

Due metodiche con indicazione ancora discussa: la chiusura percutanea del forame ovale e l'obliterazione percutanea dell'auricola sinistra. La tecnica di esecuzione e le possibili complicanze immediate e nel lungo periodo



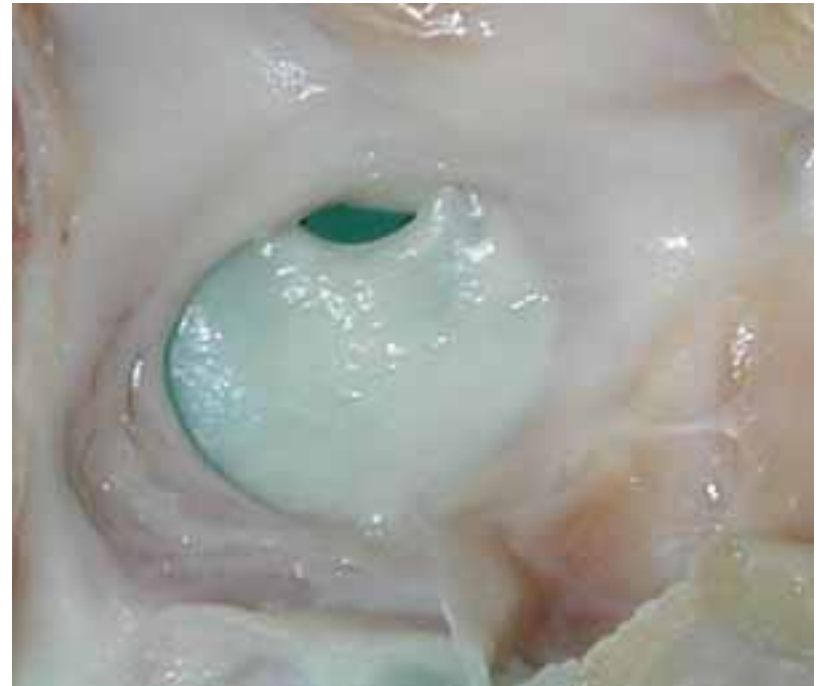
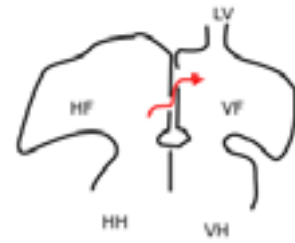
Milano 11 marzo, IV congresso nazionale di ecocardiochirurgia

G.B. Pedrazzini, MD, FESC

Direttore laboratorio di emodinamica,
Cardiocentro Ticino, Lugano

Anatomical aspects

Foramen ovale



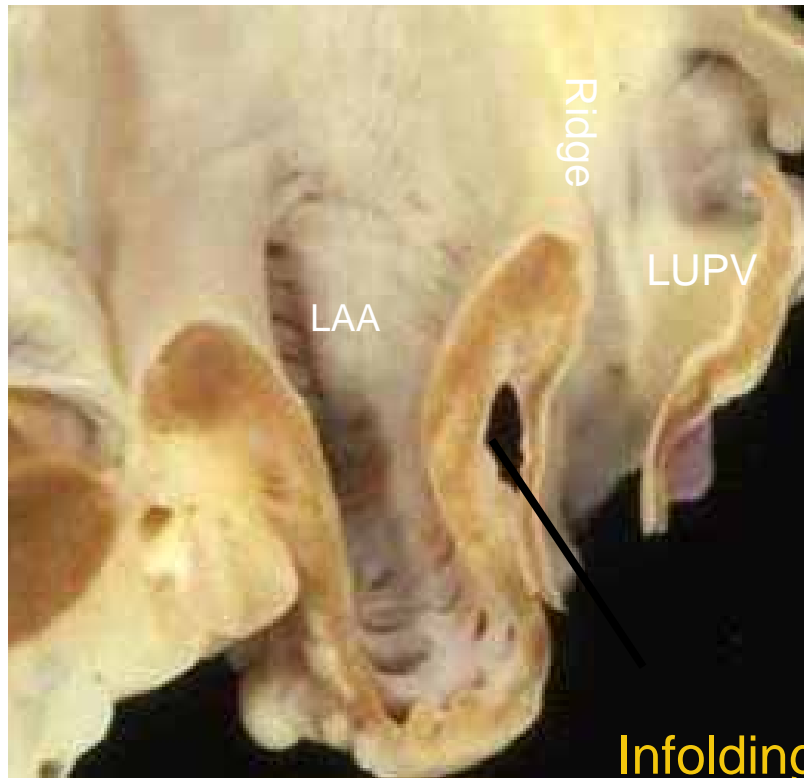
Anatomical aspects



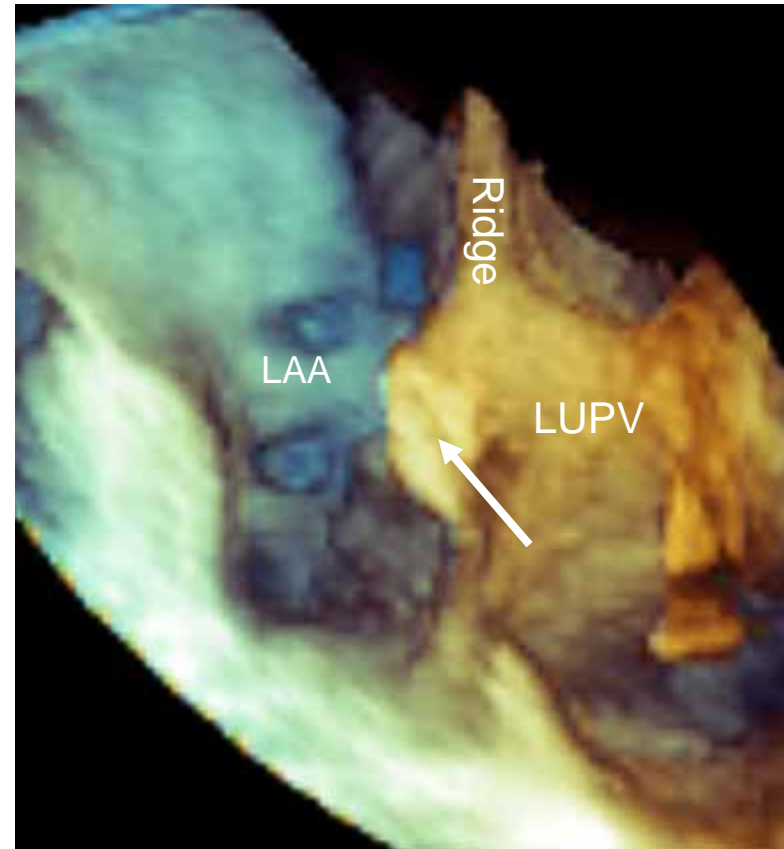
Left atrial appendage

Anatomic specimen

Echocardiographic specimen

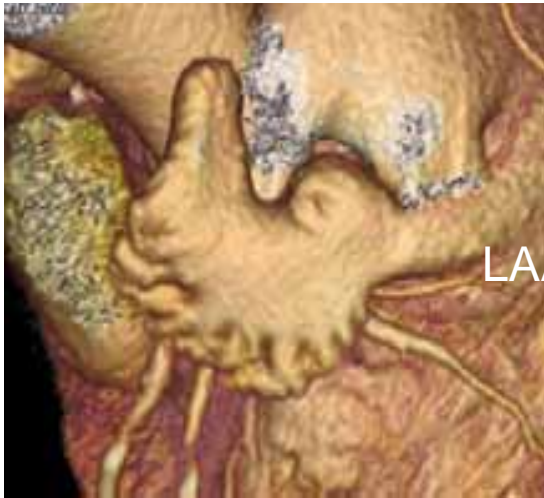


Infolding of atrial wall



Anatomical aspects

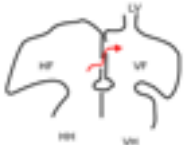
Left atrial appendage



External view



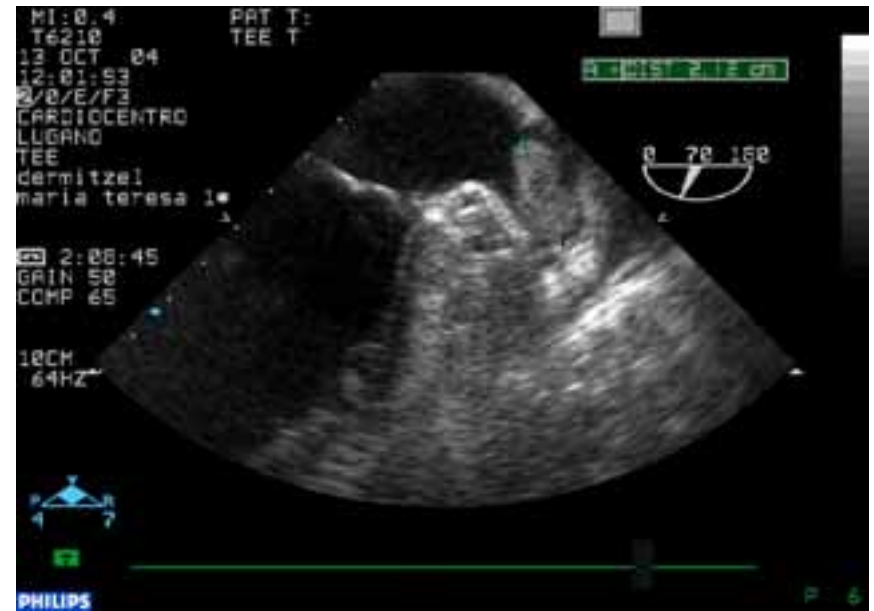
Razionale



Foramen ovale



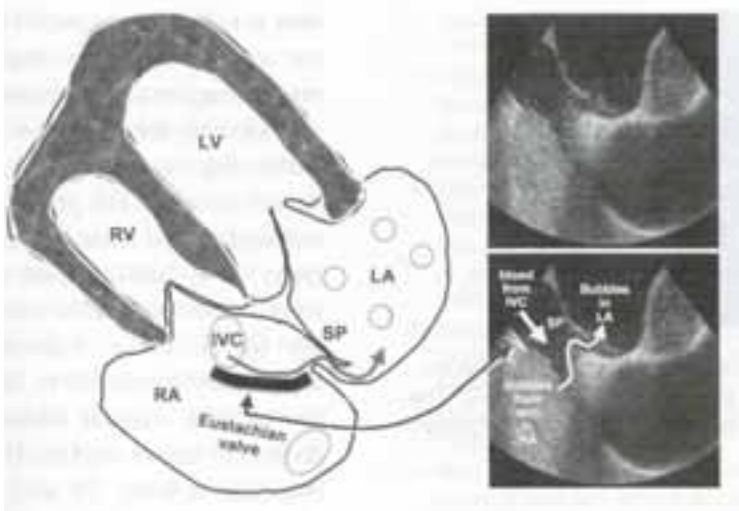
Left atrial appendage



Mechanism



Foramen ovale



Circulation 2005

Left atrial appendage



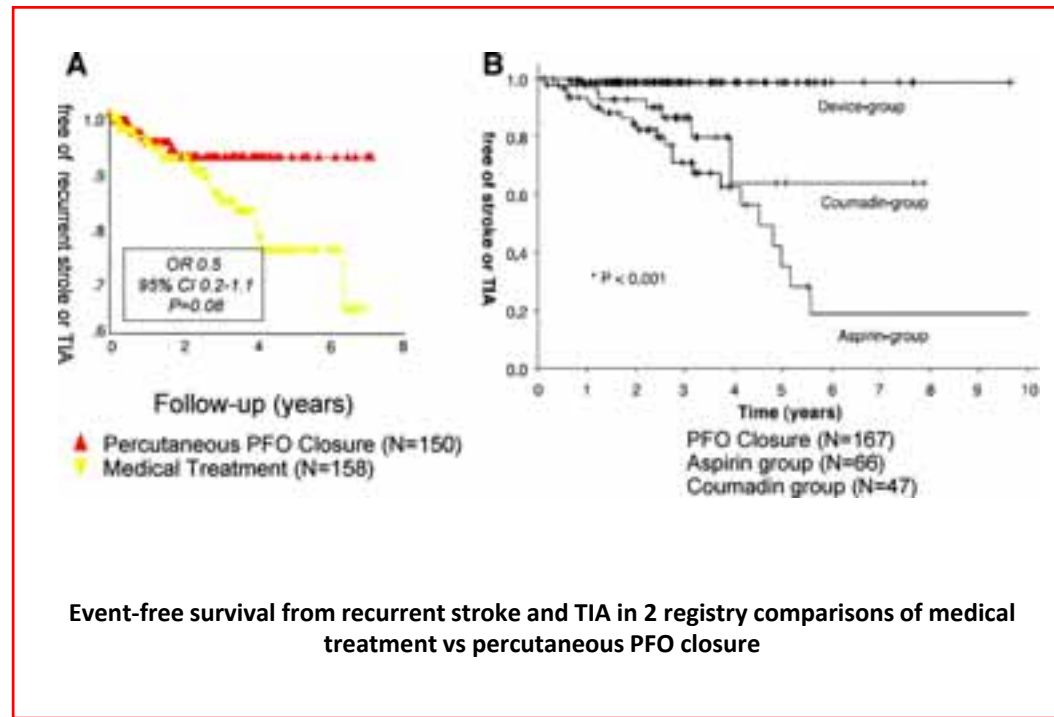
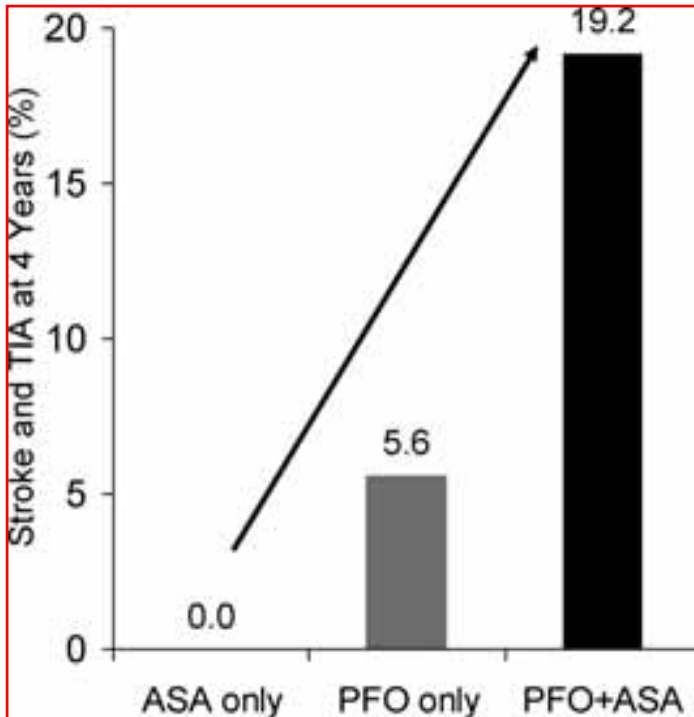
- Thrombotic material associated with AF arises most frequently in the LAA,
- Decreased flow within the LA/LAA during AF has been associated with spontaneous echo contrast (SEC), thrombus formation, and embolic events



Medical evidence



Foramen ovale

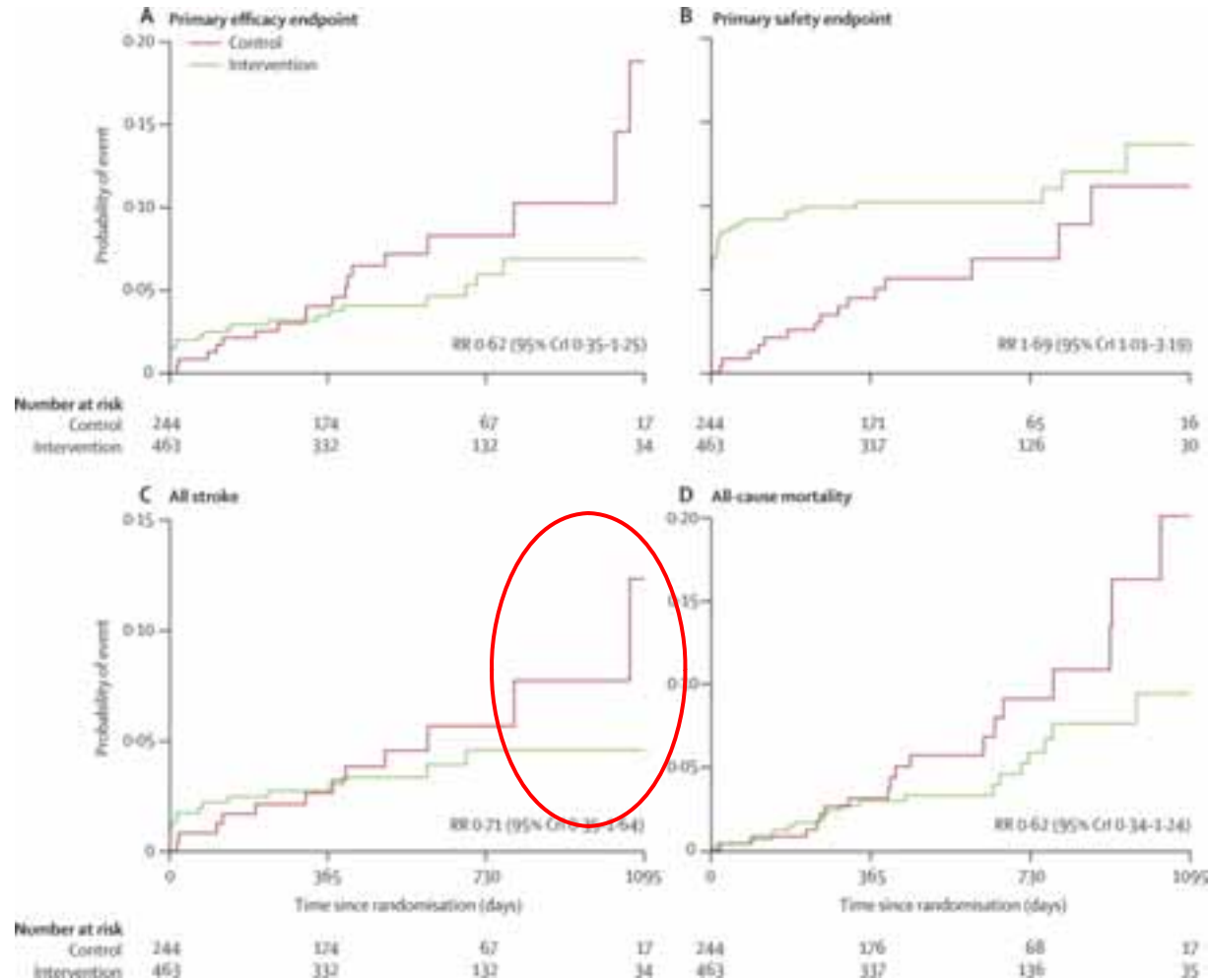


Medical evidence

Left atrial appendage



PROTECT AF trial, Lancet 2009, 707 Patient



Clinical settings

Foramen ovale

- Patient (not only young) with “cryptogenic” stroke (and at least 1 CT/MRI lesion)
- *Migraine with aura*
- *Divers*



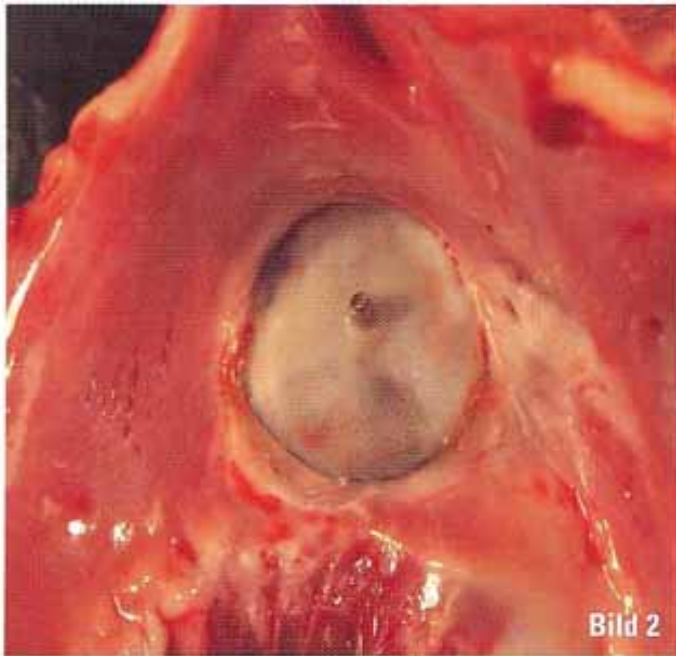
Left atrial appendage

- Patients with permanent or paroxysmal atrial fibrillation and:
 - CHADS score >2
 - contraindication for oral anticoagulation
 - Major (minor) bleeding on anticoagulation
 - Difficult management of anticoagulation

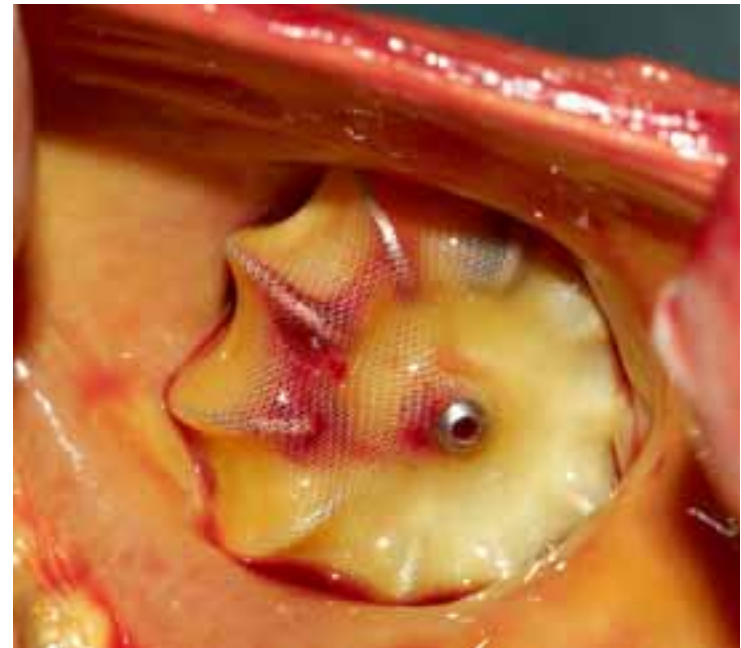


Therapeutic goal

Foramen Ovale

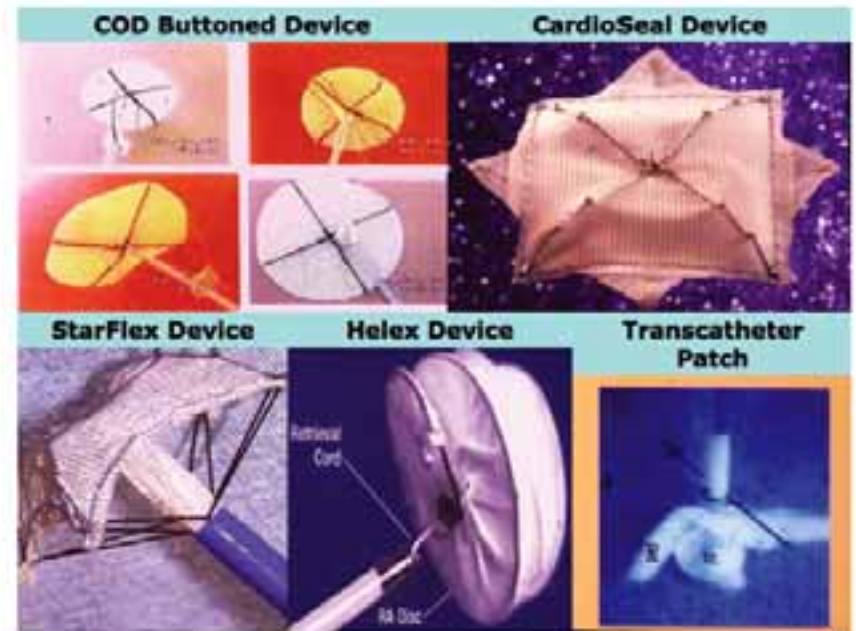
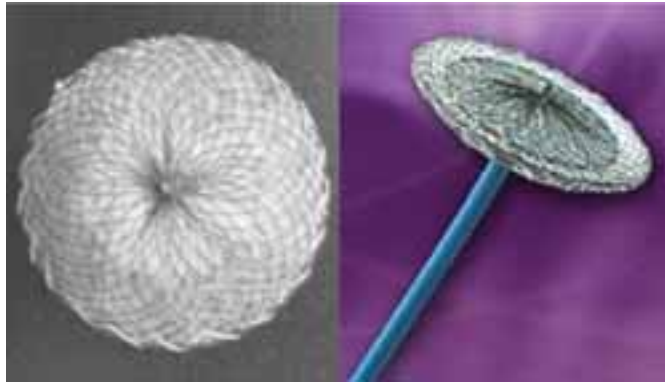
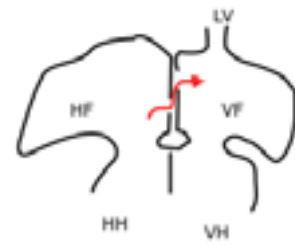


Left atrial appendage



Devices

Foramen Ovale

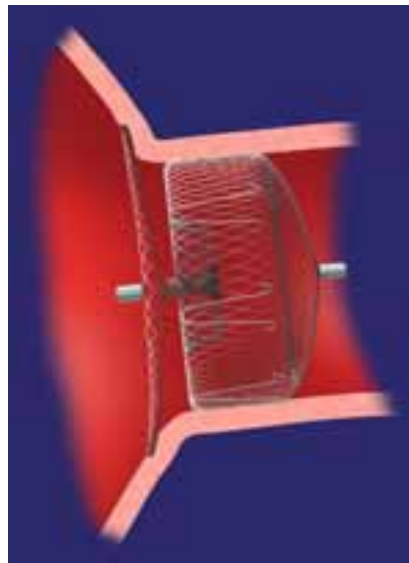


Devices



Left atrial appendage

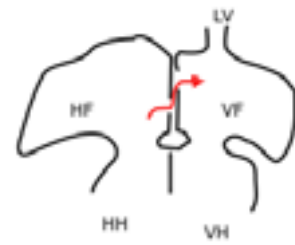
Cardiac Plug



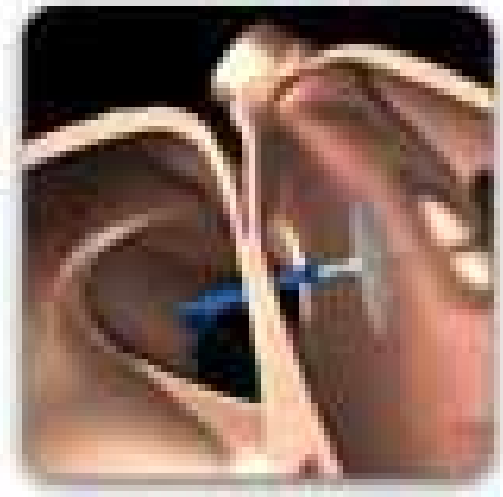
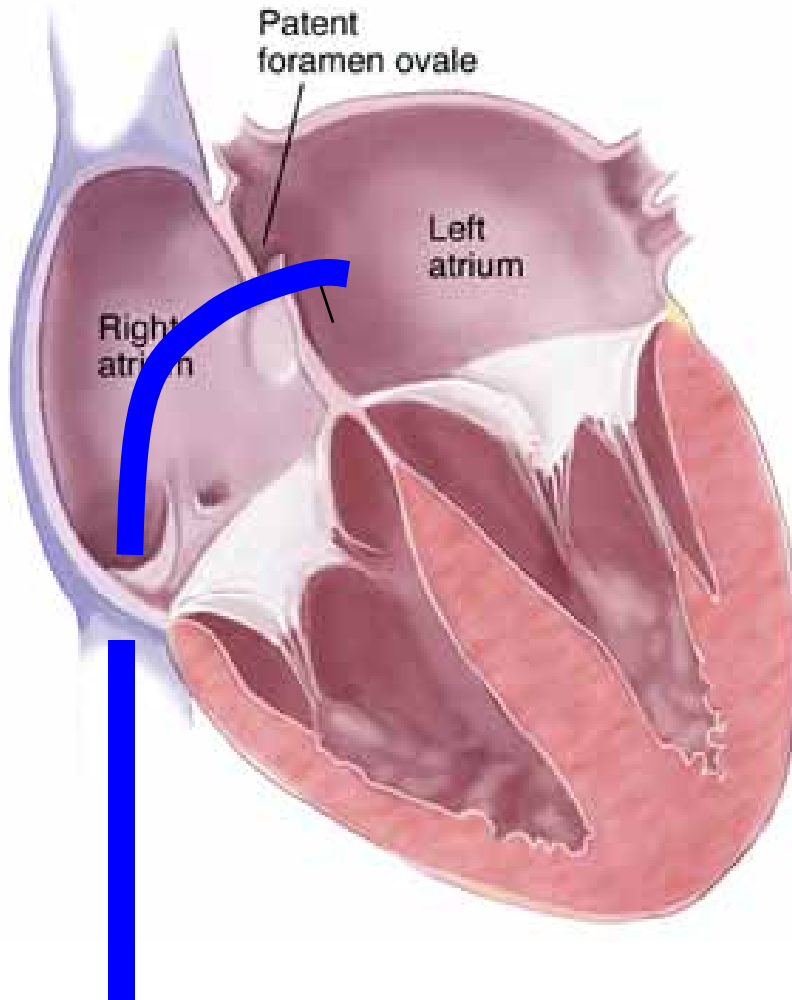
Watchmann, Artritech

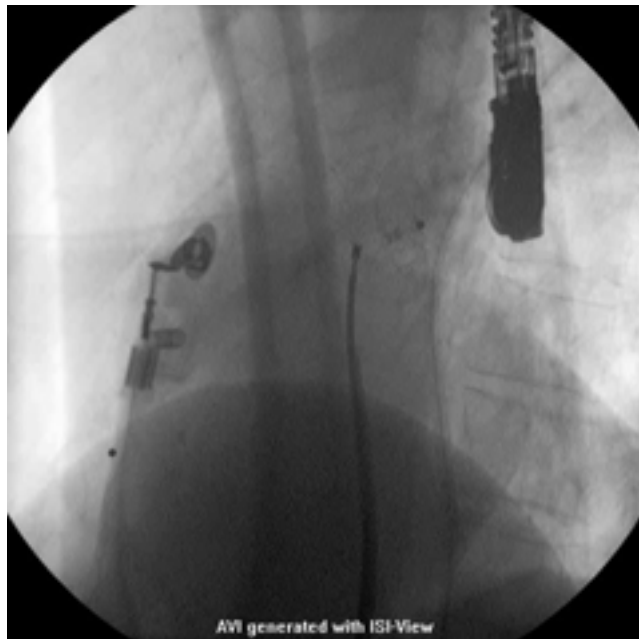
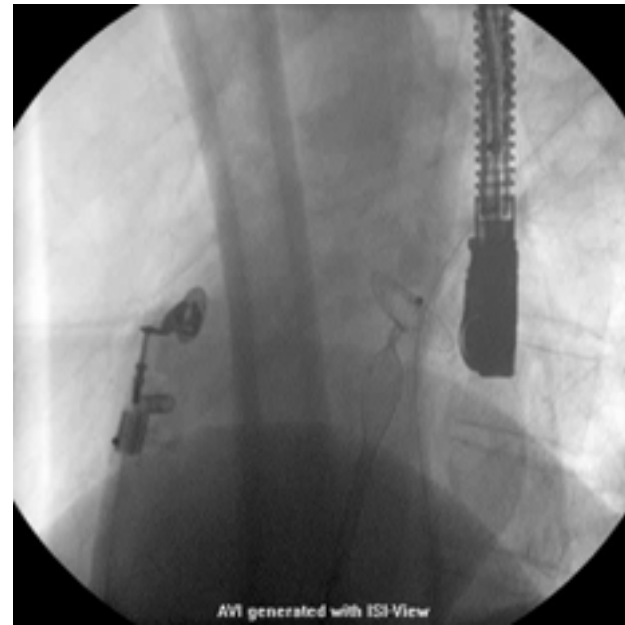
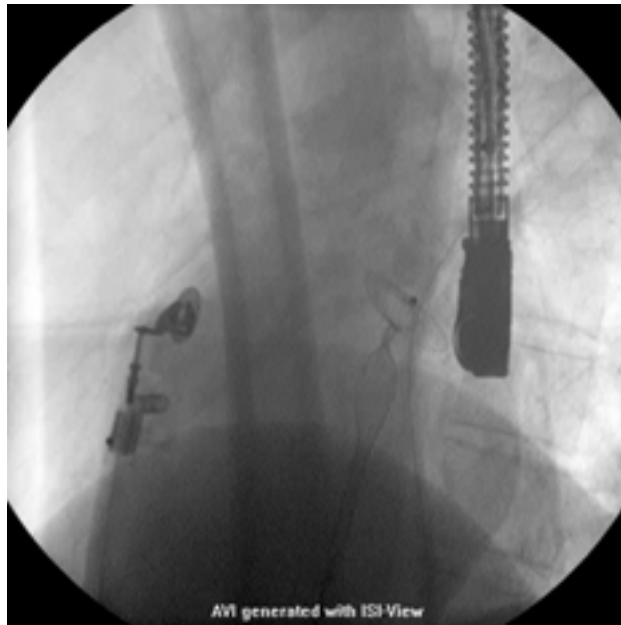


Technical aspects

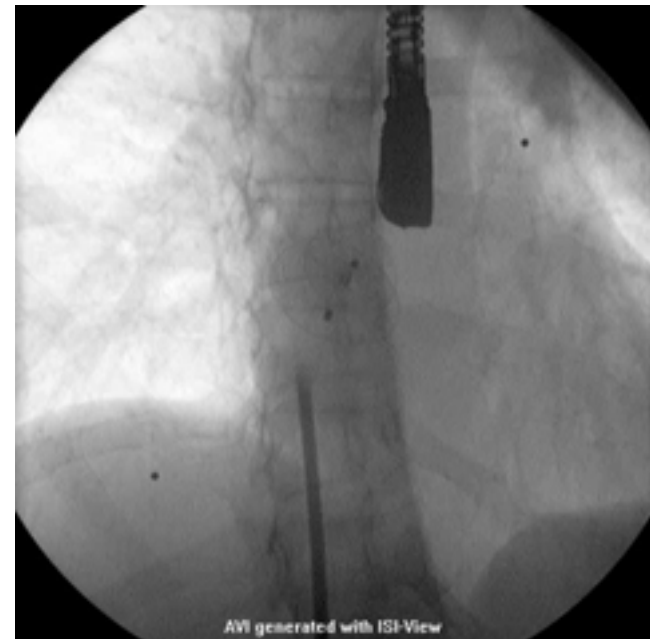


Foramen ovale



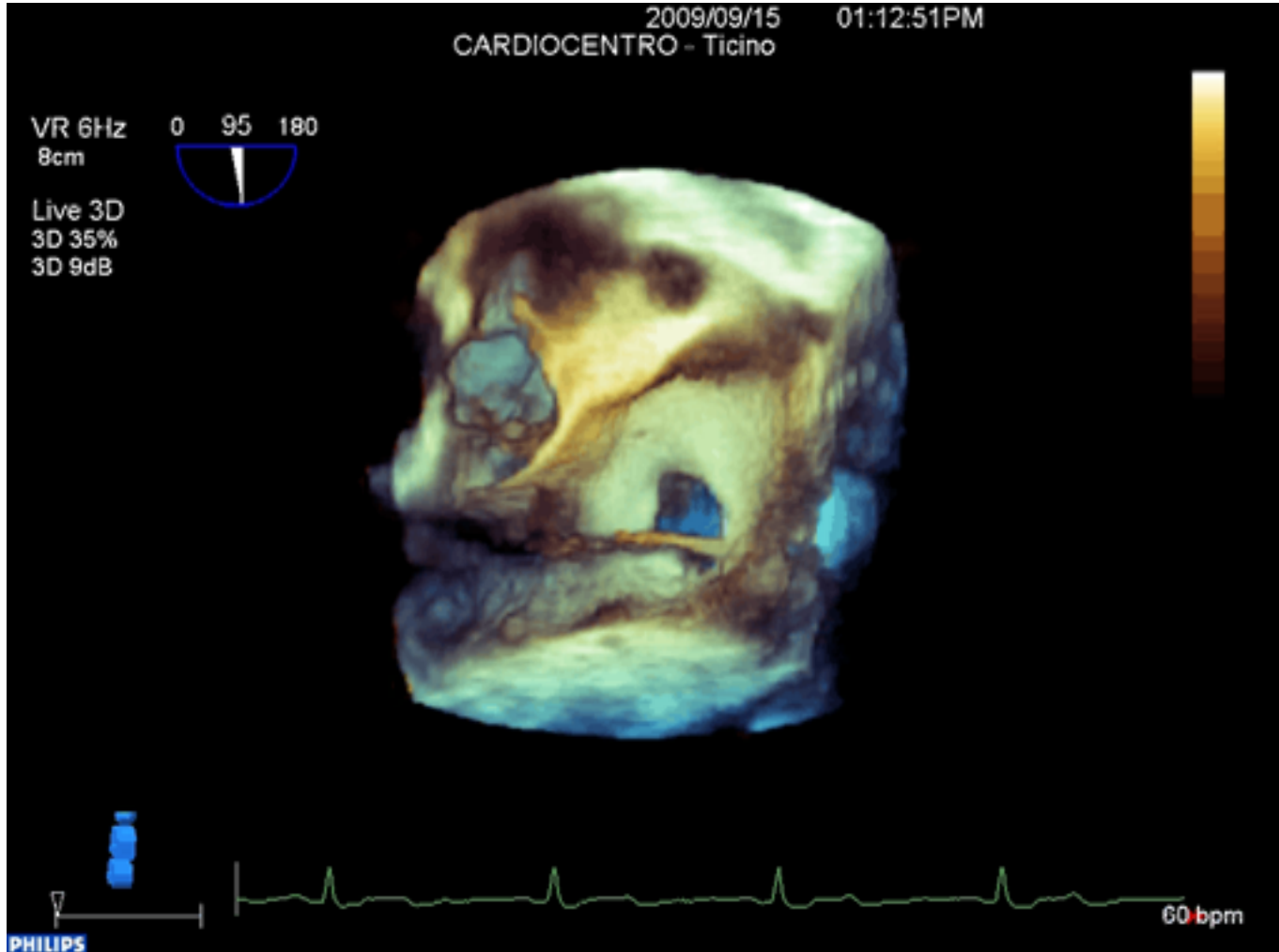


Foramen ovale



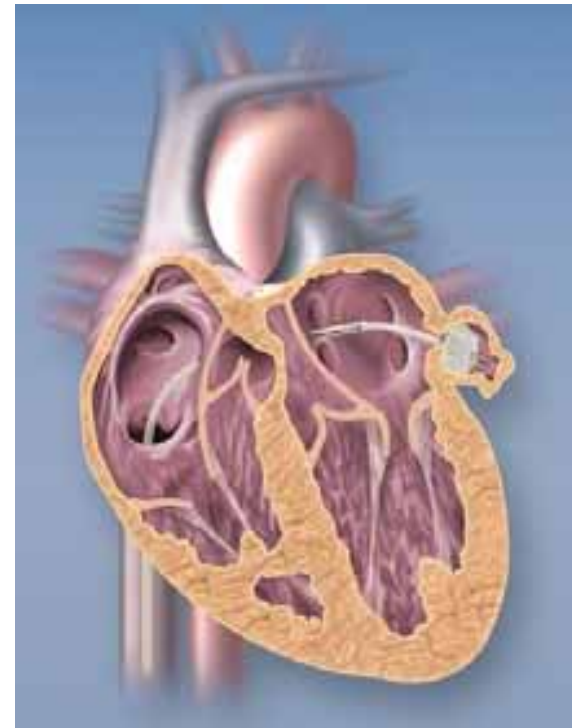
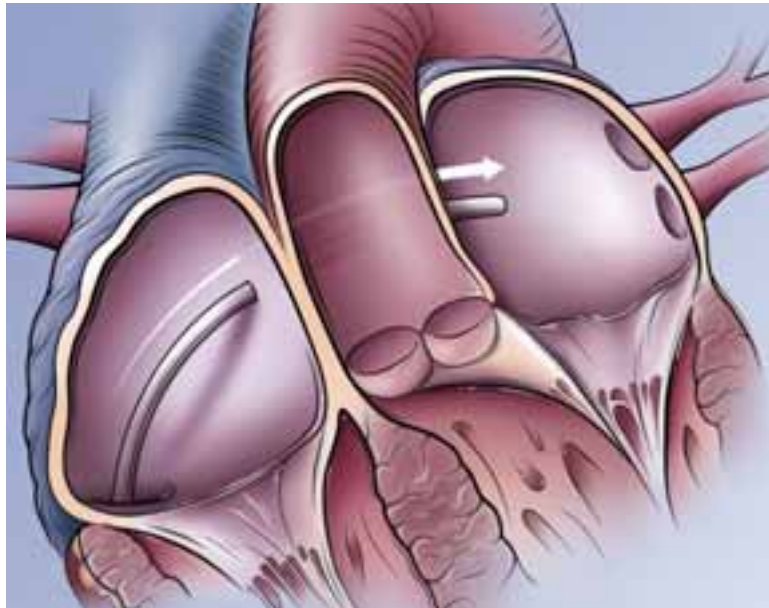
Technical aspects

Foramen ovale



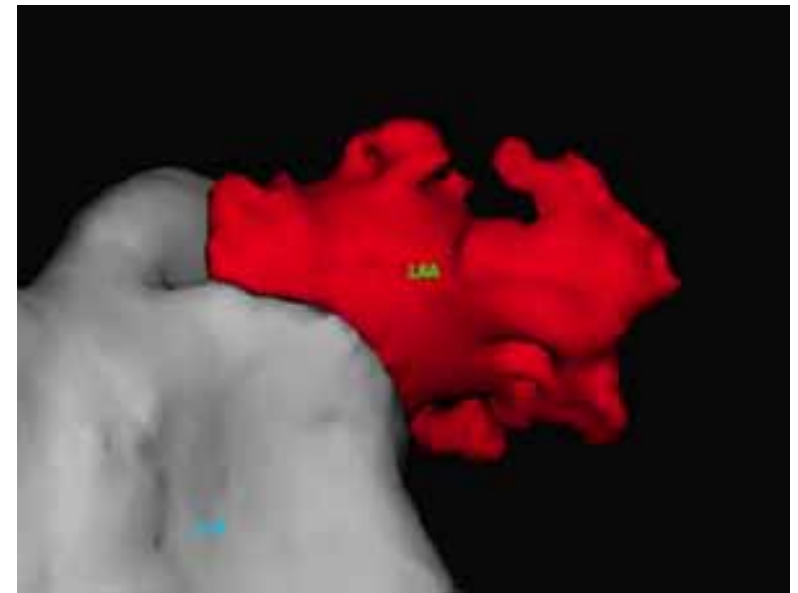
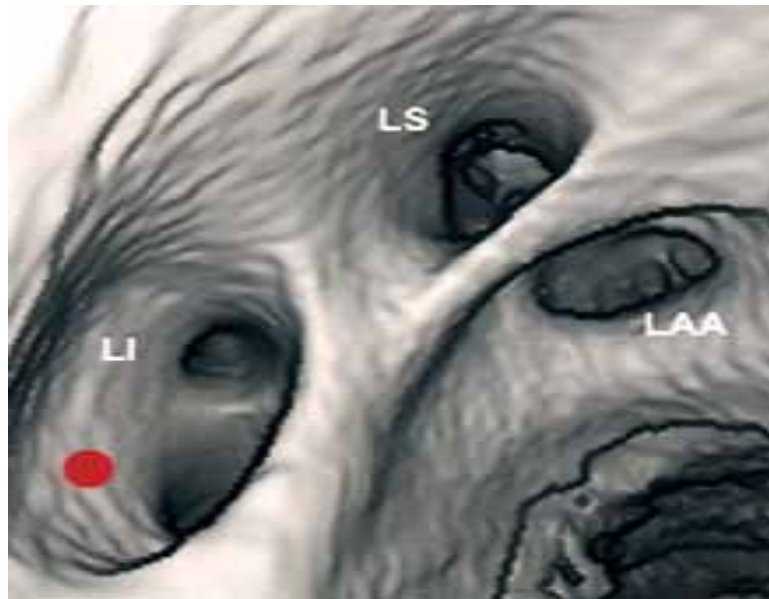
Technical aspects

Left atrial appendage



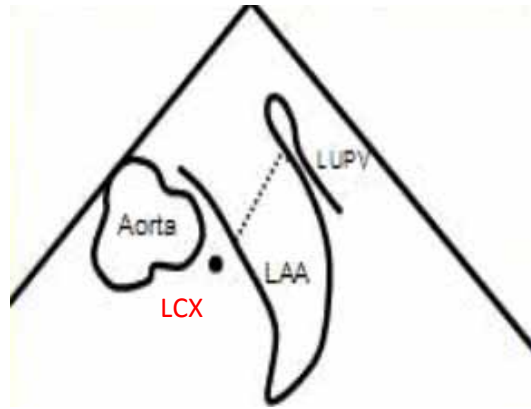
Technical aspects

Left atrial appendage



Technical aspects

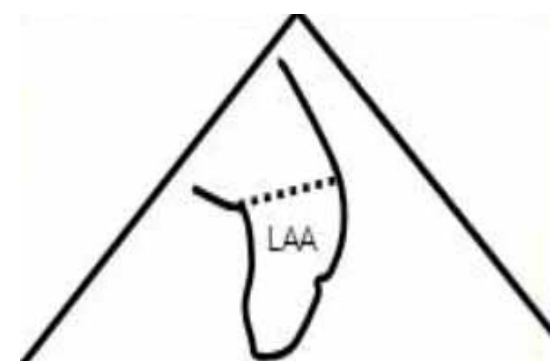
Left atrial appendage



Measured at 0°



Measured at 45°



Measured at 90°

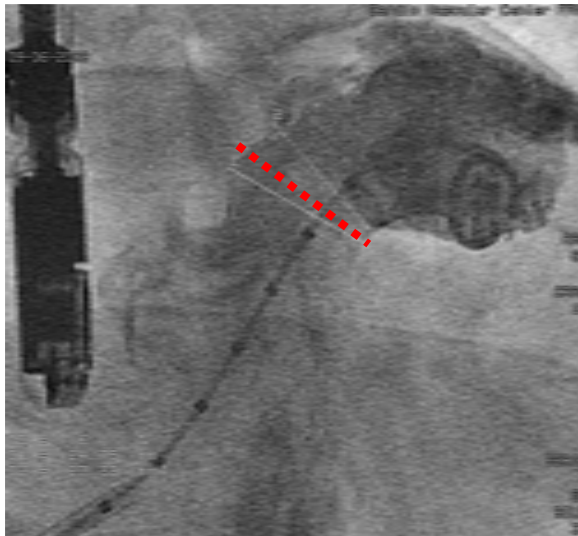


Technical aspects



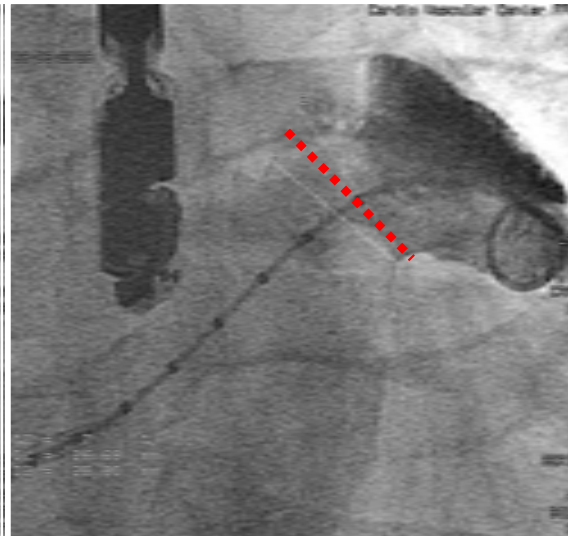
Left atrial appendage

Choose the largest measurement of the LAA neck (landing zone) from different views



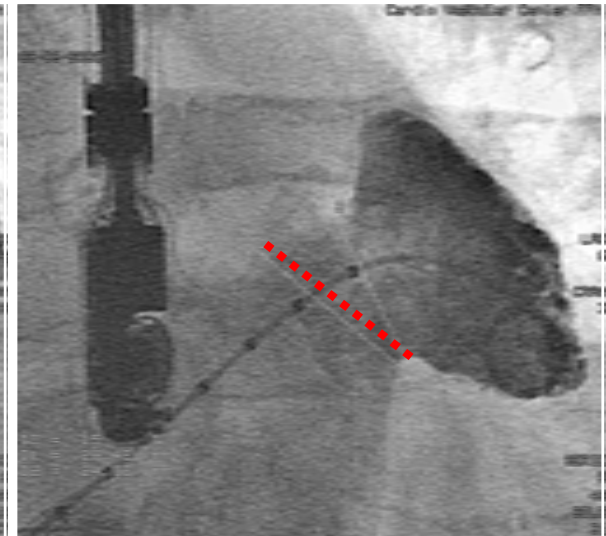
RAO/CRA 30/18°

23 mm



LAO/CRA 2/18°

29 mm

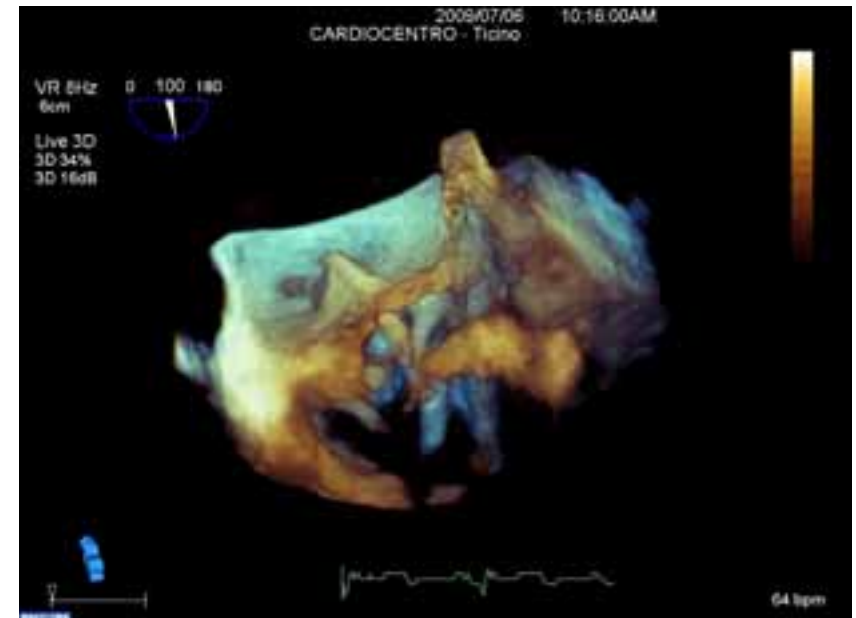
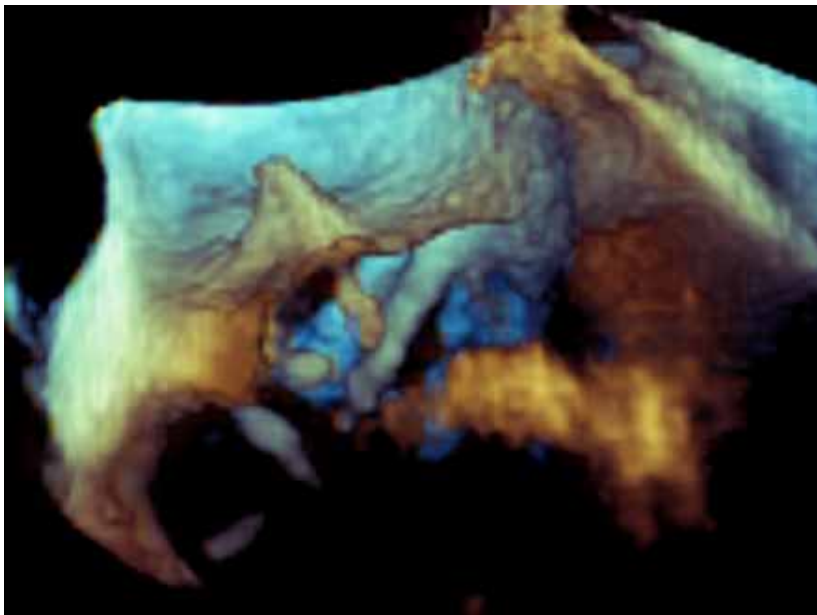


LAO/CRA 6/3°

24 mm

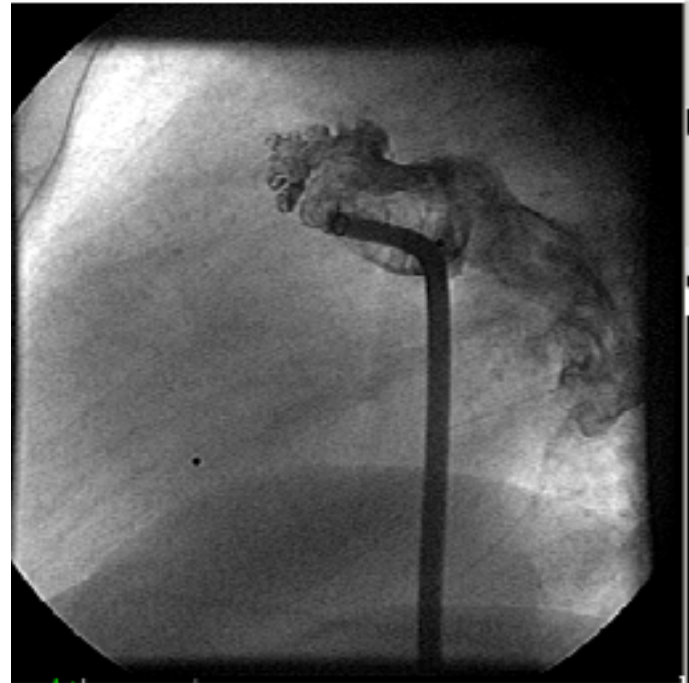
Technical aspects

Left atrial appendage



Technical aspects

Left atrial appendage



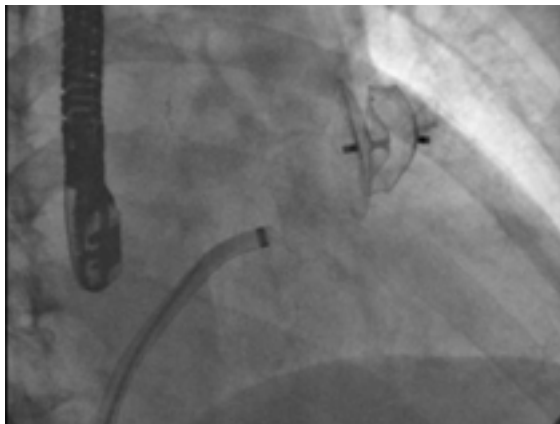
- Multiple projections demonstrate available length differences

Technical aspects

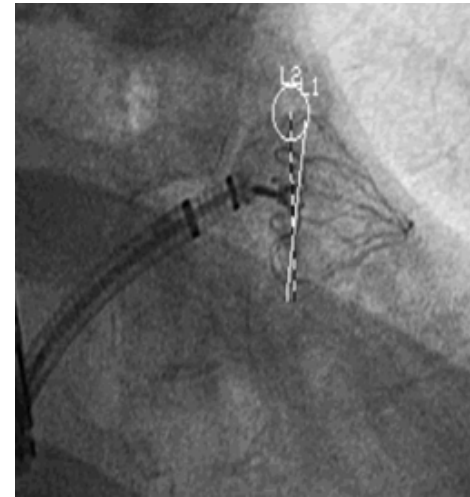


Left atrial appendage

Cardiac Plug

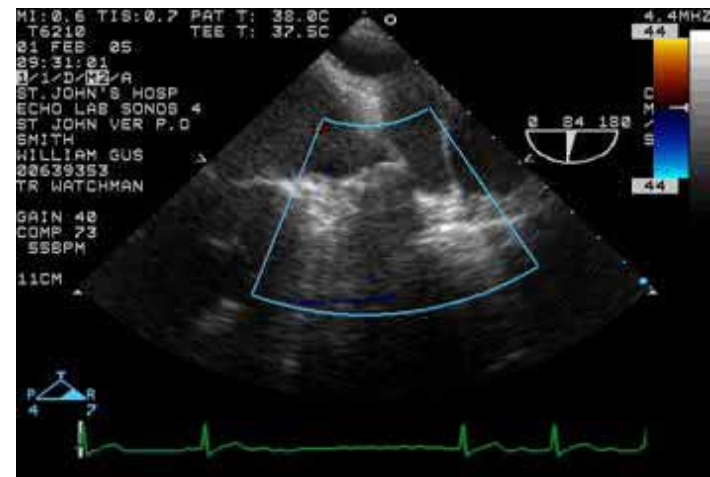
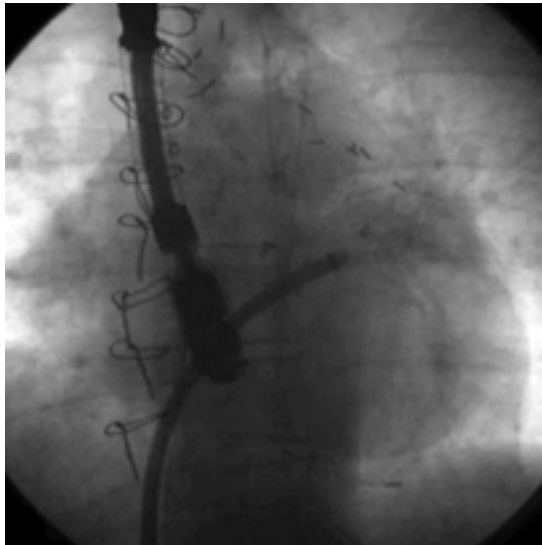
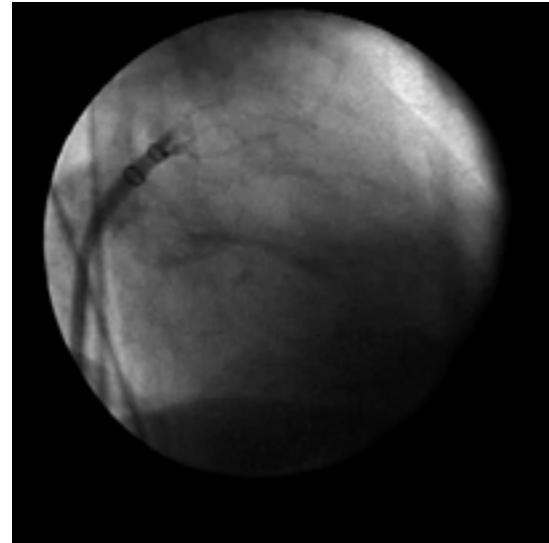
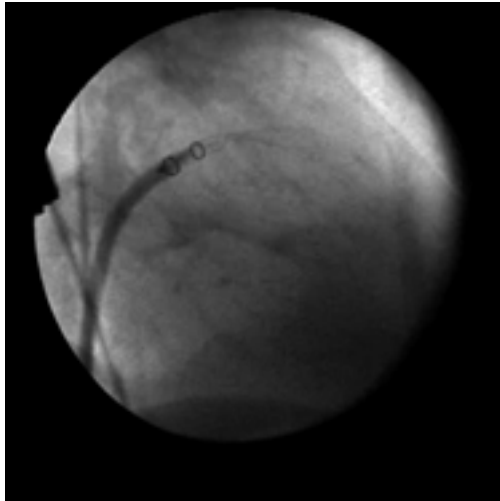


Watchmann, Artritech



Technical aspects

Left atrial appendage



Conclusions

Foramen ovale



- Clinical evidence, no randomized trial
- Easy intervention, low procedural risk
- Numerous devices available

Left atrial appendage



- Non inferiority trial
- 2 devices available
- Complex intervention, some procedural risk (needs skilled operators)

Conclusions



Left atrial appendage

Protect AF trial

Timeframe	Event Description	WATCHMAN N (% of 463)	Control N (% of 244)
Events Within 7 Days of Procedure	Pericardial Effusion	21 4.5%	N/A
	Ischemic Stroke	5 1.1%	N/A
	Device Embolization	1 0.2%	N/A
	Major Bleeding	5 1.1%	N/A
	Other	2 0.4%	N/A
Total		34 7.3%	N/A

Primary Safety Endpoint – Up Front Risk





Namib Desert, Namibia

Watchmann Pilot study



Major Adverse Events

- Stroke 2/66 (3%)
- Device Embolizations 3/66 (5%)
- Major Bleeding 6/66 (9%)
 - Pericardial Tamponade (n=1)
 - Internal bleeding after Device Embolisation (n=1)
 - Anemia or hematoma requiring transfusion (n=3)
 - GI Bleed (n=1)
- Death 8/66 (12%)
 - Ventricular Tachyarrhythmia (n=1)
 - Congestive heart failure (n=1)
 - Lung cancer (n=1)
 - Pneumonia/Infection (n=2)
 - Unrelated surgical complications (aortic dissection repair/aortic valve replacement) (n=1)
 - Unknown (n=2)