

# Transcatheter Occlusion Of Haemodynamically Significant Ventricular Septal Defect With Konar-MF VSD Occluder: A Single Centre Experience



Clement Kwong-Man Yu<sup>1</sup>, Robin Hay-Son Chen<sup>1</sup>

<sup>1</sup>Department of Paediatrics and Adolescent Medicine, Hong Kong Children's Hospital

## Background

Transcatheter closure of ventricular septal defect (VSD) is a reasonable alternative for selected cases compared to traditional open-heart surgery.

Aim of study: To share our initial experience with transcatheter closure of VSD mainly with a haemodynamic indication using LifeTech Konar-MF VSD Occluder; and describes safety, efficacy and early follow-up results with this device

## Methods

Retrospective study of all patients undergoing transcatheter closure of VSD using Konar-MF VSD Occluder in our centre:

9 patients with the procedures performed between Dec 2021 and May 2023; All procedures performed under general anaesthesia, transoesophageal echocardiography (TEE) and fluoroscopic guidance. Follow-up using transthoracic echocardiography and electrocardiogram (ECG) was done until Oct 2023

## Results

Patients demographics and indication of VSD occlusion are summarized in Table 1

Baseline echocardiographic findings:

- Median LV end diastolic dimension 46.3mm (range 38.6 – 51.4mm). Mean Z-score 1.99±1.74
- 6 with peri-membranous VSD, 2 with outlet muscular VSD, 1 with residual VSD post-surgical repair
- Median defect size on TEE: 8mm (range: 5 – 12mm)
- All defects 2mm from the aortic valve
- 1 patient with mild right coronary cusp prolapse and mild aortic regurgitation (AR)
- 1 patient with moderate tricuspid regurgitation (TR) while 8 with mild TR
- Of the 6 patients with peri-membranous VSD, all with presence of tricuspid aneurysmal tissue formation; Out of them, 2 with well-formed aneurysmal sac and single RV exit, while remaining 4 with multiple RV exits

Patients	N=9
Age (yrs), median (range)	8 (3-19)
Weight (kg), median (range)	32.5 (13.5-67.1)
Male	2/9 (22.2%)
HF symptoms	1/9
Indication:	
LV volume overload	8/9
History of IE	1/9

**Table 1. Demographics & indication**

The procedural characteristics are summarized in Table 2

- The mean Qp:Qs ratio = 2.60±1.34
- All devices successfully implanted in the 9 patients. Large device with PTFE covering (Konar-MF VSD Occluder with size 10/8mm or bigger) used in 6 patients.

## Complications

- No major complication including complete heart block, worsening of AR or TR or embolization
- Transient right bundle branch block during the procedure in 1 patient
- Reloading a larger device in 1 patient
- Device recapture and redeployment with change of approach in 2 patients

## Outcome

- No significant or worsening of AR or TR; No ECG abnormalities observed in follow-up
- Immediately after procedure, 1 patient with moderate residual shunt and 7 with tiny or small residual shunts
- At 6-months follow-up, 2 with tiny or small residual shunts and the rest with no residual shunt

## Conclusion

Transcatheter closure of VSD using Konar-MF VSD Occluder is safe and effective in patients with moderate sized haemodynamically significant VSDs, with satisfactory early outcome without major complication.

Procedure time (mins) median (range)	85 (77-138)
Fluoroscopy time (mins) median (range)	29.9 (13.6-89.1)
Approach to implant device:	
Retrograde	8/9
Antegrade	1/9
Size of VSD occluders implanted:	
14/12mm	2
12/10mm	1
10/8mm	3
8/6mm	2
7/5mm	1

**Table 2. Procedural characteristics**