

Transcatheter Closure of Subarterial VSD Using Pfm Coil



: At Siriraj hospital



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Double committed subarterial VSD

- **5% of isolated VSD in Caucasian**
- **Up to 30% of oriental**
- ***19% (62/320) Thai children with median age of 3 mo (1-12 months)**
- **5 year f/u**
- **87% Aortic valve prolapsed**
- **37% with AR**

Soto B : Br Heart J 1980

Ando M : Heart & Vessels 1986

*Layangool T : J Thai Med Assoc 2008

Doubly Committed and Juxtaarterial VSD

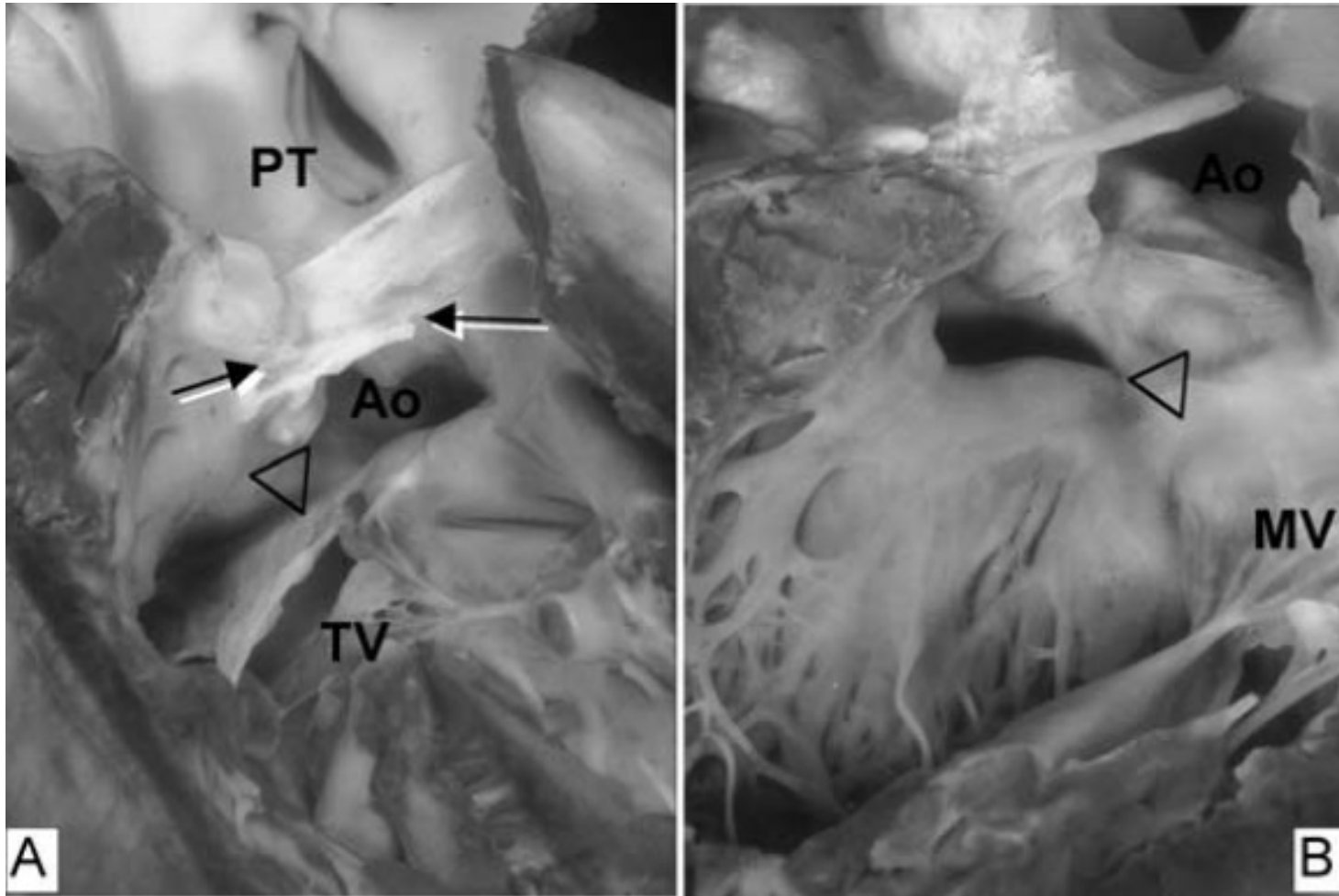
- Superior margin form by arterial valves with fibrous continuity, absent of outlet septum & deficiency of subpulmonary infundibulum
- Postero-inferior margin is muscular ring (fusion of the inferior limb of the septomarginal trabeculation with the ventriculoinfundibular fold.)
- The right coronary leaflet of the aortic valve prolapses into the defect

Ho SY : J Interven Cardiol 2004

Mccarthy KP : J Interven Cardiol 2005

Griffin ML : Br Heart J 1988

**Morphology of Perimembranous Ventricular Septal Defects:
Implications for Transcatheter Device Closure
(doubly committed, infundibular & supracrista)
Device closure risks damaging the valves**



Mccarthy KP & Ho SY L : J Interven Cardiol 2005

Transcatheter closure of VSD



**The Amplatzer™
Membranous VSD
Occluder
2003**

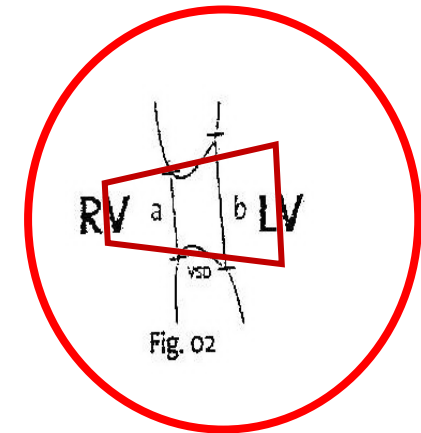
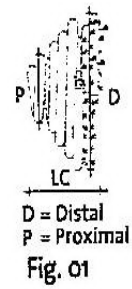
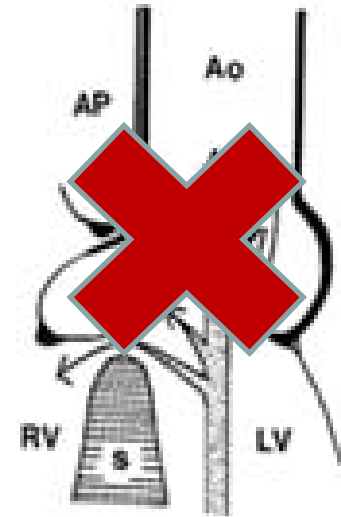
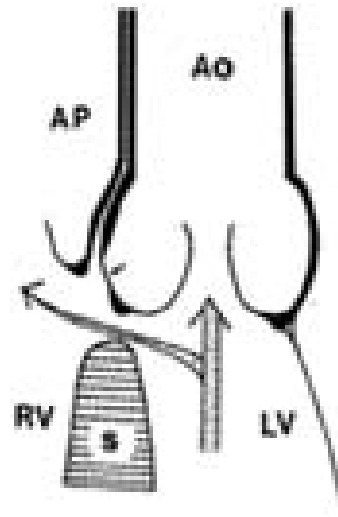
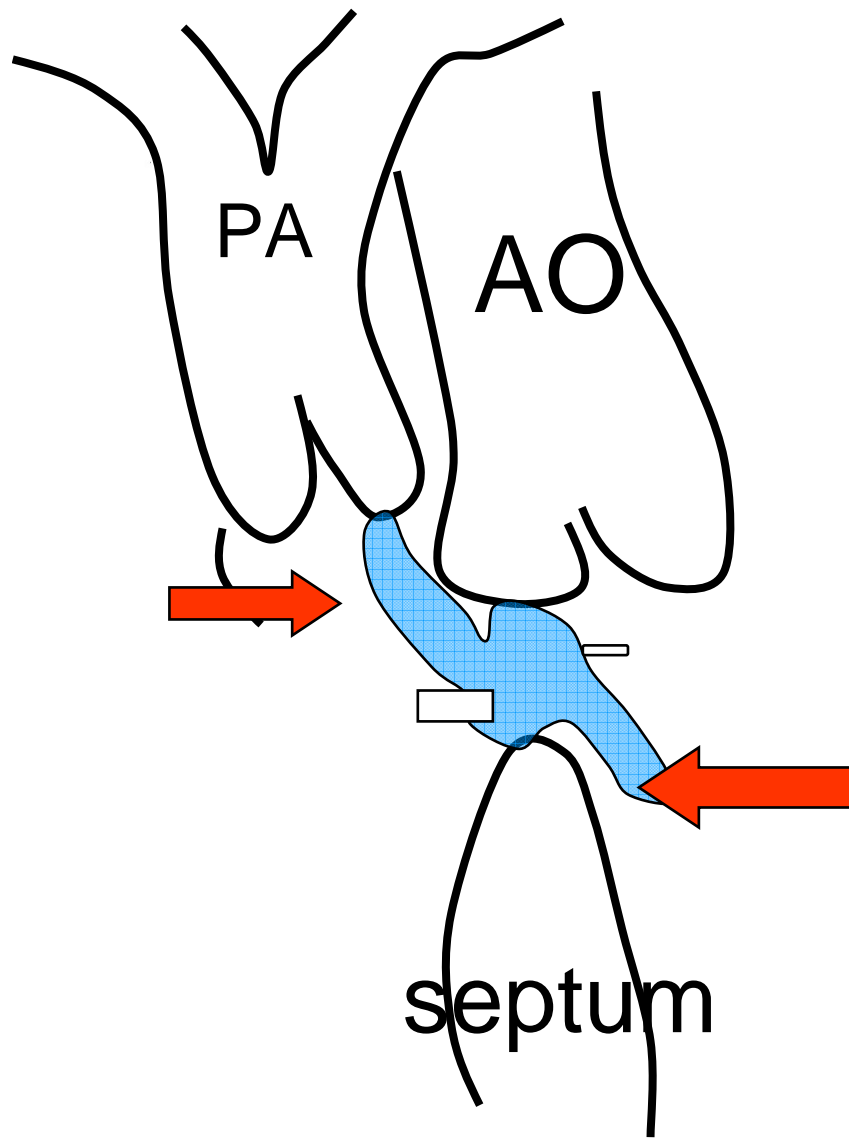


**The Amplatzer™
Muscular VSD
Occluder
2005**



**The Nit-Occlud® VSD
Trong Phi Lê**
2006**

**Departments of Pediatric Cardiology, University of Hamburg,
Hamburg, Germany



Pfm coil

Nit-Occlud® Lê VSD

Coil System for VSD closure. Spiralsystem zum VSD-Verschluß. Sistema espiral para el cierre de la CIV. Système de spirale pour la fermeture de la CIV. Sistema a spirale per la chiusura del DIV. Sistema espiral para o fechamento da CIV.

REF 149106

LOT 810656,001

SN



812801

Distal x Proximal: Coil diameter
Spiraldurchmesser. Diámetro de espiral. Diamètre de spirale. Diámetro della bobina. Diâmetro da espiral.

10 x 6mm

LC = Length of configurated coil. Spirallänge konfiguriert. Longitud de la espiral configurada. Longueur de la spirale configurée. Lunghezza della bobina configurata. Comprimento da espiral configurada.

7,0 ± 2 mm

Length of straightened coil. Gestreckte Spirallänge. Longitud de espiral enderezada. Longueur de la spirale tendue. Lunghezza della bobina raddrizzata. Comprimento da espiral no estado alongado.

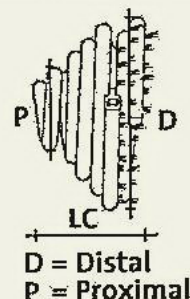
180 ± 10 mm

Introducer Sheath. Einführschleuse. Funda de introducción. Sas d'introduction. Guaina dell'introduttore. Introduzor de inserção.

6F x 105 cm
(2,00 mm)

QUANTITY

1x



D = Distal
P = Proximal

Length of positioner system
Länge Trägersystem. Longitud del sistema de posicionamiento. Longueur du système de positionnement. Lunghezza del posizionario. Comprimento do sistema de posicionamento.

1600 mm

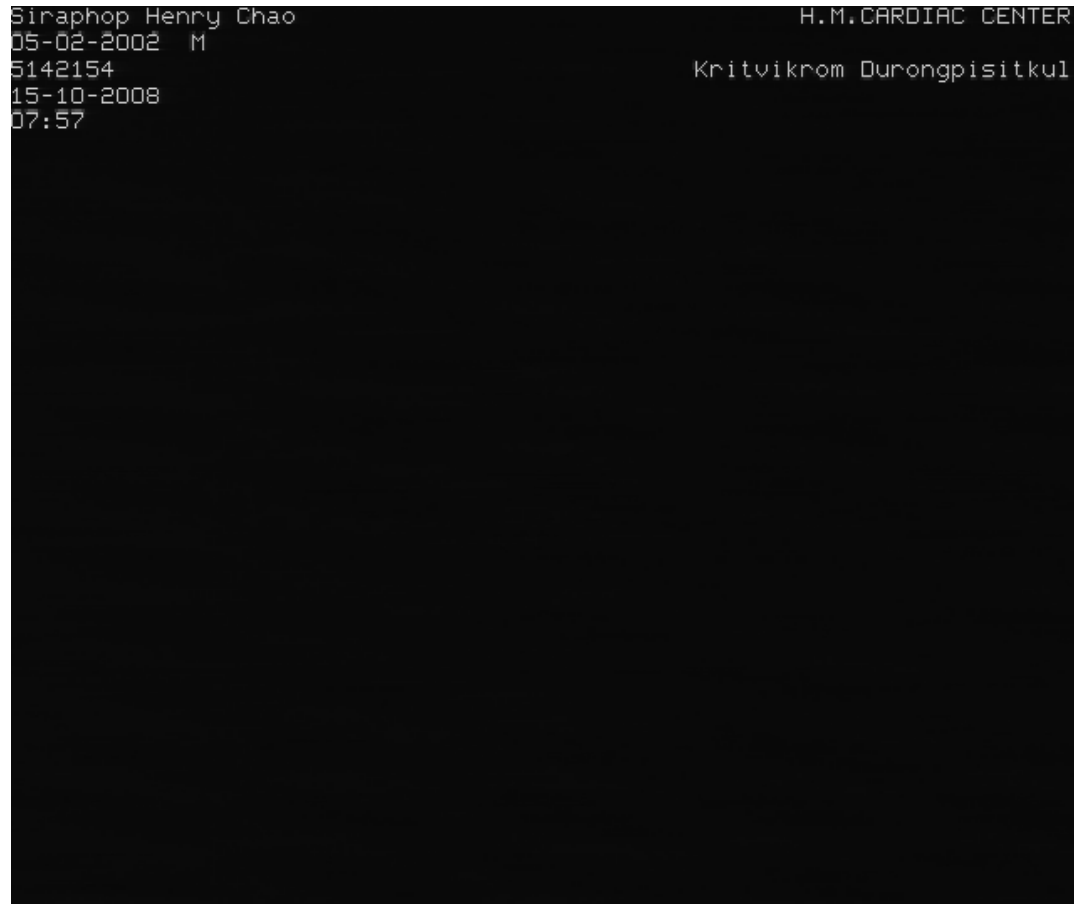
Rev. 02



Patients and methods

- **BW \geq 10kg**
- **Echo screening with left \rightarrow right shunt, RCC prolapsed (<mild AR)**
- **GA with TEE & Hemodynamic**
- **Aortogram and ventriculogram**
- **VSD engaged using JR, Bentson, Cobra :
LV angiogram LAO 80-90° or LPO**
- **Complete arteriovenous loop**
- **Deployment : Aorta or LV apex**

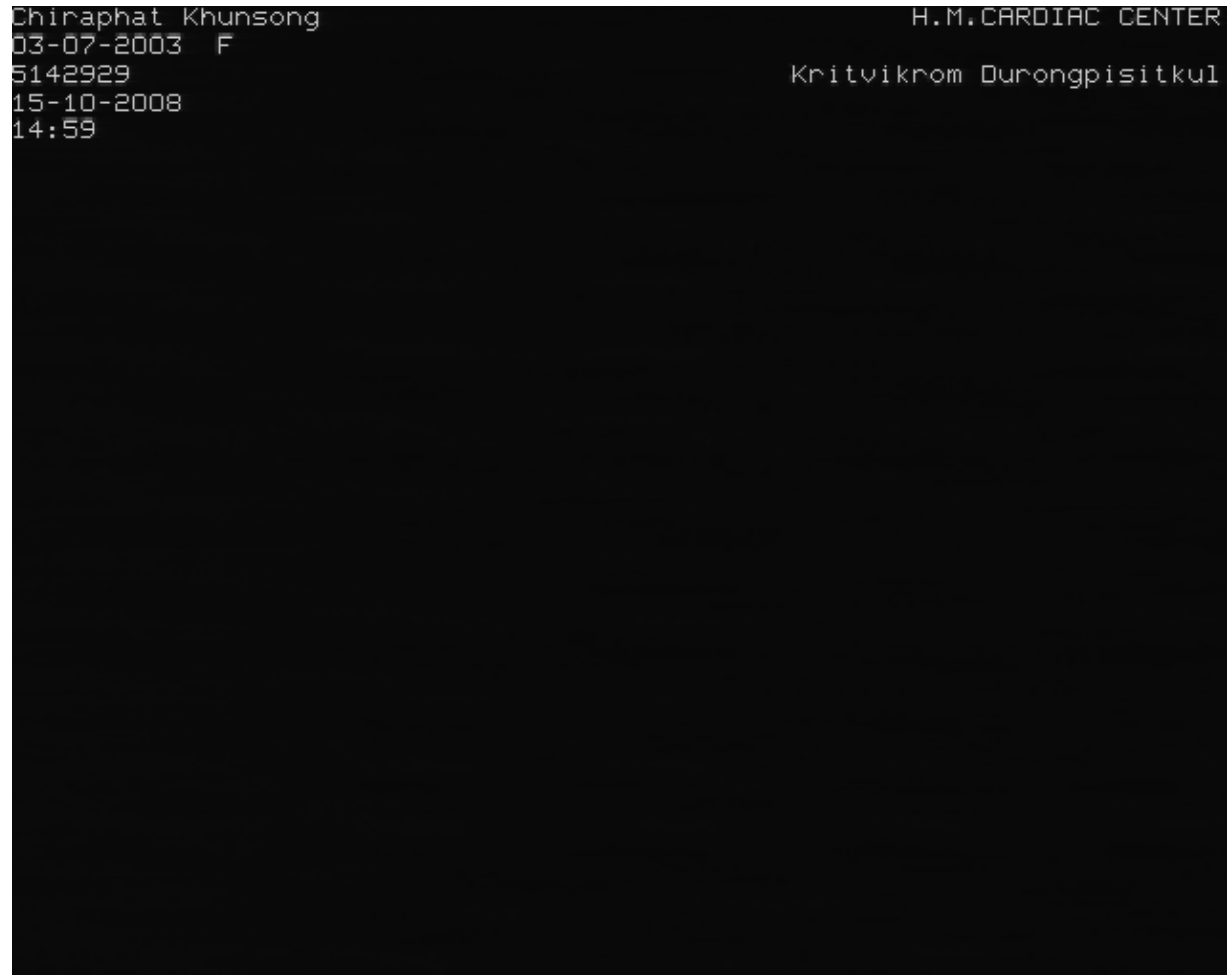
VSD profile in LAO view 80°-90°



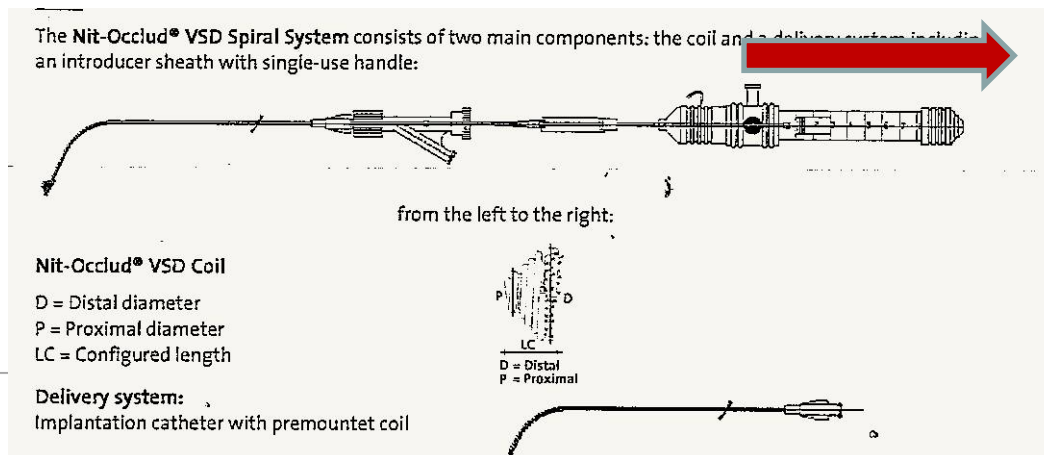
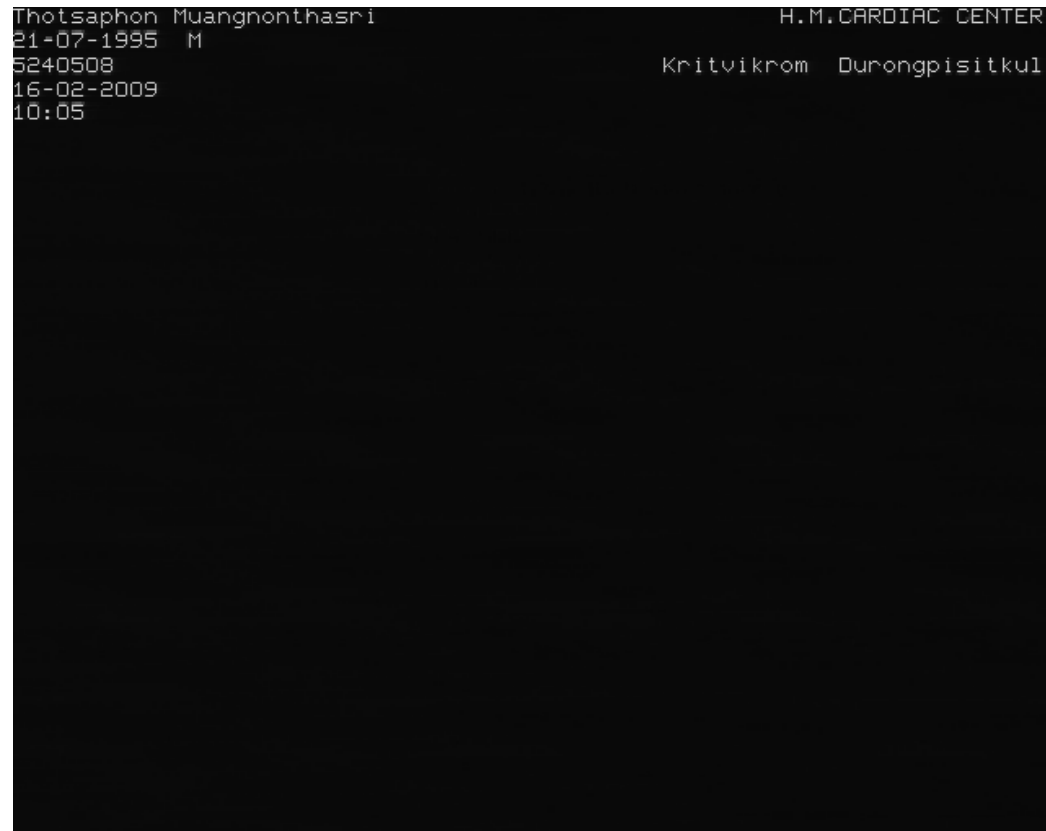
Engage VSD from LV

Thotsaphon Muangnonthasri	H.M.CARDIAC CEChayanutha Kritsanawarin	H.M.CARDIAC CENT
21-07-1995 M	08-02-2005 F	
5240508	Kritvikrom Durongpisi5143407	Chunhakasem Ch.wattark
16-02-2009	04-12-2008	
10:05	07:00	

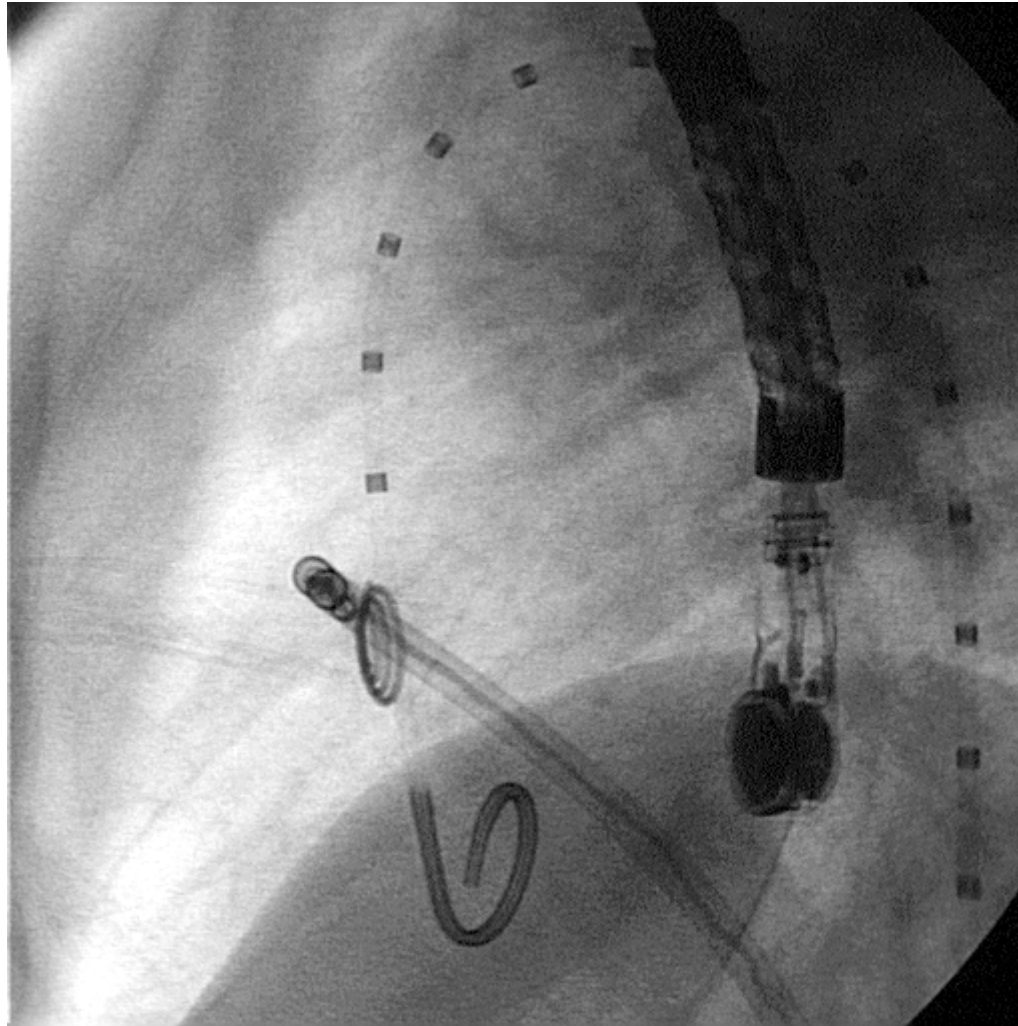
Deployment of Pfm coil from aorta

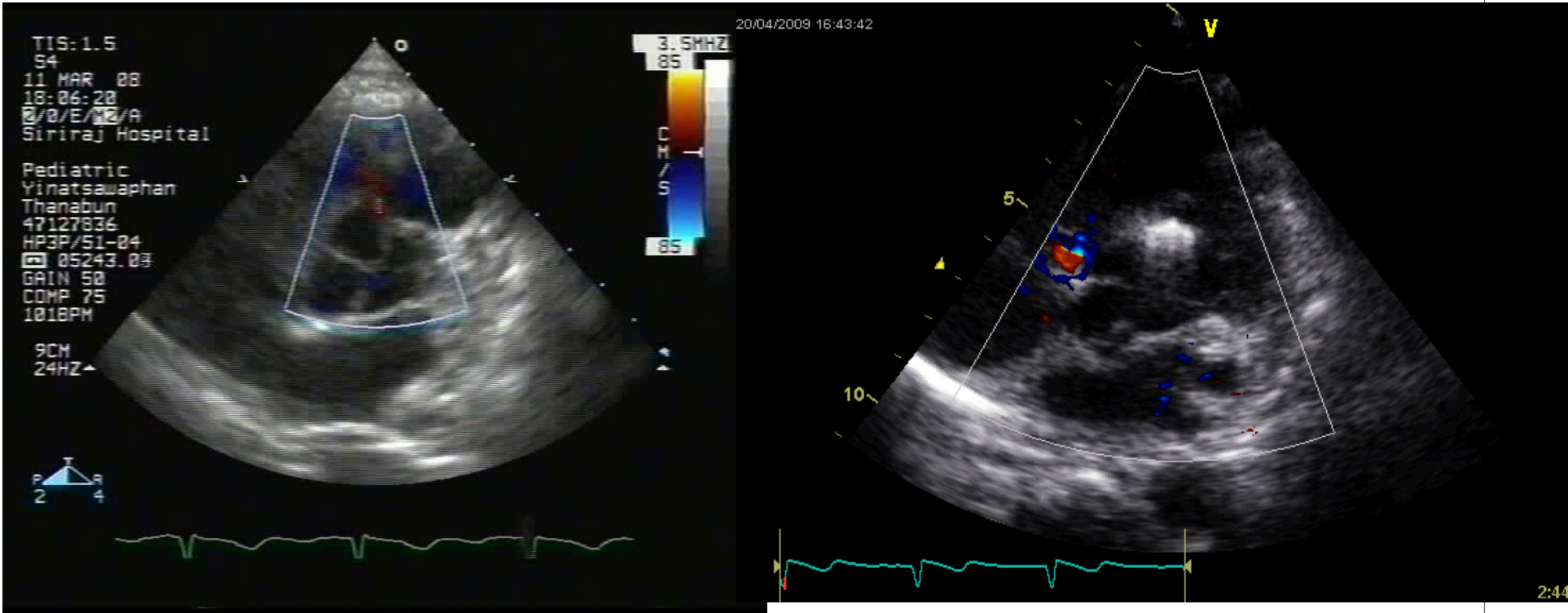


Coil released

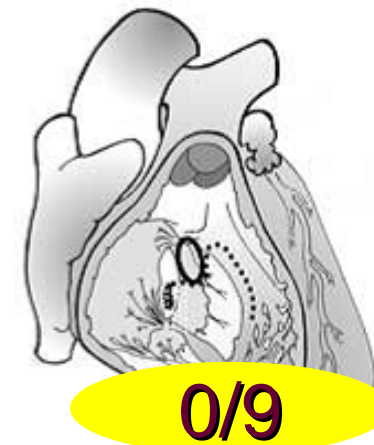
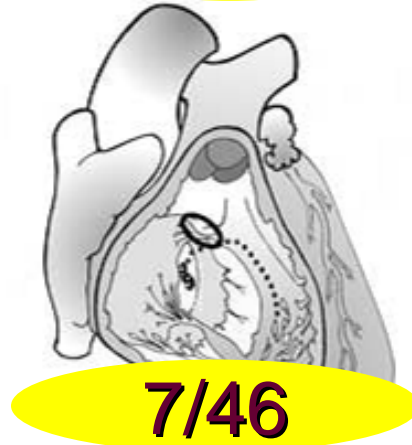
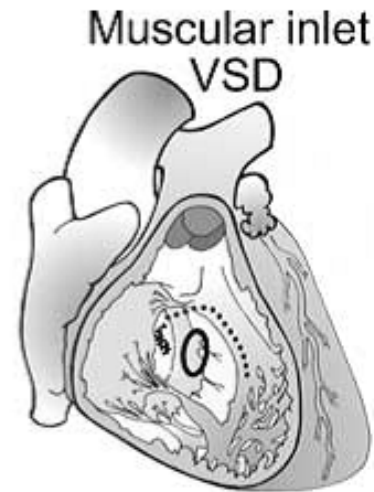
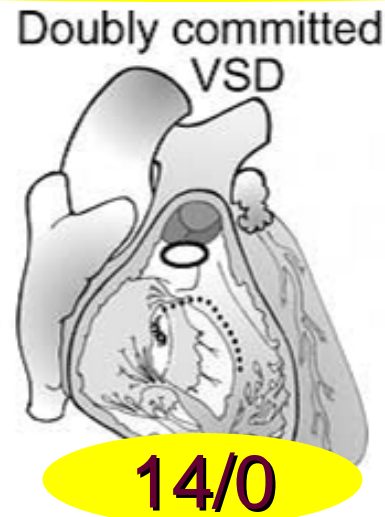
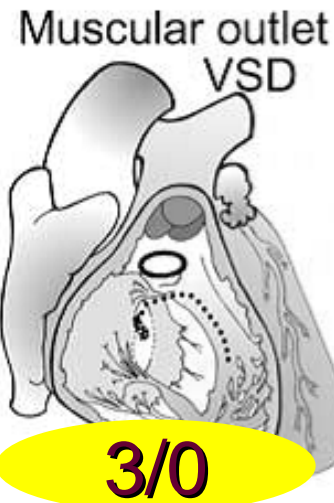


Deployment of Pfm coil in LV





Pfm coil (n= 25) / Amplatzer device (n= 65)



Perimembranous outlet VSD

Perimembranous trabecular VSD

Perimembranous inlet VSD

Ho SY, Karen PM, Micheal LR. Morphology of Perimembranous Ventricular Septal Defects: Implications for Transcatheter Device Closure. Journal of Interventional Cardiology 2004;17(2):99-108.

	Amplatzer™ device (n= 65)	Pfm coil (n=25)	p-value
Age (yr.)	17.1±12.9	10.1±7.1	<0.01
Weight (kg.)	41.9± 21.7	34.8±20.4	0.02
VSD TEE (mm)	7.2± 2.4	7.4± 2.1	<0.01
VSD angio (mm)	4.6± 1.4	4.5± 1.3	<0.01
Prolapsed RCC/ (AR trivial to mild)	16%/ (3%)	40%/20%	
Qp/Qs*	1.97± 0.8	1.63± 0.8	NS
mPAP(mmHg)	19.7± 5	18.9± 3.5	NS
Success	65/70 (92.8%) (2AVB,3size)	25/28 (89%) (2coil,1AVP)	
Complete closure (3 mo) < 2 mm	63/65 (97%) 3 late AVB	22/25 (88%)	
Fluoro time(min)	28.1± 9	22.7± 13.3	NS
Proc time(min.)	103.4± 32.6	87.2± 8.1	

Complication

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Angwana Choprasoetsuk H.M.CARDIAC CENTER  
01-01-2000 F  
5141258 Kritvikrom Durongpisitkul  
15-10-2008  
10:47
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Pfm coil caught in LV

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a Choprasoetsuk H.M.CARDIAC CENTEAngwana Choprasoetsuk H.M.CARDIAC
2000 F 01-01-2000 F
8 Kritvikrom Durongpisitku5141258 Kritvikrom Durongp
2008 15-10-2008
10:47
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Coil in aorta

Chayachon Charu-ekthadakun H.M.CARDIAC CENTER
28-04-1988 F
5143437 Kritvikrom Durongpisitkul
08-12-2008
06:51

Retrograde Snare coil

Chayachon Charu-ekthadakun
28-04-1988 F
5143437
08-12-2008
06:51

H.M.CARDIAC CENTER

Kritvikrom Durongpisitkul

Conclusions

- Pfm coil is feasible for closure of subarterial VSD : success rate 90%
- Degree of aortic valve prolapse, AR
- Residual shunt (<2 mm) in 12%
- No AV block
- Long term effect of aortic valve



Thank you

