

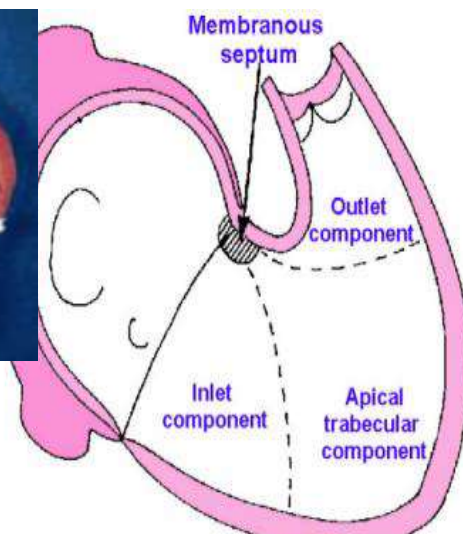
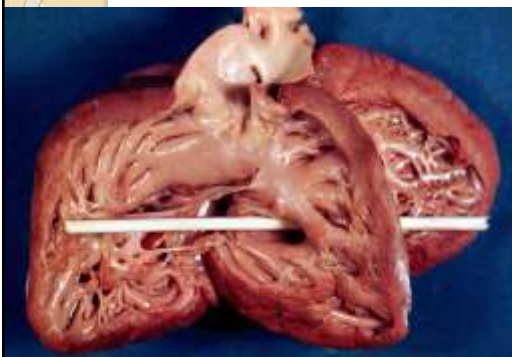


Percutaneous Closure of VSD Using PFM Nit-Occlud Coil

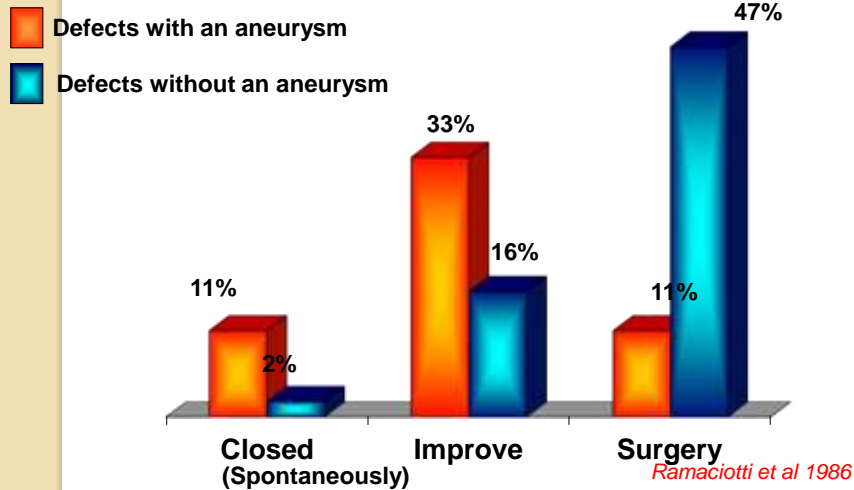
Presented By
Dr. Khaled Refaat, MD, FEgSC

Benisuef University
Egypt

Morphology of VSD



Rate of Spontaneous Closure

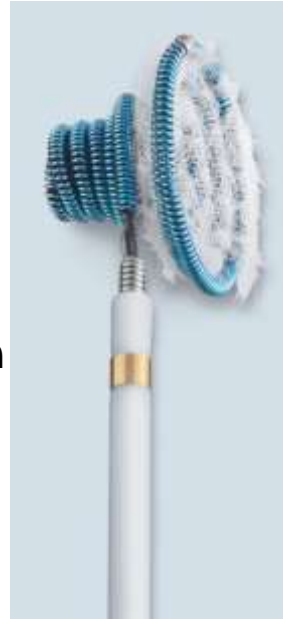


Historical perspective

- 1988 Lock reported the first human experience of transcatheter closure of muscular defects in 7 patients using the Rashkind double umbrella device.
- The introduction of the Amplatzer devices widened the application of transcatheter techniques for closure of these defects

Nit-Occlud® Lê VSD

- Consists of a Nitinol coil fitted with polyester fibers which is designated for closure of both PM and muscular VSDs .
- Due to the flexible design of Nit-Occlud® Lê VSD, no permanent heart block have been reported in more than 950 cases done.



The Results of Transcatheter Closure of VSD Using Amplatzer® Device and Nit Occlud® Lê Coil

Paweena Chungsomprasong,^{1*} MD, Kritvikrom Durongpisitkul,¹ MD,
Chodchanok Vijarnsorn,¹ MD, Jarupim Soongswang,¹ MD, and Trong Phi Lê,² MD

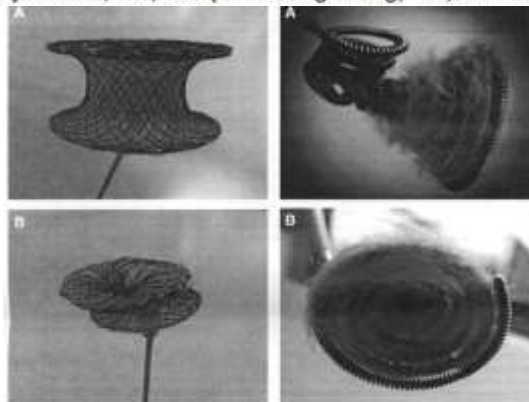


Fig. 5. (A) The Amplatzer® muscular VSD device and (B) the Amplatzer® pericardiovenous VSD device.

Fig. 6. (A, B) The Nit-Occlud Lê VSD Coil.

Chungsomprasong et al., Cath Cardiovasc Intervent 78:1032–1040 (2011)

TABLE II. Follow-Up Data on Residual Shunt, Complete Atrioventricular Block (3° AVB), and Degree of Aortic Regurgitation (AR)

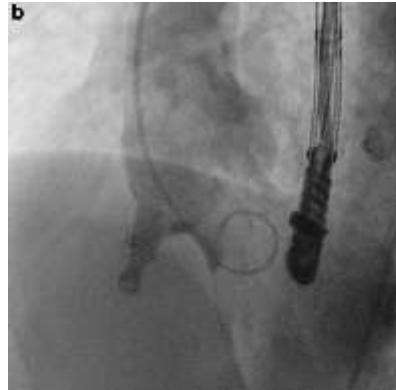
	Amplatzer® VSD (n = 76)	Nit Occlud® Lê VSD Coil (n = 33)	P value
Residual shunt at first day postprocedure			
–small < 2 mm	4/76 (5.3%)	6/33 (18.2%)	0.05
–moderate/large <4 mm	4/76 (5.3%)	0/33 (0%)	0.05
Residual shunt at sixth month postprocedure			
–small < 2 mm	7/76 (9.2%)	5/33 (15.2%)	0.54
–moderate/large <4 mm	1/76 (1.3%)	0/33 (0%)	0.54
AR at first day			
–no	50/76 (76.3%)	20/33 (60.6%)	0.16
–trivial/mild	17/76 (22.4%)	13/33 (39.4%)	
–moderate	1/76 (1.3%)	0/33 (0%)	
AR at sixth month			
–no	69/76 (90.8%)	22/33 (66.7%)	0.002
–trivial/mild	7/76 (9.2%)	11/33 (33.3%)	
–moderate	0/76 (0%)	0/33 (0%)	
3° AVB	5/76 (6.5%)	1/33 (3.0%)	
Pacemaker implantation	4/76 (5.2%)	0	

AR: aortic valve regurgitation; 3° AVB: complete atrioventricular block.

In conclusions, transcatheter closure of VSD in selected patients can be achieved using both the devices. The Amplatzer® Perimembranous VSD device had the advantage of closure of larger VSD defects. The number of residual shunts on both devices appeared small and, in particular, improved over time in the Amplatzer® group. The Amplatzer® group appeared to have a significant number of 3° AVB that required pacemaker implantation. Nit Occlud® Lê VSD Coil had the advantage of closure of both perimembranous and selected DCSA VSD (with less than mild AR). The frequency of AR before and at 6 months appeared to be the same during the follow-up period for both device groups.

Transcatheter Closure of Perimembranous Ventricular Septal Defects using Nit-Occlud® Lê VSD Coil: Early and Mid-Term Results

Ender Odemis · Murat Saygi · Alper Guzelbas ·
I. Cansaran Tamidir · Yakup Ergul ·
Isa Ozyilmaz · Ilhan Bakir



Pediatric Cardiol
DOI: 10.1007/978-94-007-013-0-8660-8

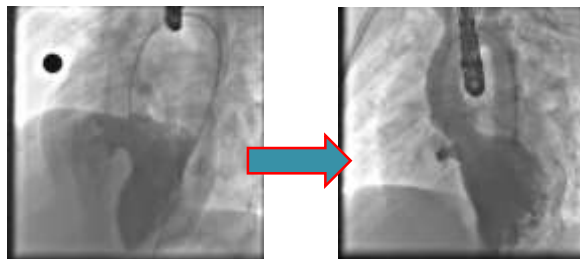
	Residual shunt negative	Residual shunt positive	p value
General assessment			
Weight			
Mean ± SD	26.56 ± 12.98	23.96 ± 9.55	0.292
Median (min-max)	27 (10-58)	27 (3-56)	
Length			
Mean ± SD	125.45 ± 22.61	119 ± 25.29	0.865
Median (min-max)	125 (79-167)	127 (78-143)	
Angiographic assessment			
Method			
Yes	N = 11 (91.70 %)	N = 3 (100.00 %)	0.119
No	N = 1 (8.30 %)	N = 2 (100.00 %)	
LV diameter angle			
Mean ± SD	8.48 ± 2.69	7.90 ± 1.06	0.635
Median (min-max)	8 (4.6-13.6)	7.7 (6.6-9.1)	
RV diameter angle			
Mean ± SD	3.81 ± 1.14	3.44 ± 1.05	
Median (min-max)	3.44 (2.5-5.4)	3.46 (3.0-4.8)	
Qr/Qc			
Mean ± SD	1.58 ± 0.21	2.10 ± 0.1	
Median (min-max)	1.63 (1.3-1.8)	2.2 (1.7-2)	
MDAP			
Mean ± SD	19.92 ± 2.39	24.4 ± 3	
Median (min-max)	20 (16-24)	25 (21-28)	

Conclusion

In selected cases, the Nit-Occlud® Lê VSD coil device can be used for the transcatheter treatment of VSD. When compared with other VSD closure devices, there was no development of permanent AV block, which is an important advantage. However, patients with a residual shunt should be followed closely during the first few hours for the development of hemolysis. Although the available data demonstrate a high percentage of success for the process, larger case studies of longer durations are needed to evaluate the long-term effects and complications.

Interventional VSD-closure with the Nit-Occlud® Lê VSD-coil in 111 patients – results of the EUREVECO-registry

Methods: Retrospective analysis of the feasibility, results, safety and follow-up of VSD-closure with this device over a 3 year period in 18 European centers (EUREVECO registry).



Conclusion: Interventional closure of VSDs using the Nit-Occlud Lê VSD coil is feasible in a large variety of patients, provides a high success rate and seems safe with only a minimal risk of severe side effects.

Our Experience



- Includes 77 patients over 3 years duration
- Age ranging from 4.5-41 years
- VSD size range from 5.5- 11 mm (LV inlet)
- RV defect range from 3.0-5.5mm
- Aneurismal defect in 38 patients
- Aortic valve prolapse in 4 cases
- Base line mild AR in 8 patients
- Mean follow-up was 12 months

Results:

VSD Closure rate at implantation:

68 complete closure (89 %)
Mild residual shunt: 13 (18 %)

VSD Closure rate at 6 months FU:

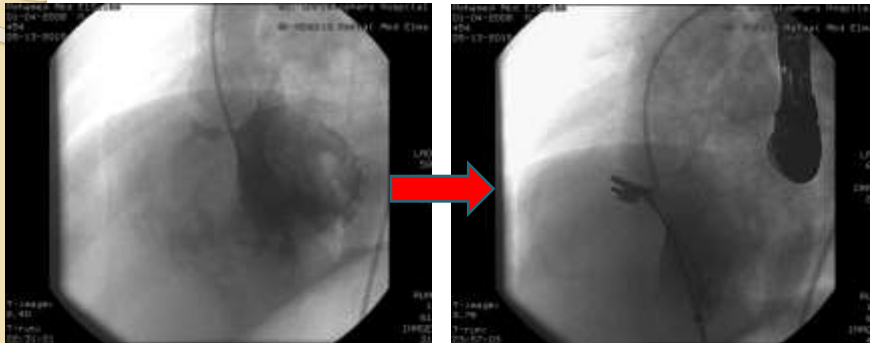
73 complete closure (96 %)
Mild residual shunt: 3 (4%)

Major Complications after implantation:

- 0 - death
 - 1 - embolization
 - 0 - severe hemolysis
 - 0 - permanent AV block
 - 0 - severe aortic regurgitation
 - 1 - severe tricuspid regurgitation
-

Follow-up complications: n = 5 (7%)

- 0 - Coil fracture
- 0 - new onset right bundle branch block (RBBB)
- 1 - moderate aortic regurgitation
- 3- moderate tricuspid regurgitation
- 1- RVOT obstruction with peak gradient 55mmHg



However
Is it the Perfect Device ?

Take Home Message

- Closure of the restrictive PM & high muscular VSDs (up to 11 mm) is very safe and effective using the VSD Nit-Occlud Coil.
- The PFM VSD Coil seems to have a high implantation success rate.
- Very low complication rate.
- No permanent AV Block has reported despite number and long follow-up.
 - **Small kids under 15 KG and small RV carries high risk of complications**

