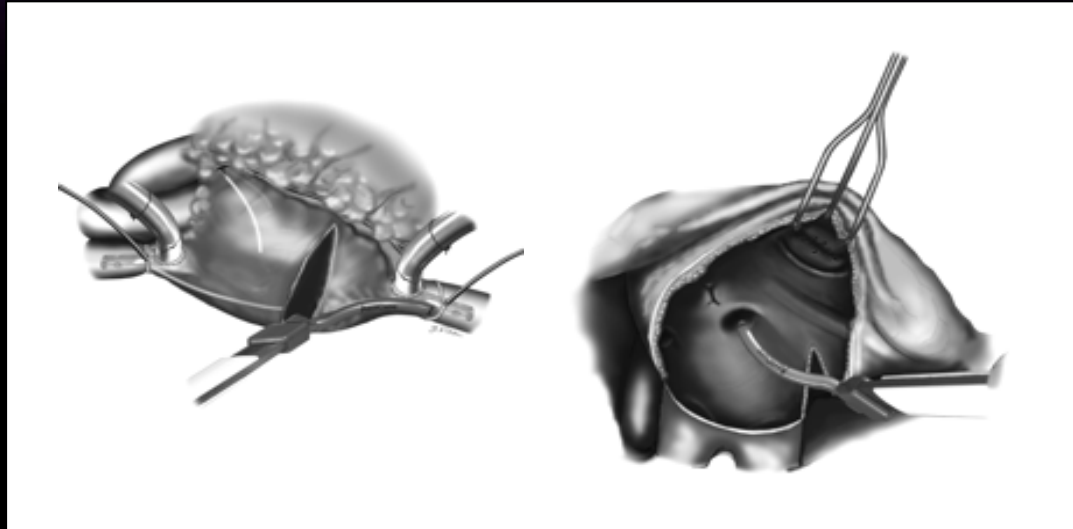


What is the role of surgical ablation?

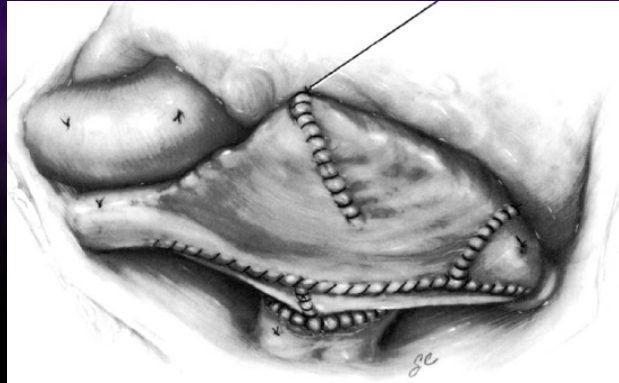


AFA Symposium – Heart Rhythm Congress 2009

Mark Earley, St Bartholomew's Hospital



Cox Maze 3 - 1992



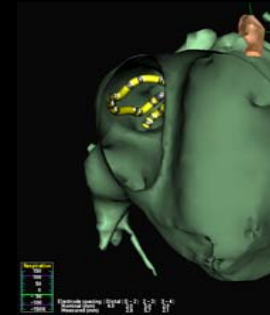
At 5 years
97% freedom from AF



Catheter Maze - 1994
20% major complications



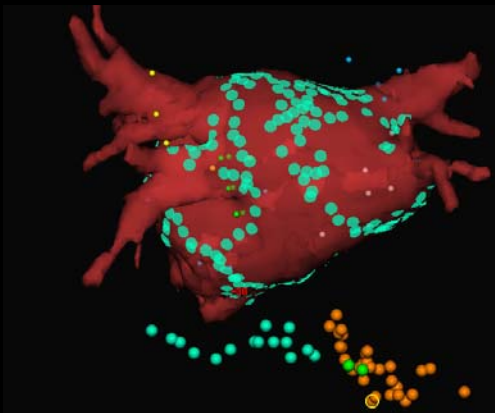
Pulmonary vein isolation - 1998



80-95% freedom from
Paroxysmal AF
<2% major complications



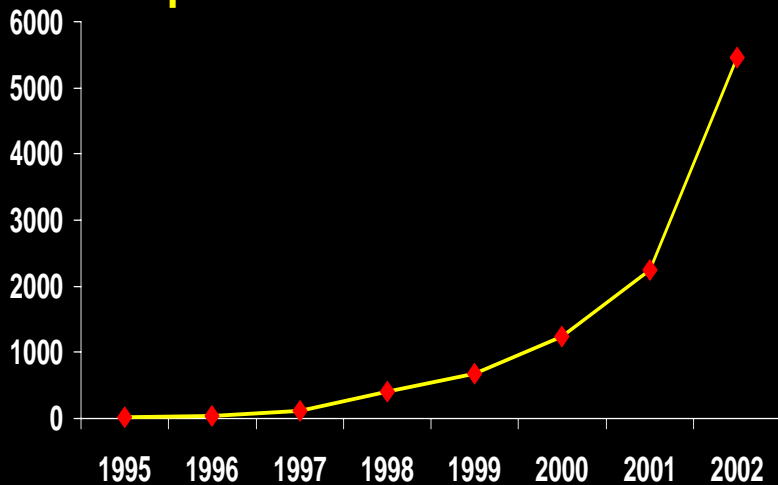
2005
PV antral ablation
+/- Pulmonary vein isolation
+ Left atrial linear ablation
+ Complex and fractionated electrograms



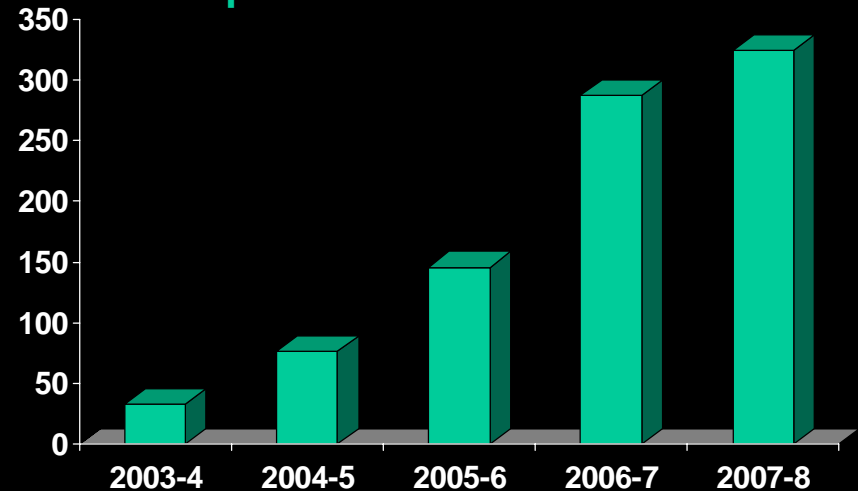
At 16 months
94% freedom from AF
2% major complications

Expansion in percutaneous ablation procedures

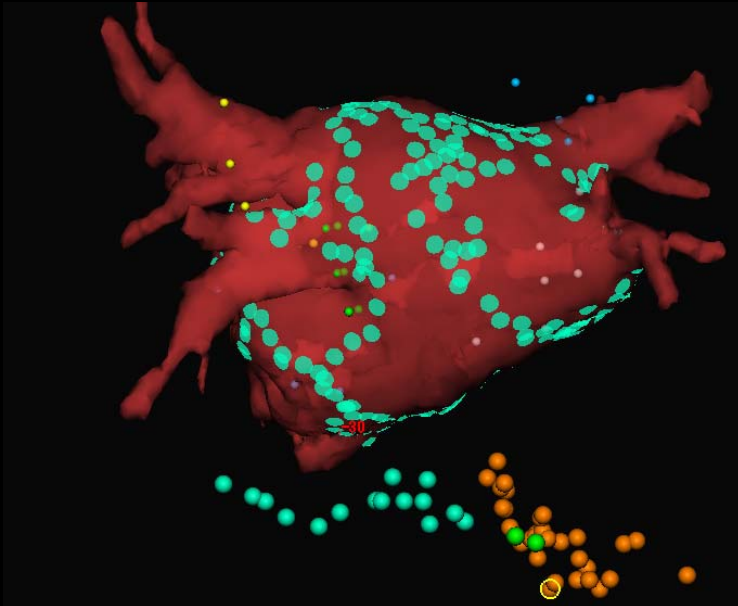
Number of AF ablations performed world wide



Number of AF ablations performed at Barts



Results of catheter ablation of AF London AF Centre



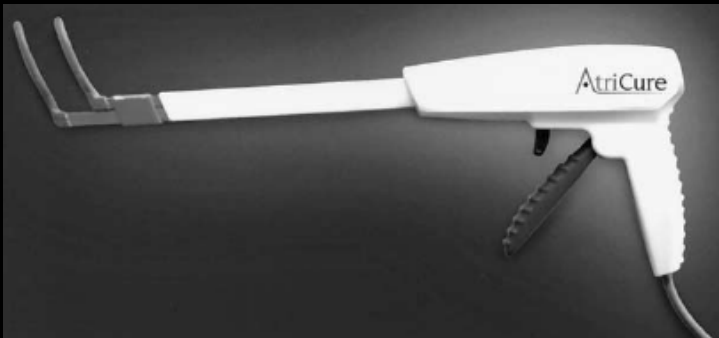
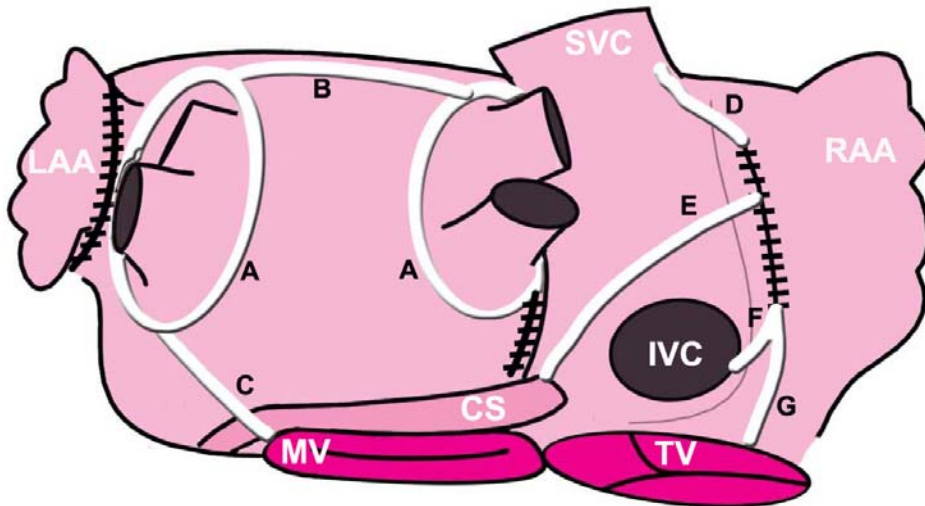
- 460 cases (May 08 – July 09)
- Mean times: procedure 247 min
X-Ray 50 min
- 18 complications (3.9%)
 - 11 tamponade
 - 5 TIA/CVA
 - 2 vascular

	Success (%)	Success with 1 procedure (%)
All	83	54
Paroxysmal	89	67
Persistent	76	41

Expansion of surgical ablation?

- **Cox Maze 3 – lone operations (96% free of AF at 5 years):**
 - 1988-2001 n=112
 - CPB time 163 ± 35 minutes.
 - Cross clamp 93 ± 34 minutes
 - ITU 2 days
 - Hospital stay 9 days
 - Major complications 13%:
 - 2 Deaths
 - 3 emergencyreoperations for bleeding
 - 2 strokes
 - 2 Renal failure
 - 4 IABP
 - 1 mediastinitis
 - Pacemaker 8%

Limited surgical maze – Cox Maze 4



	Cut and sow	New energy sources
n	1553	2279
Concomitant surgery	80.7	98.4
Paroxysmal AF	22.9	8
SR rate	84.9	78.3
30d Mortality	2.1	4.2
Stroke	0.5	1.6

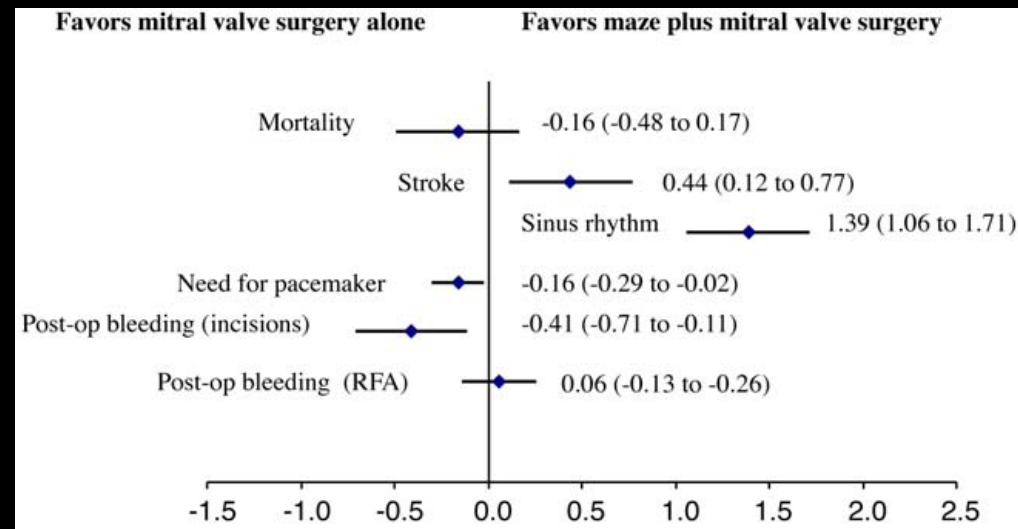
AF ablation during concomitant cardiac surgery

RCT of MVR +/- RFA of LA

- N=97
- SR at 12 months: 44 v 5%
- Shuttle walk +94 v + 48m
- Reduced B-ANP levels
- Mortality 6 v 8%
- Stroke 2 v 4%

JAMA. 2005;294:2323-2329

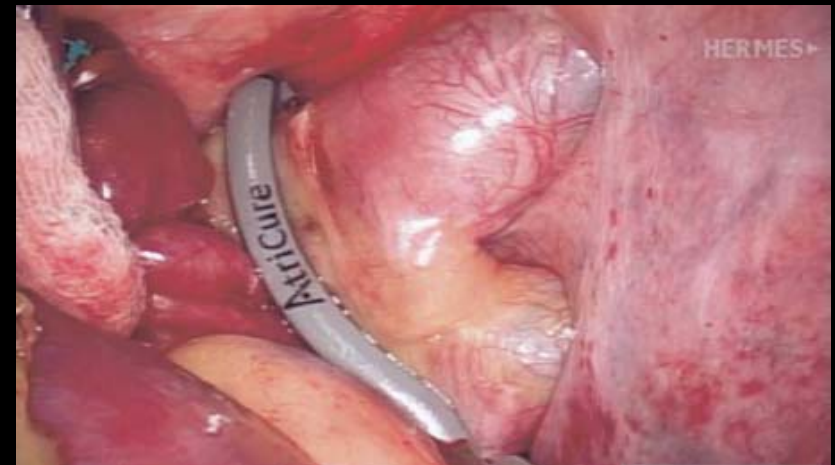
Metaanalysis of 10 studies MVR +/- RFA



European Journal of CTS 28 (2005) 724—730

Thoracoscopic epicardial RF ablation

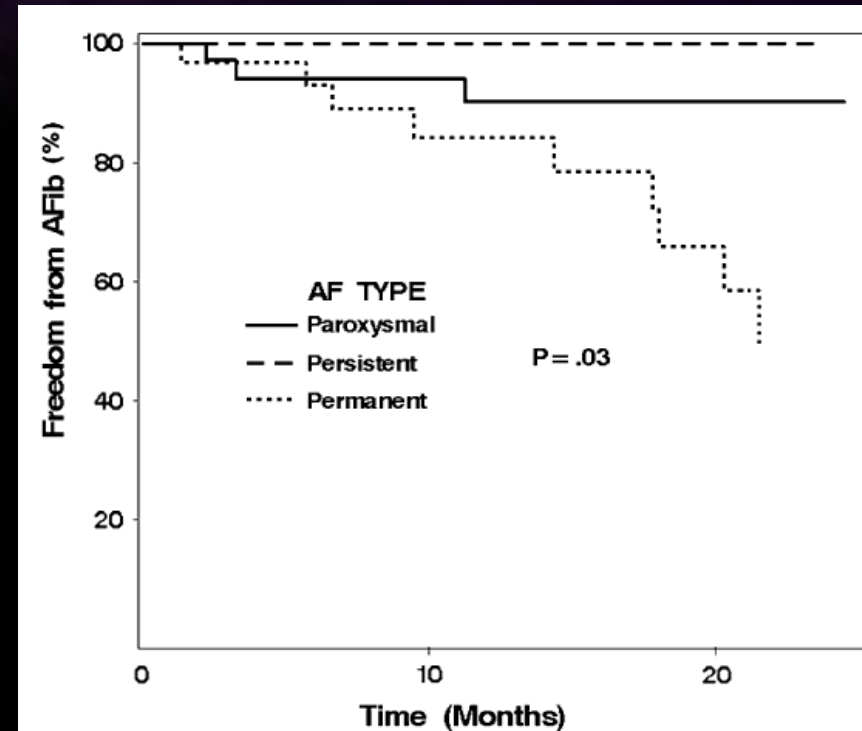
- Off pump
- Bilateral video assisted thoracoscopic technique
 - minithoracotomy
- Epicardial RF ablation
 - Pacing check
- Autonomic ganglion ablation
- LA appendage excision
- No heparin



Thoracoscopic epicardial RF ablation

Results

n	100
Paroxysmal	39
Proc time	253±65
Hospital stay	6.5±3.9
Comps	14
Pacemaker	5
Haemothorax	3
Phrenic nerve	3
PE	1
TIA	1
30d Mortality	0



Follow up 13.6±8.2 months, 24 Holter

SR 87% Warfarin 36% AADs 37%

Who should have surgical AF ablation?

1. Symptomatic patients undergoing other cardiac surgical (mitral valve) procedures
2. Asymptomatic patients with AF undergoing other cardiac surgical procedure *when it can be done at minimal risk*
3. Stand alone surgery can be considered if:
 - Patient prefers surgical approach
 - Previous multiple failed attempts at percutaneous ablation
 - Contraindication to percutaneous ablation

NICE 2009 – Guidance on thoracoscopic epicardial radiofrequency ablation for AF

1. Efficacy demonstrated but limited evidence

- Inform clinical leads in Trust
- Written information for patients regarding uncertainty regarding safety and efficacy

2. Patient selection by MDT

- Cardiologist – with training in interoperative EP
- Surgeon - with training in interoperative EP

3. Surgeons experienced in thoracoscopy and RF ablation

4. Submission to CCAD

5. Encourage comparative research with other treatment