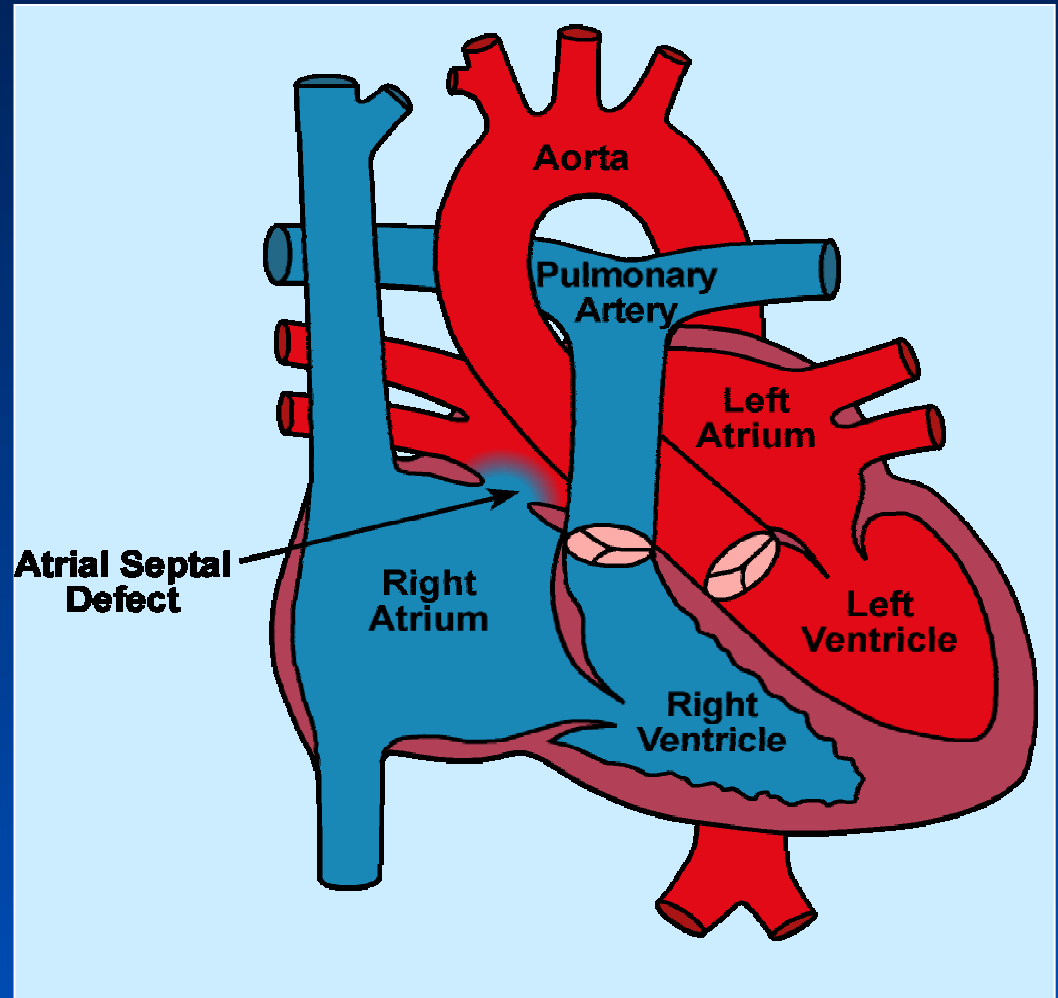
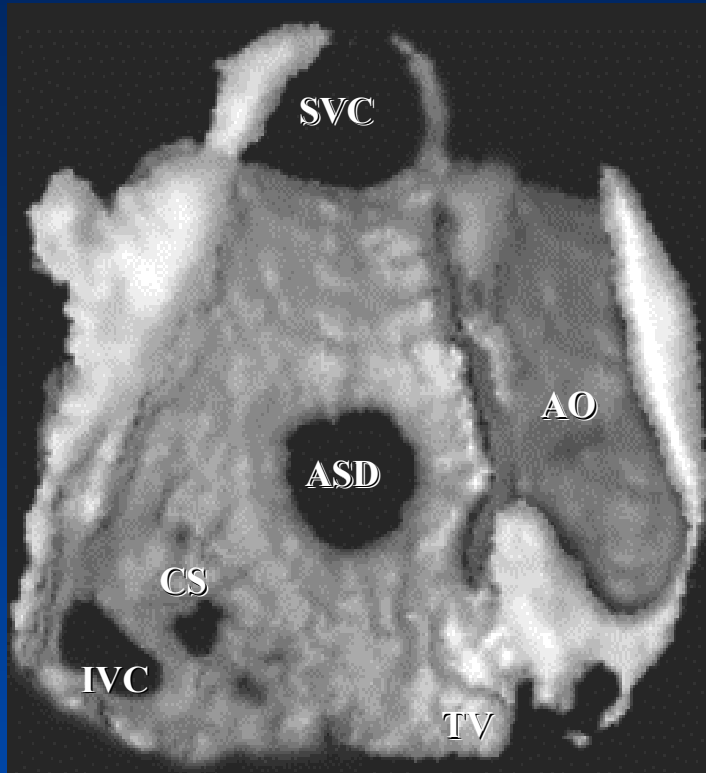


Percutaneous Closure of Atrial Septal Defect

Atrial Septal Defect



Percutaneous ASD Closure

Indications

Ostium secundum ASD with

- Clinical symptoms**
- $Q_p/Q_s > 1.5:1$**

Percutaneous ASD Closure

Contraindications

- **Resting pulmonary hypertension**
- **Non-secundum type ASD**
- **Insufficient septal rims**
- **Pregnancy**
- **Extensive congenital cardiac anomaly**
- **Recent infection or sepsis**
- **Contraindication to antiplatelets**
- **Intracardiac thrombi**

Surgery vs. Percutaenous

	Device (N=442)	Surgical (N=154)	<i>P-value</i>
Technical success	96%	100%	NS
Procedure time, min	106 ± 43	160 ± 54	< 0.001
Hospital stay, day	1.0 ± 0.3	3.4 ± 1.2	< 0.001
Complications			
Major	7 (1.6%)	8 (5.2%)	0.03
Minor	27 (6.1%)	29 (18.8%)	< 0.001
Overall	32 (7.2%)	37 (24.0%)	< 0.001
1-year success rate	98.5%	100%	0.33

Kramer P, TCT 2003

ASD Closure Devices

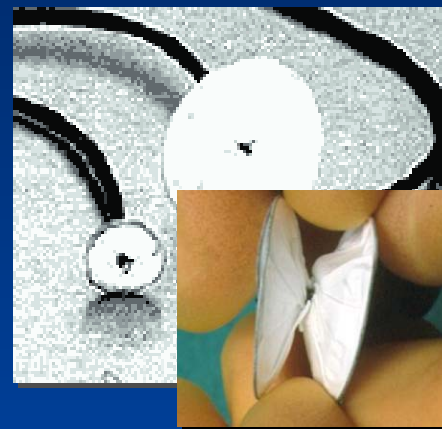
The Big Four



Amplatzer



**CardioSEAL
/ Starflex**



HELEX



PFOStar

ASD Closure Devices

“Ideal” ASD Repair

- **Minimally invasive**
- **Procedural safety**
- **Simplicity**
- **Efficacy**
- **Low profile “patch”**
- **Conforms to variable anatomy**
- **Long term biocompatibility**

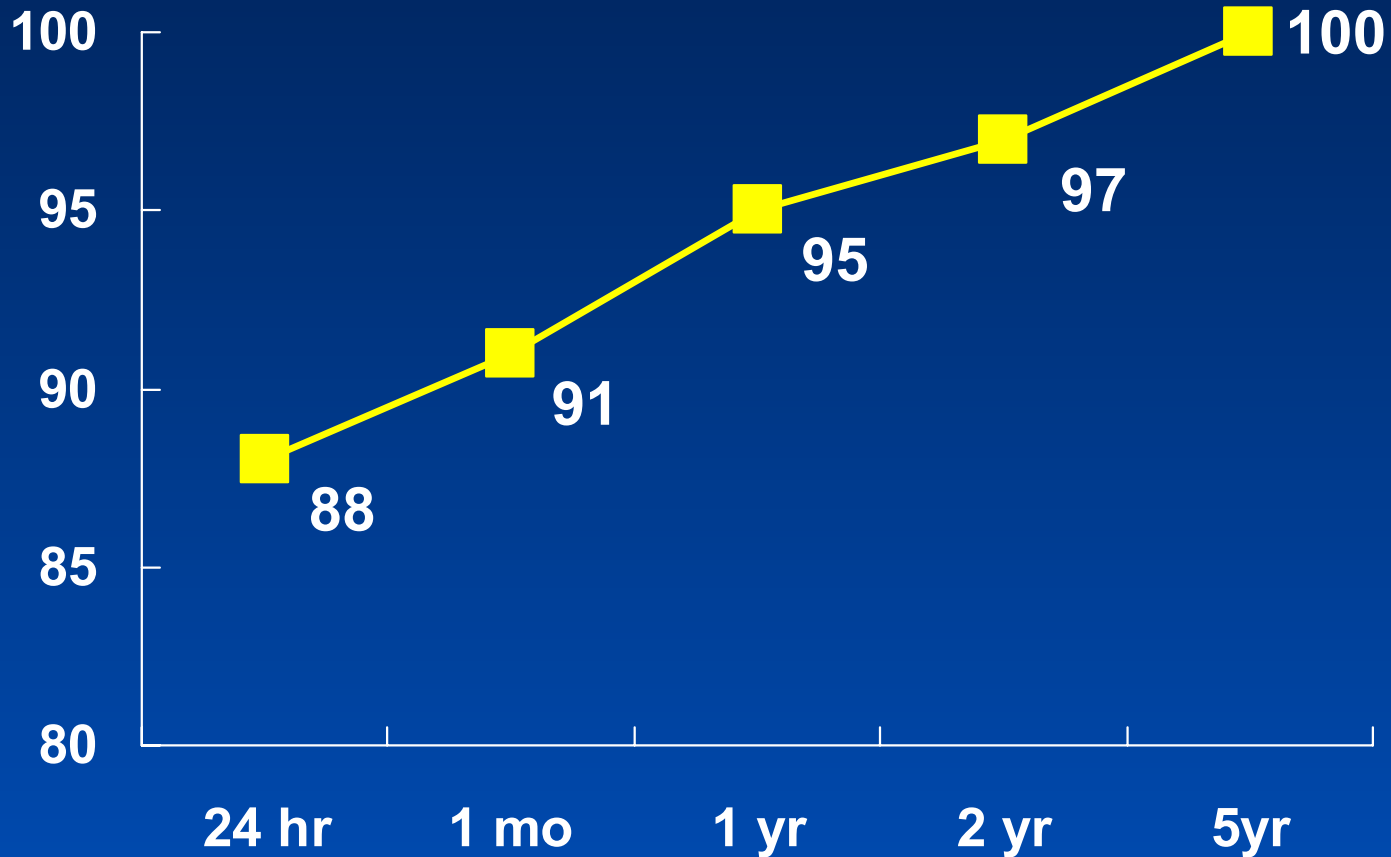
Procedural Results

- **Procedural success rate ; 95%-98%**
- **Very rare complication (<0.5%)**
 - **Entrapment in RA structures**
 - **Inability to release, withdraw**
 - **Twisting of device**
 - **Dislodgment**
 - **Thrombosis**

Bialkowski J, Rev Esp Cardiol. 2003;56:383

Occlusion Rate with Time

N=172



Bialkowski J, Rev Esp Cardiol. 2003;56:383

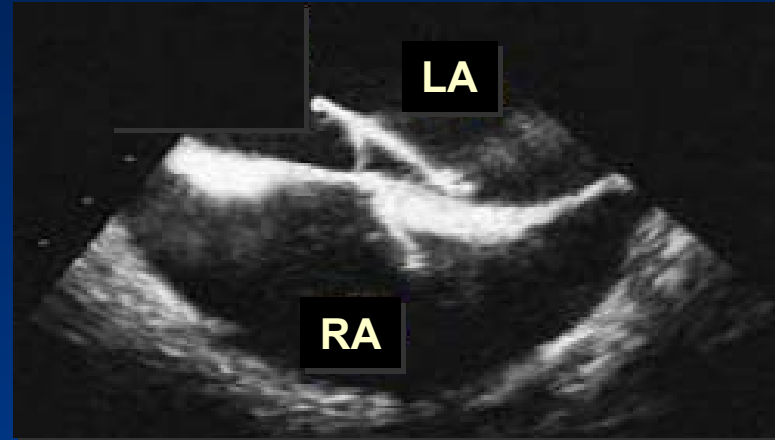
Thrombosis

- **Very rare : 0.05~0.2%**
- **Related to**
 - **Poor implant apposition**
 - **Poor device endothelialization**
 - **Underlying prothrombotic states**

Krumsdorf U et al. J Am Coll Cardiol 2004;43:302

Thrombosis

Poor apposition



Delayed endothelialization



Conclusion

Percutaneous closure of the secundum ASD is a safe, effective, and less invasive treatment than surgical closure

ASD Closure With Amplatzer Device

Amplatzer® Septal Occluder

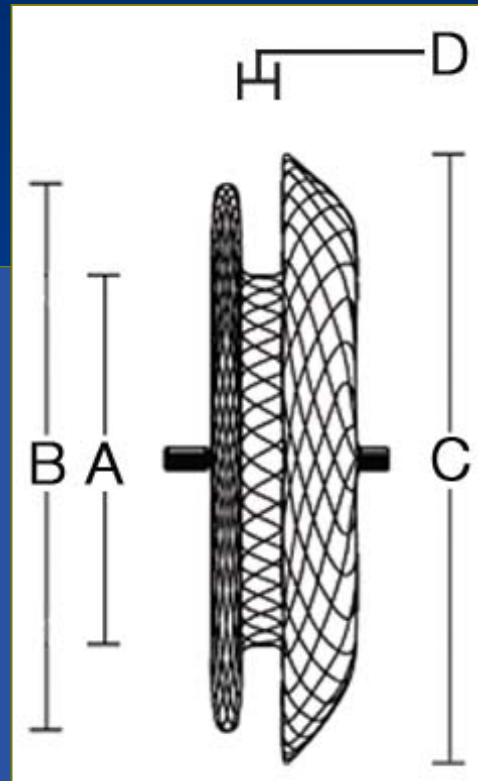
- Self-Expandable
- Short-connecting Waist
- Nitinol Wire .004" - .008"
- Sizes: 4-38 mm

Device Size (Waist = A)

RA Disc (B)

LA Disc (C)

Length of Waist = (D)



Amplatzer[®]

Sheath Selection Guide

6F: 60 cm, Device Size 4-10mm

7F: 60 or 80 cm, Device Size 11-17mm

8F: 60 or 80 cm, Device Size 18-20

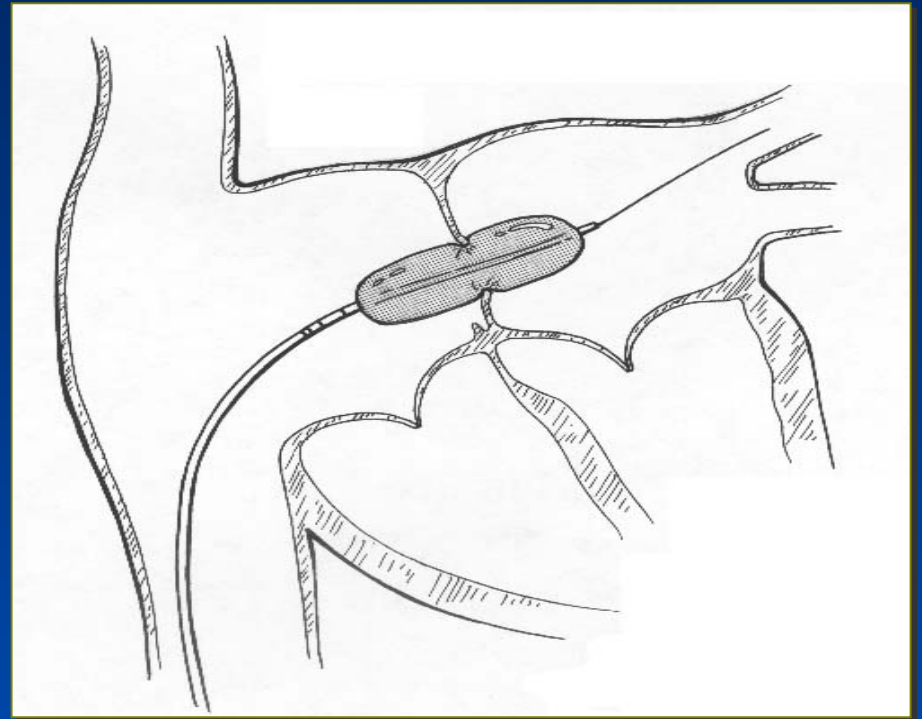
9F: 80cm, Device Size 22-24

10F: 80 cm, Device Size 26-30

12F: 80 cm, Device Size 32-38

Amplatzer®

Sizing Balloon

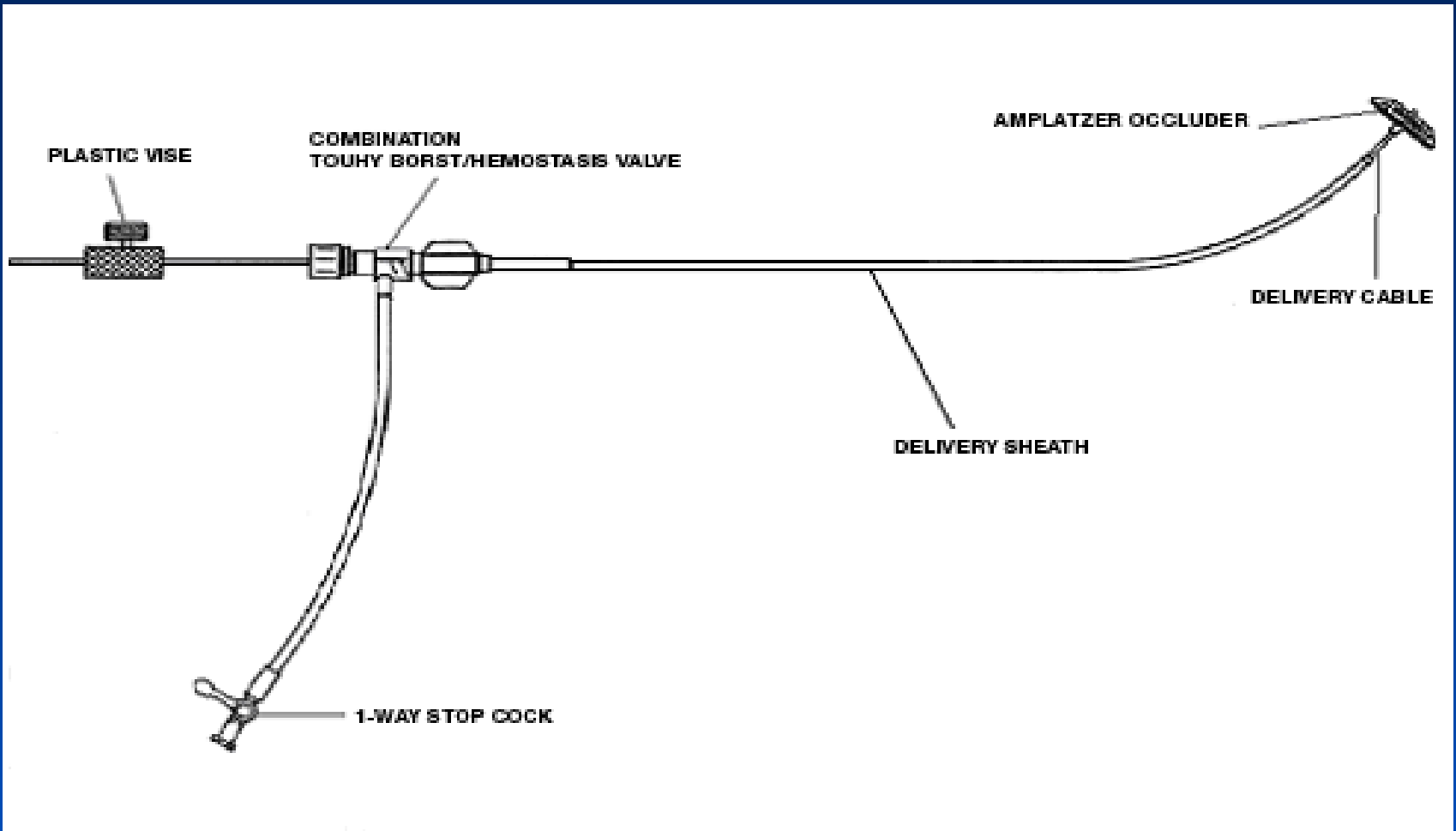


Amplatzer[®]

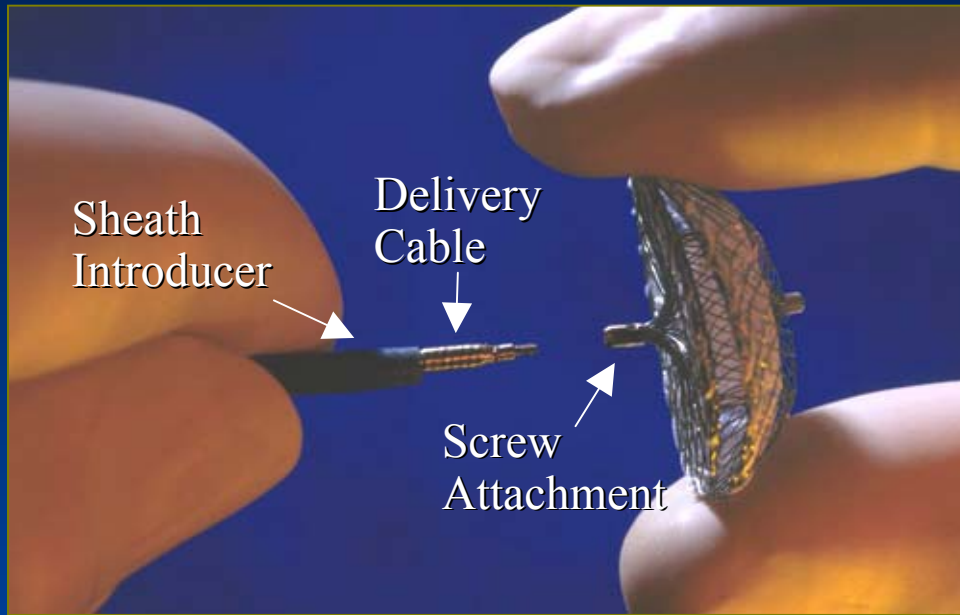
Device Size

- **Connecting waist ≤ 2 mm greater than stretched diameter of defect**
- **Defects up to ≤ 36 mm in diameter**
- **Rim of ≥ 5 mm on all sides**

Amplatzer® Delivery System



Amplatzer® Delivery System



Attachment



Loading

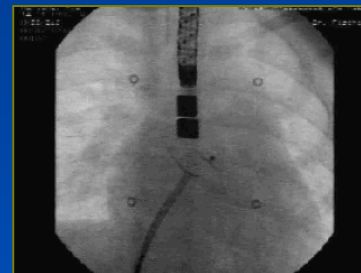


Transfer



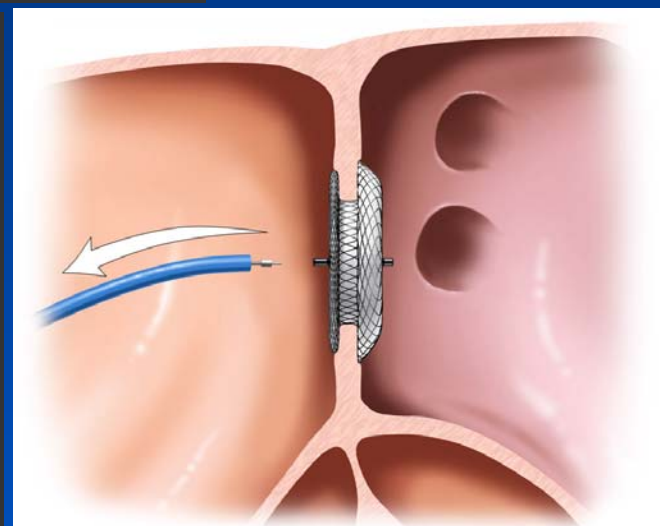
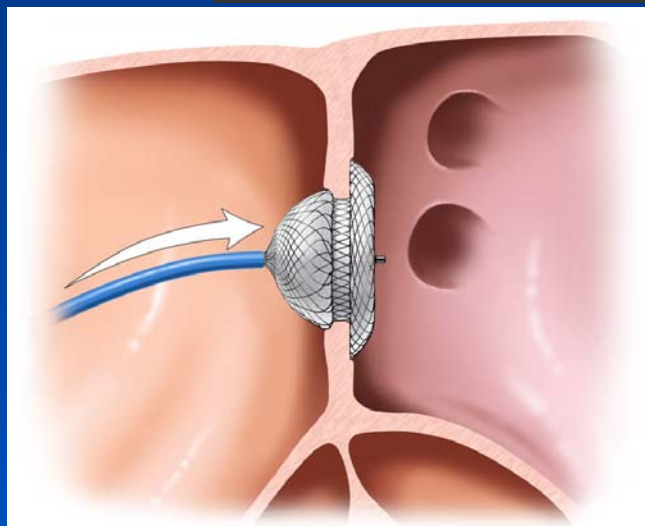
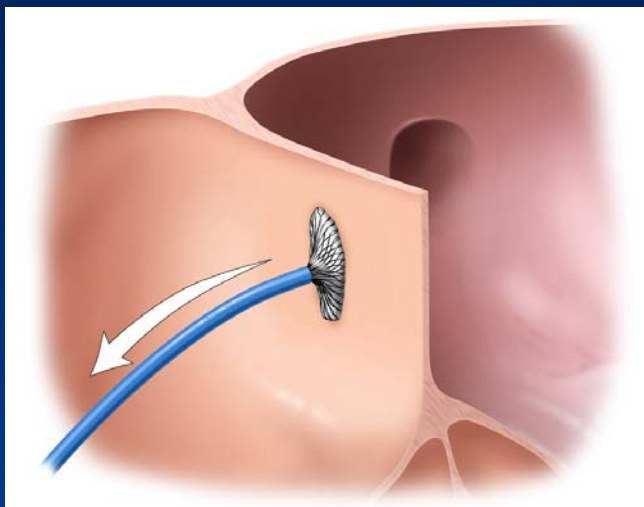
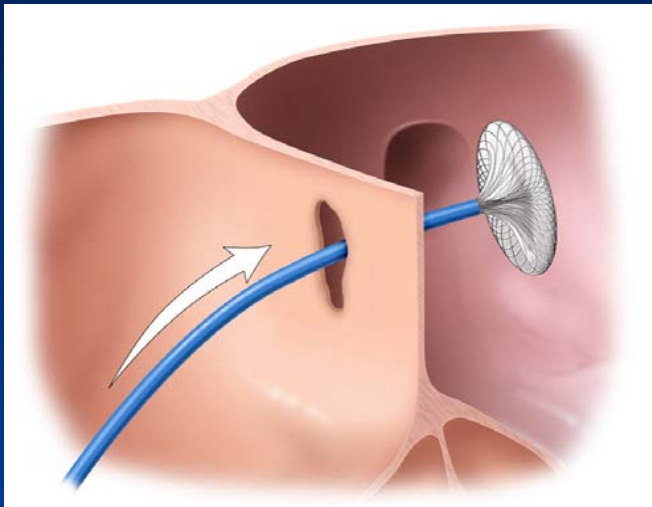
Advancement

Attach the loading device to the delivery sheath. Advance the device into the sheath by pushing (not rotating) the delivery cable.



Deployment

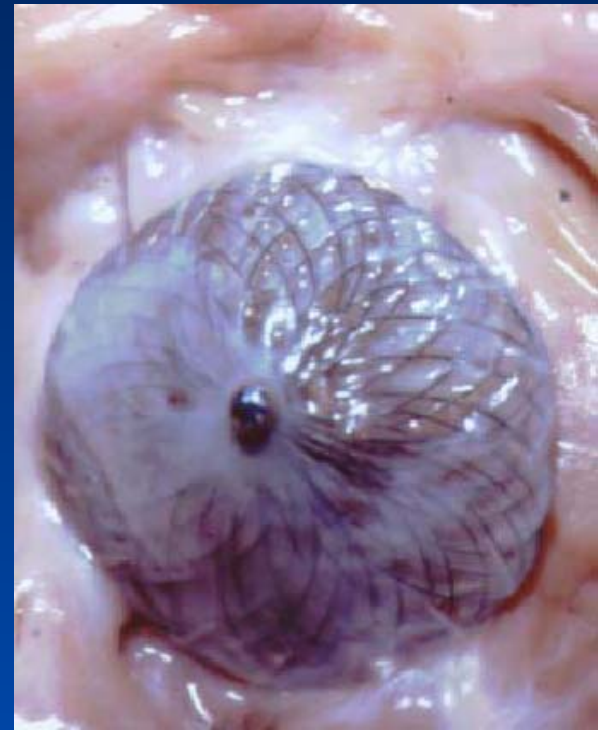
Amplatzer® Deployment



Endothelization Amplatzer



Amplatzer

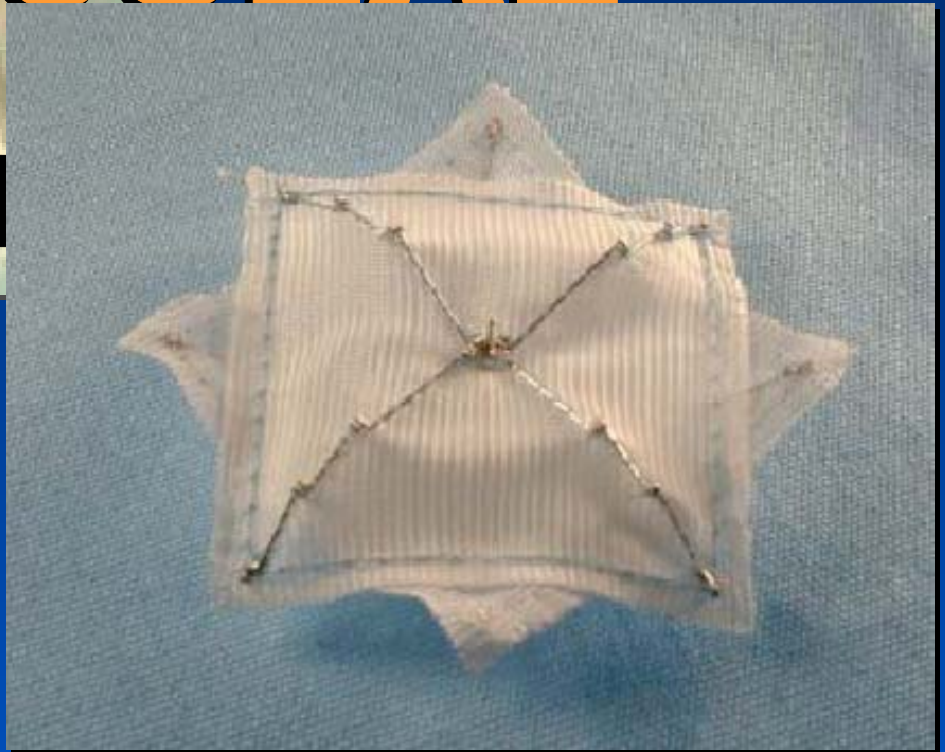


Endothelialization

ASD Closure With CardioSEAL / Starflex

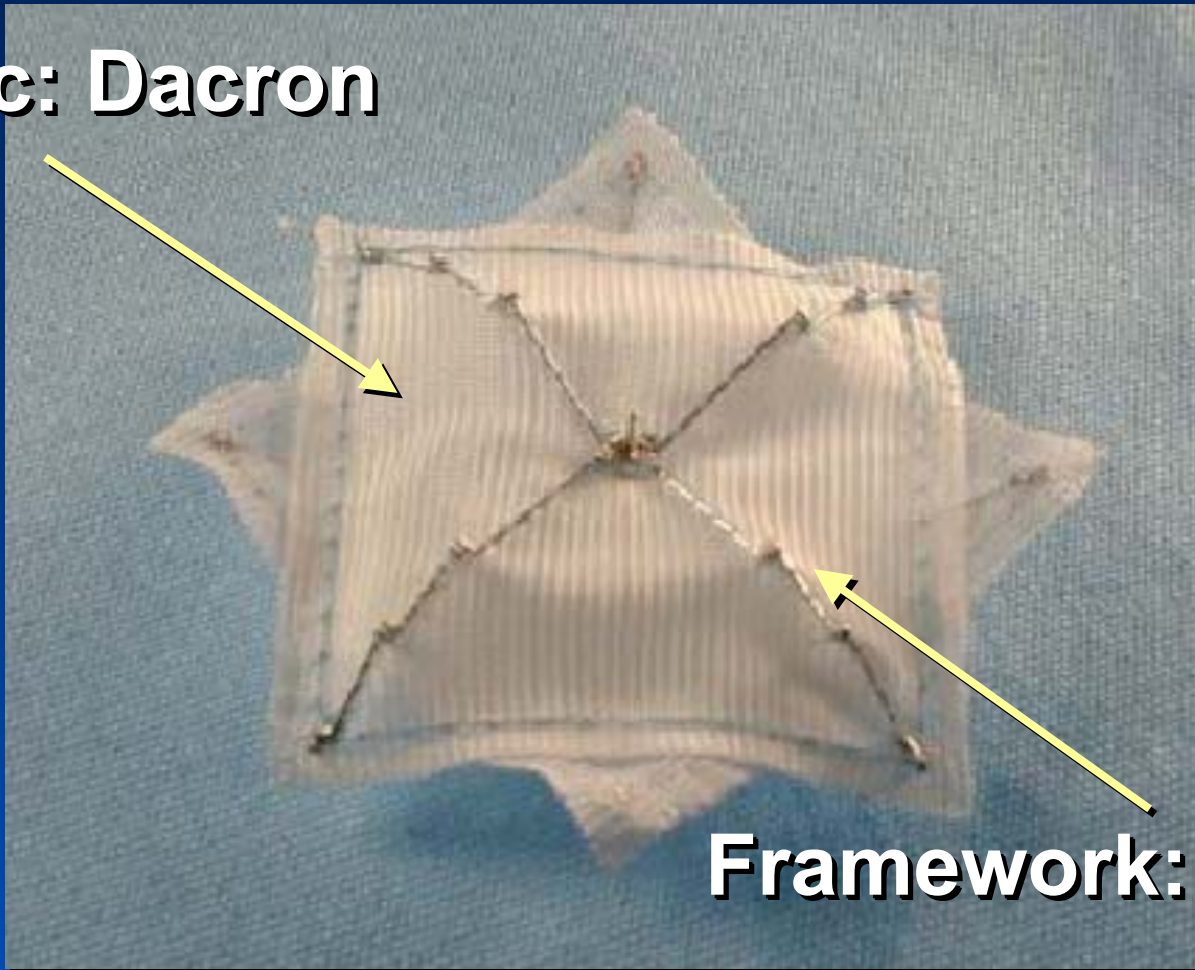


CardioSEAL Stent



CardioSEAL: Device

Fabric: Dacron



Framework: MP35N

Novel Delivery System



Single operator

Minimal septal distortion d/t 180° pivoting

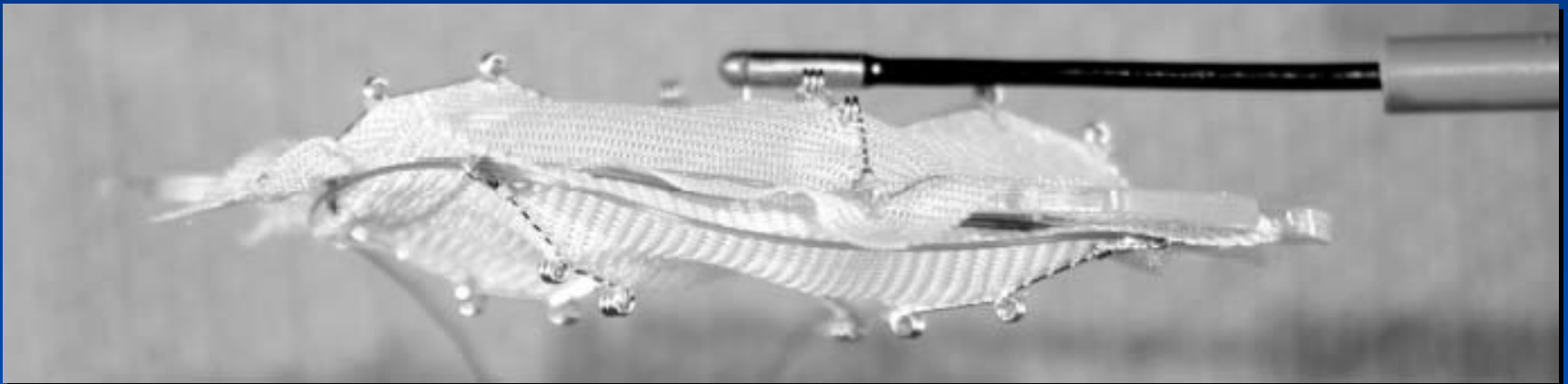
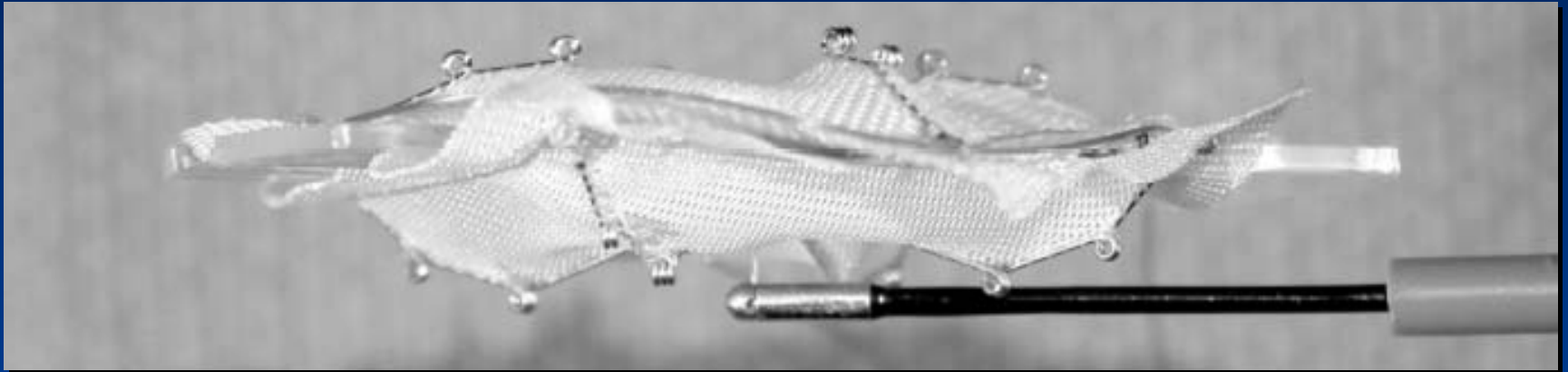
CardioSEAL

180° Pivoting



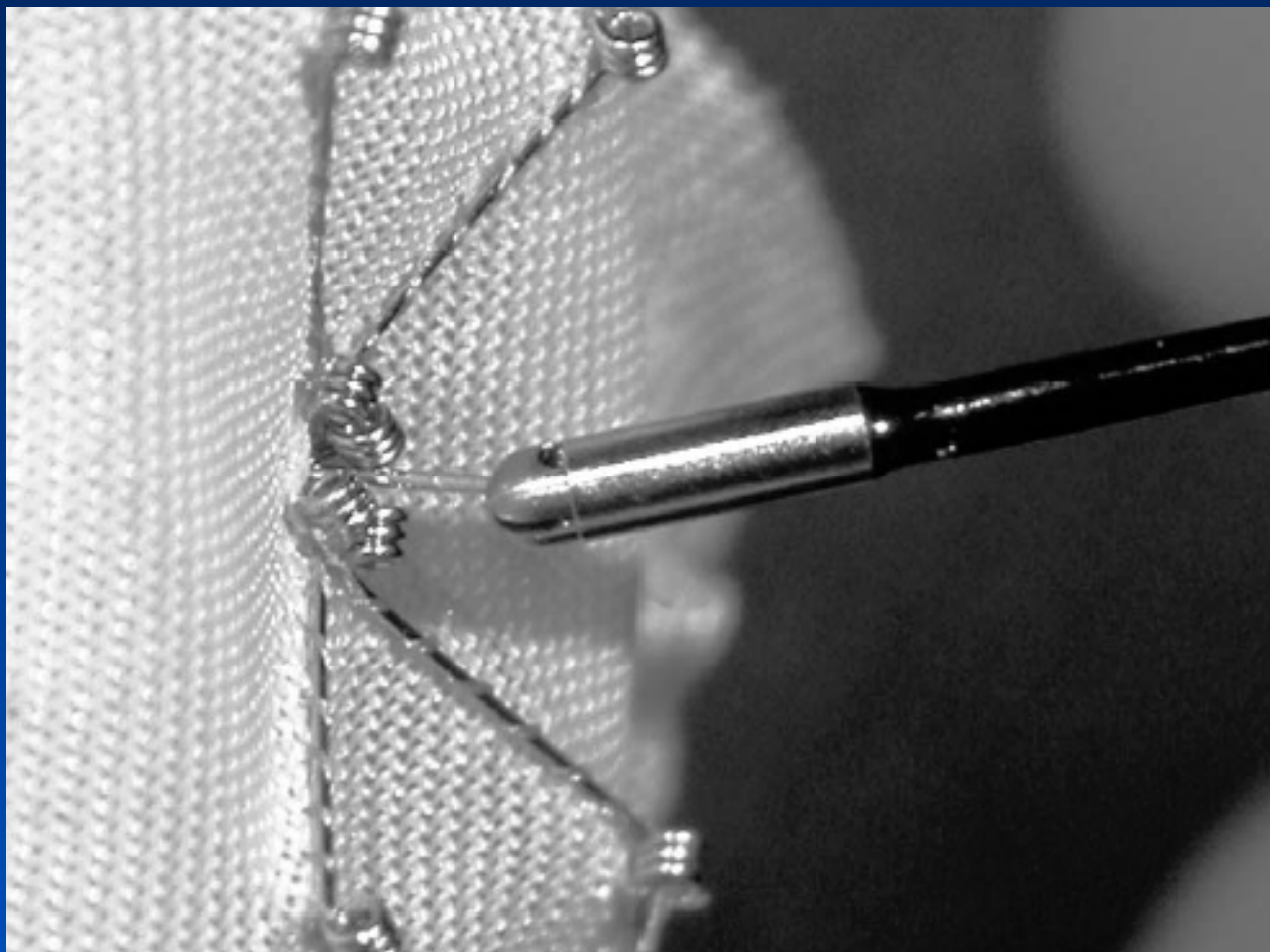
CardioSEAL

180° Pivoting



CardioSEAL

Attachment



CardioSEAL

Flushing



CardioSEAL: Device *Suitable For*

- ASDs up to 25 mm
- Fenestrated Fontan
- Muscular VSDs
- Window-type PDAs