DISEASE: CONGENITAL HEART DISEASE (ASD, PDA, PFO, VSD) (TCTAP A-061)

TCTAP A-061

Percutaneous Closure of Perimembranous Ventricular Septal Defects Using Patent Ductus Arteriosus Closure Device: 5-year Follow-Up Prospective Cohort Study

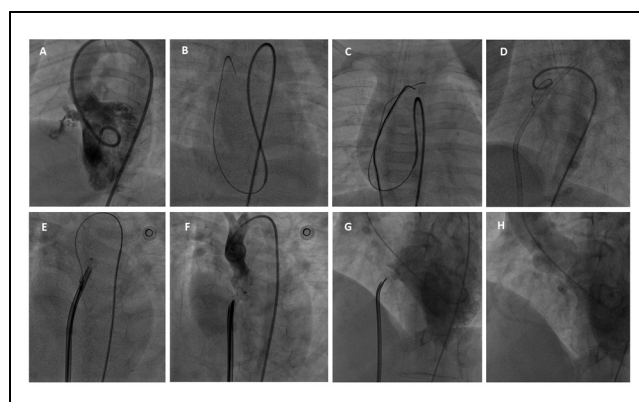
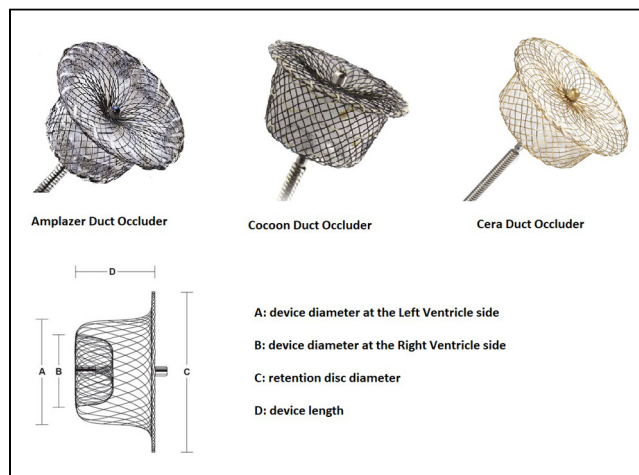
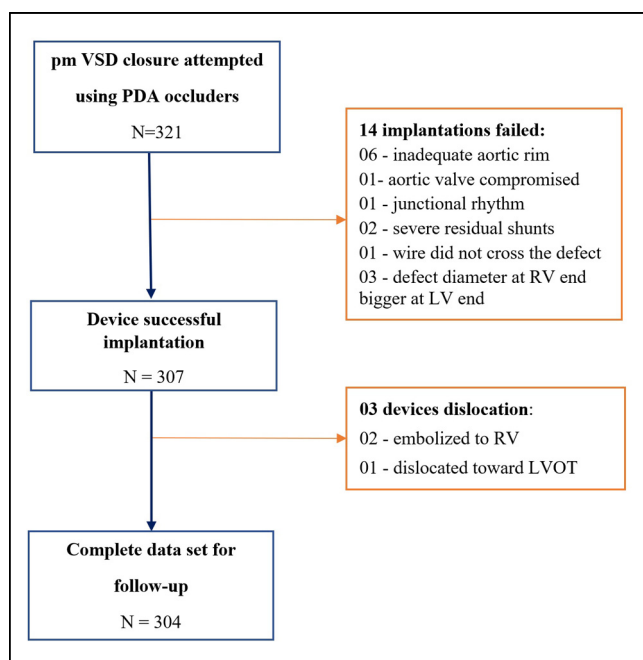
Hieu Lan Nguyen,¹ Quang Phan Tan,² Hieu Ba Tran,³ Linh Huynh Dinh,³ Julian Johny Thottian,⁴ Hoyoun Won,⁴ SangWook Kim⁴

¹Ha Noi Medical University Hospital, Vietnam; ²Quang Nam Central General Hospital, Vietnam; ³Vietnam Heart Institute, Vietnam; ⁴Chung-Ang University Hospital, Korea (Republic of)



BACKGROUND Widespread use of conventional pmVSD closure devices has been limited by unacceptable high rate of complete heart block (CHB). The elegant design of PDA occluders is supposed to make ease of implantation, increase closure rate and minimize adjacent structures damage. So, PDA occluders may reduce complications, especially the CHB, and offer a good alternative for percutaneous pmVSD closure.

METHODS From September 2008 to October 2015, patients underwent attempted percutaneous VSD closure using PDA occluders were included in the study. Patient demographics, echocardiography measurements, procedure details and follow-up data up to October 2017 were collected.



RESULTS Total 321 patients with mean age 15.5 ± 12.6 years (7 months to 58 years) and mean weight 33.3 ± 20.5 kg (6.8 to 75 kg) were included. Of these patients, 12.7% had symptoms of heart failure, 36.3% had recurrent respiratory infection, 33.0% failed to thrive. On echocardiography, the mean defect size was 4.9 ± 1.2 mm and 156 (48.6%) patients had pmVSD with aneurysm. Mean Qp/Qs ratio measured by catheterization was 2.1 ± 0.6 .

Implantation was successful in 307 (95.6%) patients. The immediate complete closure was achieved in 236 (77.6%) patients. Closure rate was 89.5%, 91.5% and 99.3% after the procedure 24 hours, 6 months and 2 years, respectively. The mean follow-up time was 63.3 ± 24.7 months. Major complications happened in 5 (1.7%) patients during the procedure and follow-up. CHB needed pacemaker occurred in 2 (0.7%) patients. Surgery for device embolization required in 3 (1.0%) patients. There was no death, disability or other major complication detected during procedure and follow-up.

CONCLUSION Percutaneous closure of pmVSD using PDA occluder was feasible, safe and efficacious in selected patients with high successful implantation and complete closure rate along with low major adverse events.