TRANSCATHETER VSD CLOSURE IN CHILDREN WEIGHTING LESS THAN 10 KG: REPORT OF 2 SUCCESSFUL CASES

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Background:

Ventricular septal defect is a common congenital heart defect. Transcatheter closure of perimembranous ventricular septal defect (pmVSD) is an effective method alternative to surgical closure. For children weighting less than 10 kgs, VSD closure can be difficult due to the problems of vascular catheterization and catheter manipulation. With today's generation of devices which have better profile, flexibility and trackability, VSD closure may be achieved safely and with considerably less difficulty than previously described, especially in small children.

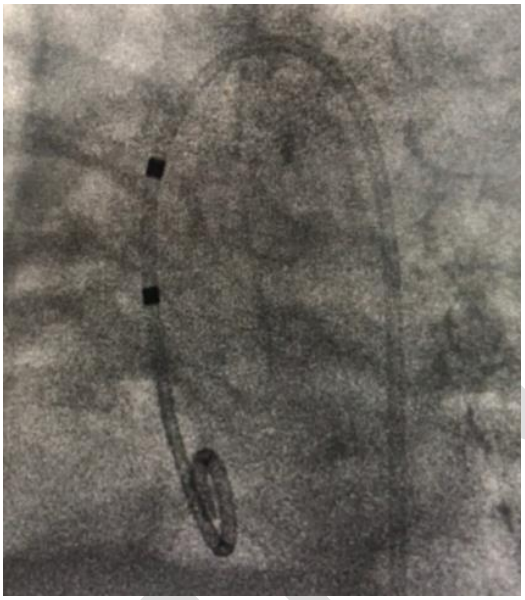
Method:

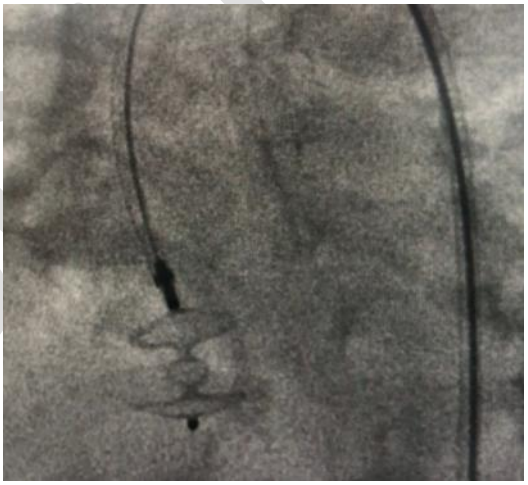
Several case reports

Results:

Case 1

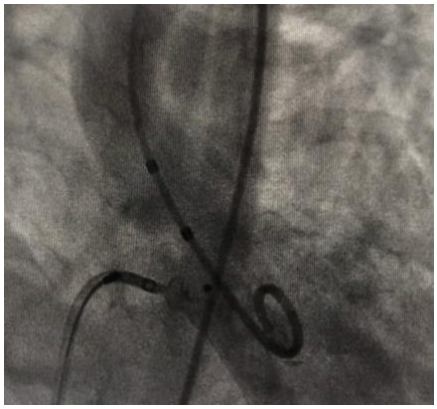
An eight- month-old 3900-gram baby with chronic lung disease due to 5 mm perimembranous VSD and 3 months on artificial ventilation. Her lungs were too ugly to put on open heart surgery. She was then catheterized. Two 5 Fr sheath was used for the femoral vein and femoral artery. We at first attempted to close the VSD retrogradely by making a veno-arterial guirewire loop. However, her heart was too small to close the VSD from the venous site. We then successfully close the VSD anterogradely from the arterial site with 4 mm ADO II device. She developed a transient bradycardia and cyanosis due to pulmonary hypertension which resolved right after the procedure. Echocardiography after VSD closure show improved cardiac function despite mild residual shunt. The tracheal tube was successfully extubated 5 days after the intervention and no vascular nor valve complication was occurred.

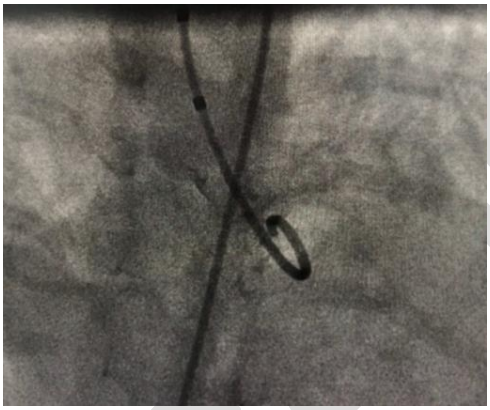


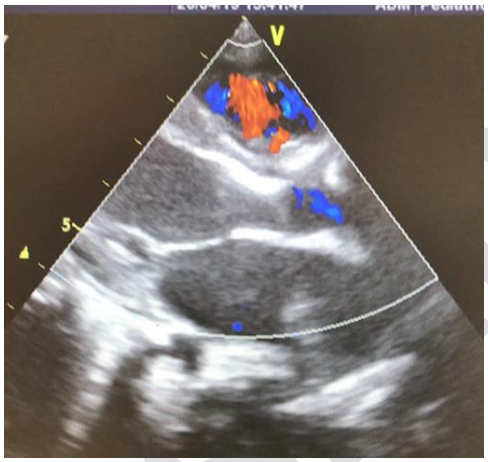


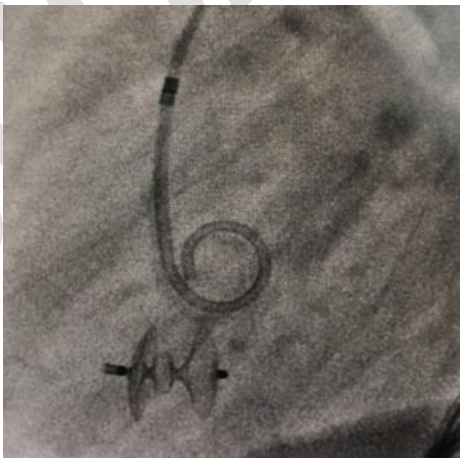
Case 2

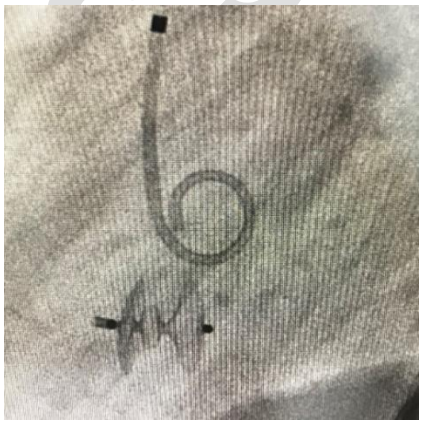
A 16-month-old 6,9 Kg baby with big perimembranous VSD, left ventricle dilation was catheterized. Two 5 Fr sheath was used for the femoral vein and artery catheterization. We deployed a 5x4 mm ADO II device retrogradely by using a veno-arterial loop. The device was stable. No complications during and after the procedure except for mild residual shunt which disappeared 1 month thereafter.

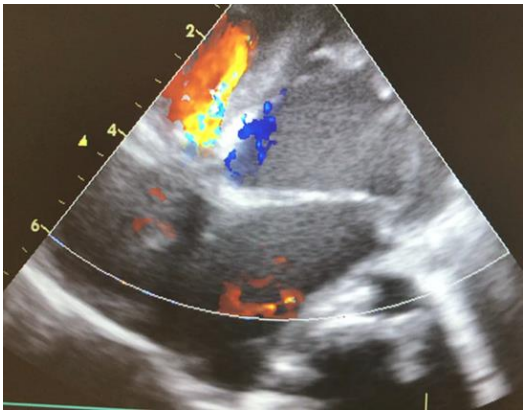






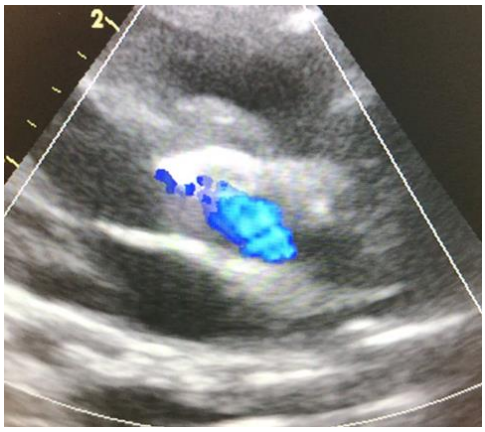


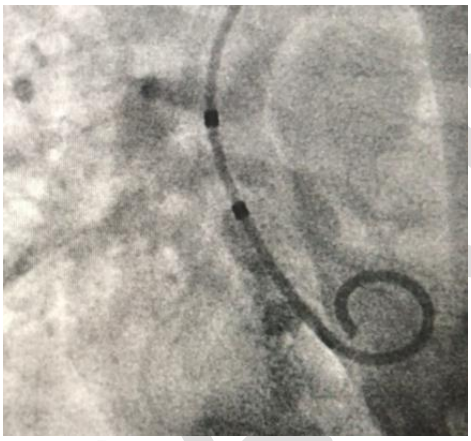


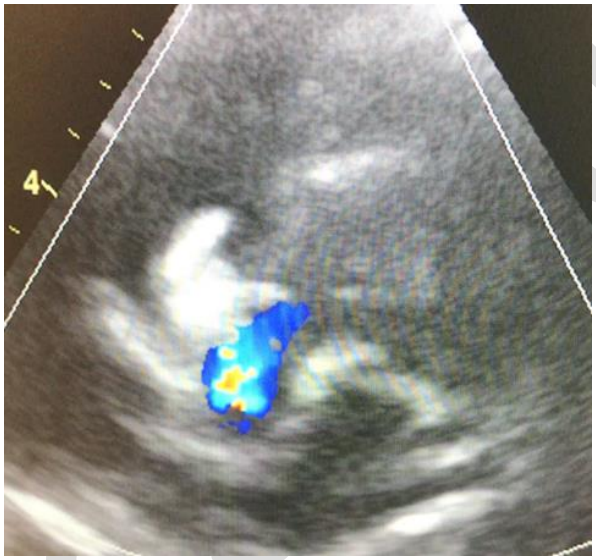


Case 3:

A 2-month-old 6 Kg baby with big perimembranous VSD, left ventricle dilation was catheterized. A 5 and 4 Fr sheath were used for the femoral vein and artery catheterization. We deployed a 5x4 mm ADO II device retrogradely by using a veno-arterial loop. The device was stable. There was no complications, no residual shunt during and after the procedure.







Conclusion:

In our experience, VSD closure in small patients can be feasible and effective. Anterograde approach from femoral artery may be helpful in very small babies. Special care is required for vascular catheterization and catheter manipulation The incidence of serious adverse event is low and no late onset of complete AVB with excellent success rate and follow-up results, confirming the transcatheter closure of pmVSD is a valuable alternative to surgical closure in selected patients.