

Latest on Management of Atrial Fibrillation: From Drugs to Devices

Dallas
CARDIOVASCULAR
INNOVATIONS 2013

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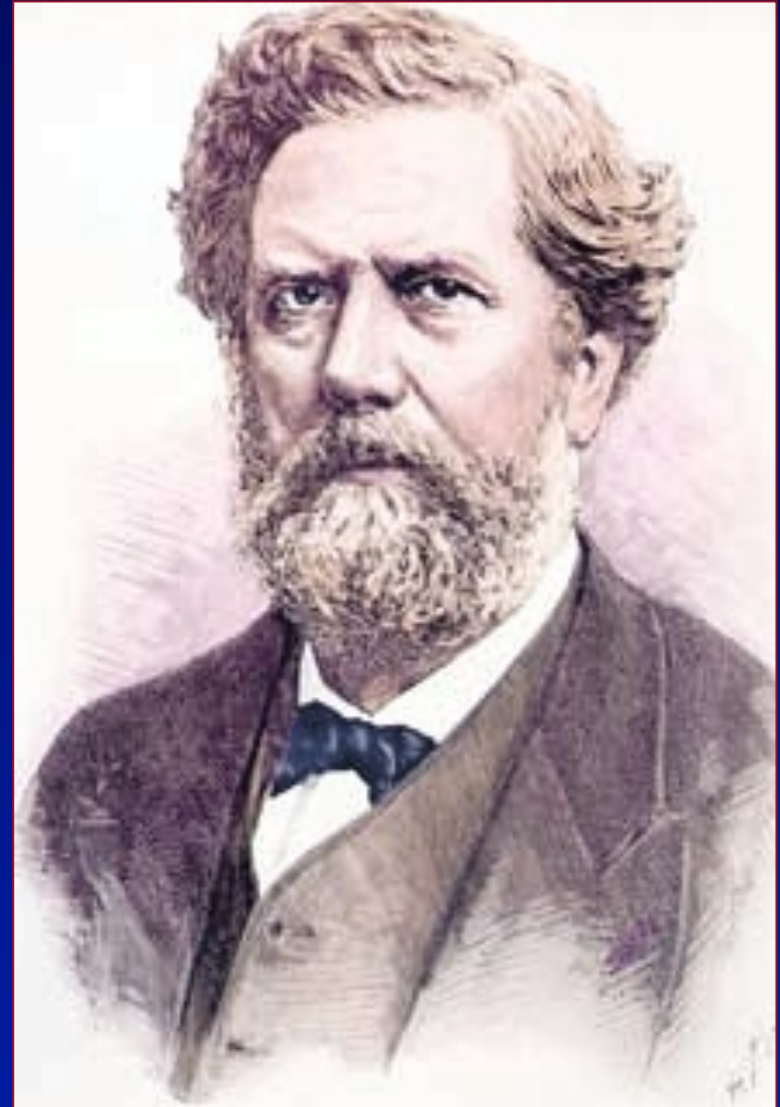
Disclosures:

Speaker for Medtronic, Biotronik

Advisory Board for Medtronic, Biotronik



Jean Baptist de Senac
Rebellious palpitation 1700s



Edme Vulpian
Fremissement fibrillaire 1874

Clinical Classification of AF

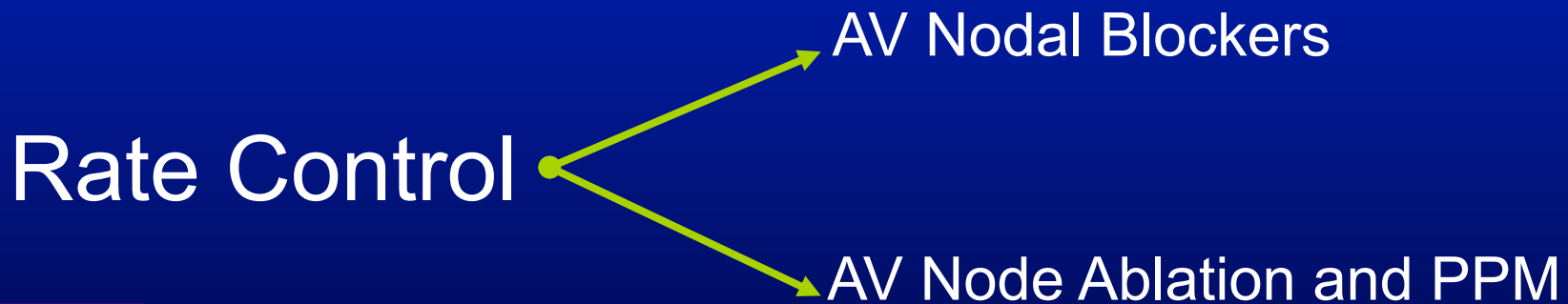
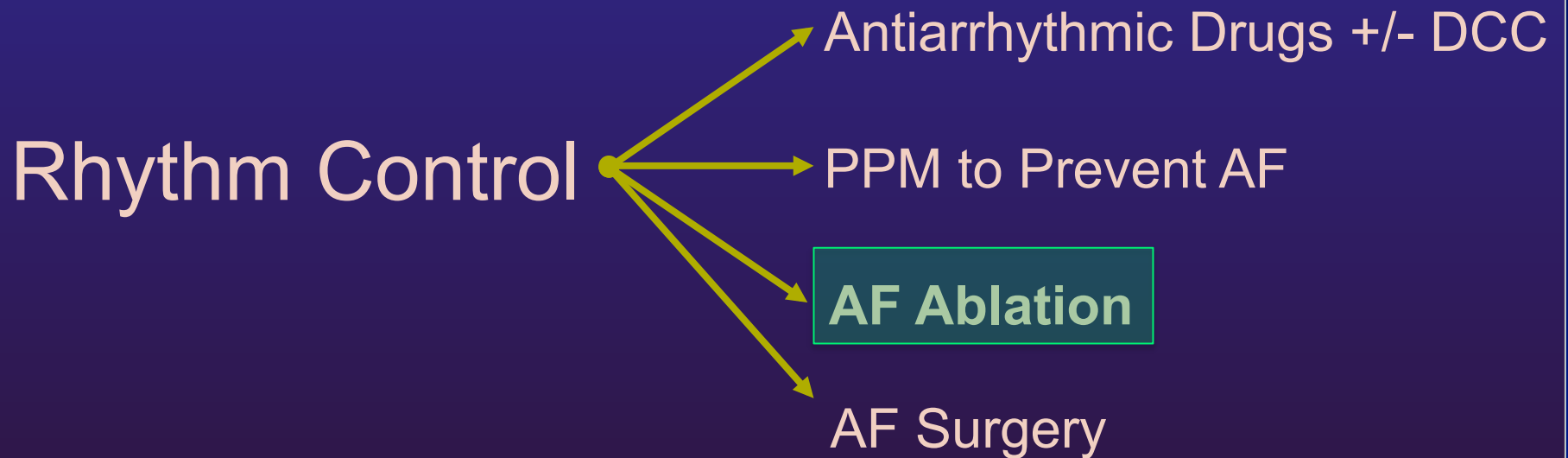
- Initial episode
- Paroxysmal AF – self terminating (<7 days (usually <48 hours))
- Persistent AF – requires pharmacological / electrical intervention
- Permanent (chronic) AF

Asymptomatic

Symptomatic

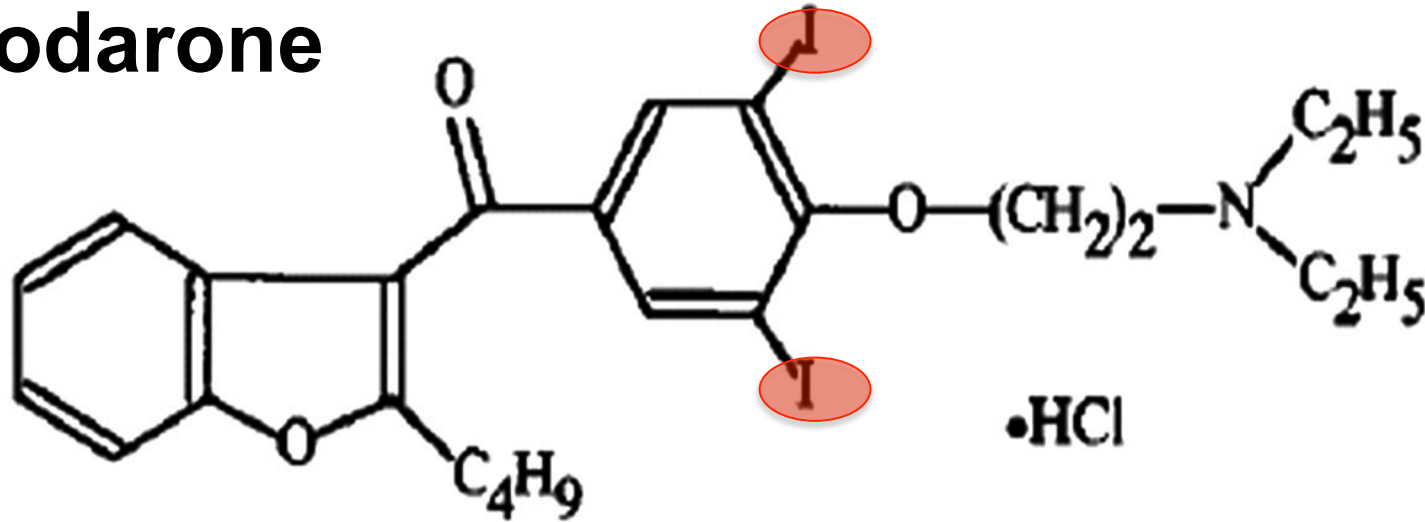
Levy JCE 2003

Treatment Options for AF

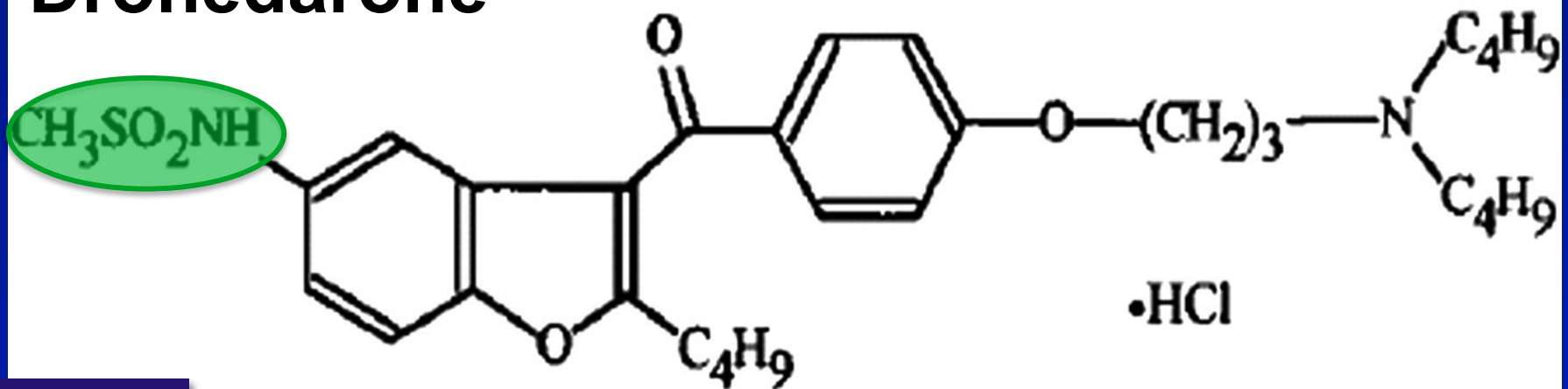


Dronedarone (Multaq)

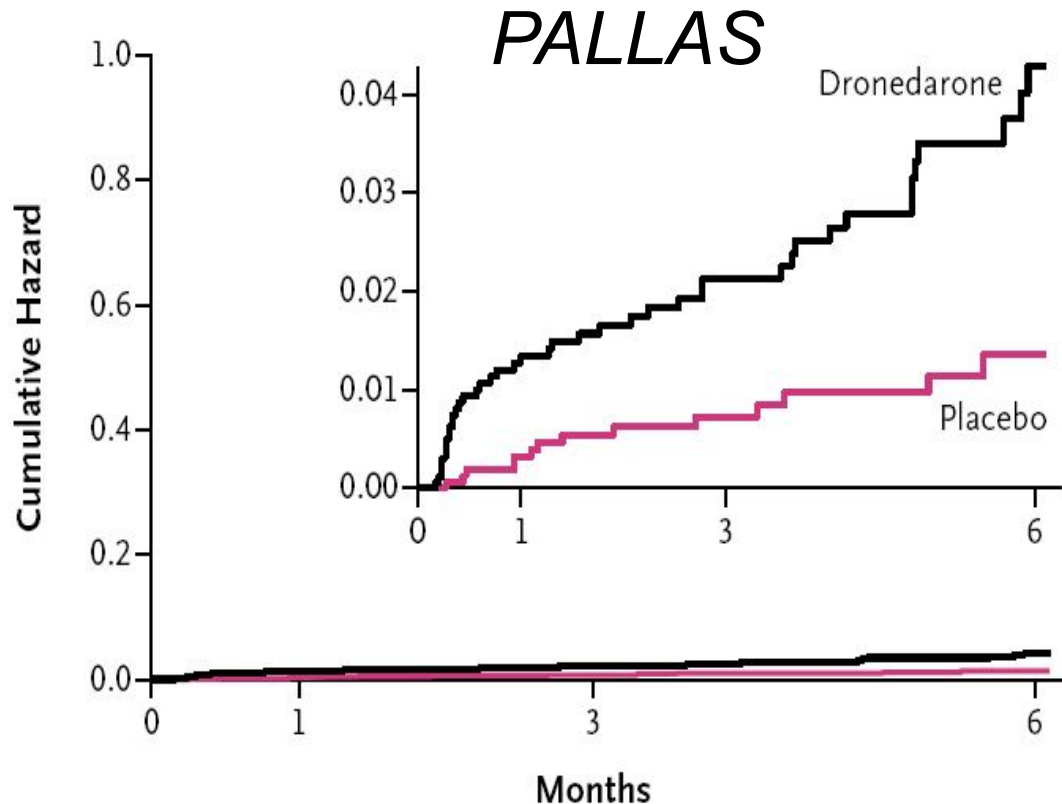
Amiodarone



Dronedarone



Dronedarone (Multaq)

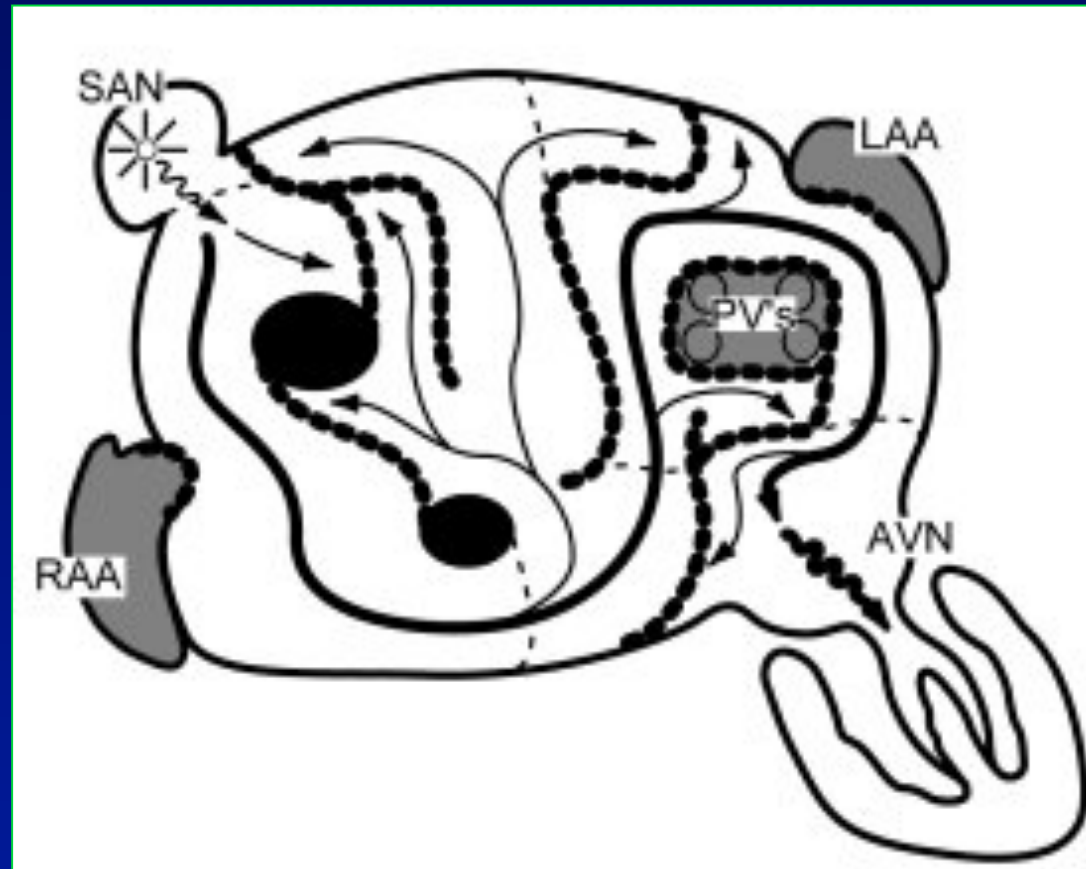


No. at Risk

Placebo	1617	1445	908	377
Dronedarone	1619	1421	930	353

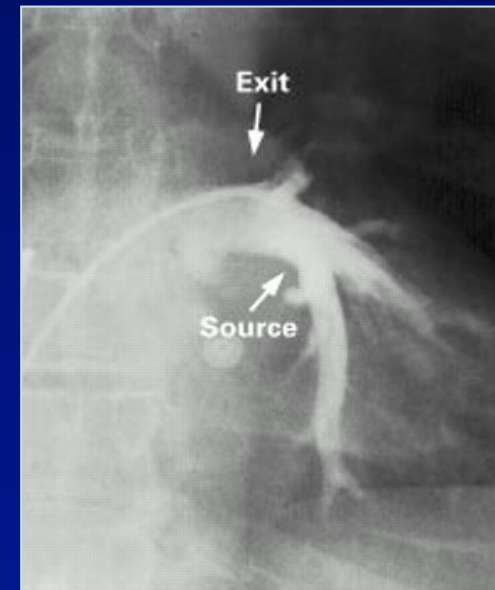
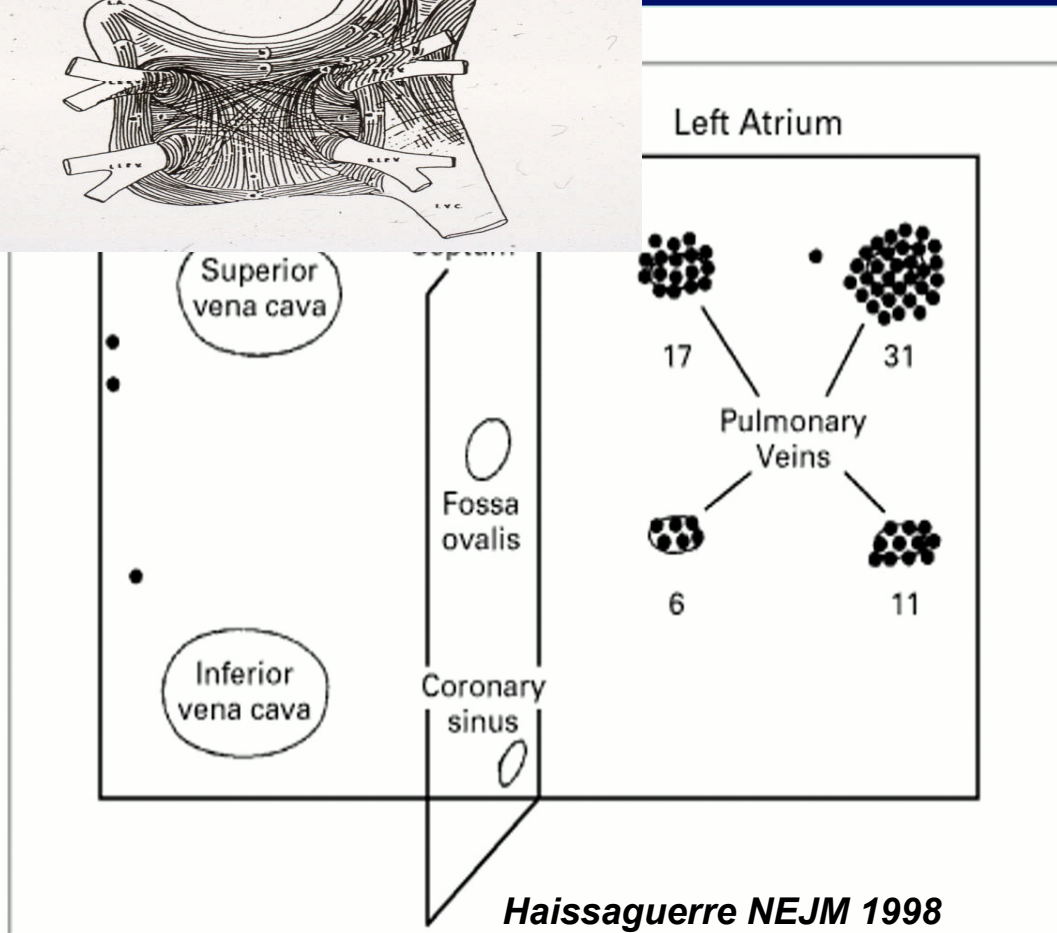
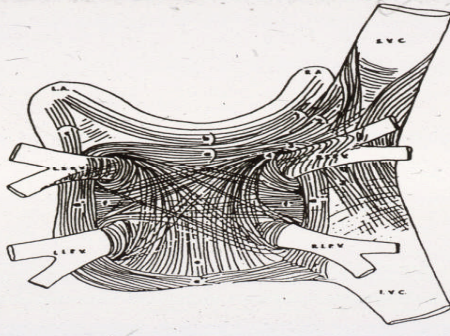
- *EURIDIS, ADONIS*: superiority > placebo for AF recurrence
- *ATHENA*: reduced CV hospitalizations and death
- *ANDROMEDA*: increased mortality & HF (in patients with HF)
- *PALLAS*: increased HF, stroke, and CV death in permanent AF

Cox-Maze Procedure



- Developed over a decade as a cut-and-sew technique
- High success rates in some surgeons hands
- Lesions could not be duplicated by EPs

Focal Triggers of AF



- 45 patients with disabling bouts of PAF
- 69 ectopic foci in 29 patients
- Ablation resulted in freedom from AF in 62% of patients

94% of foci were in the pulmonary veins

Devices

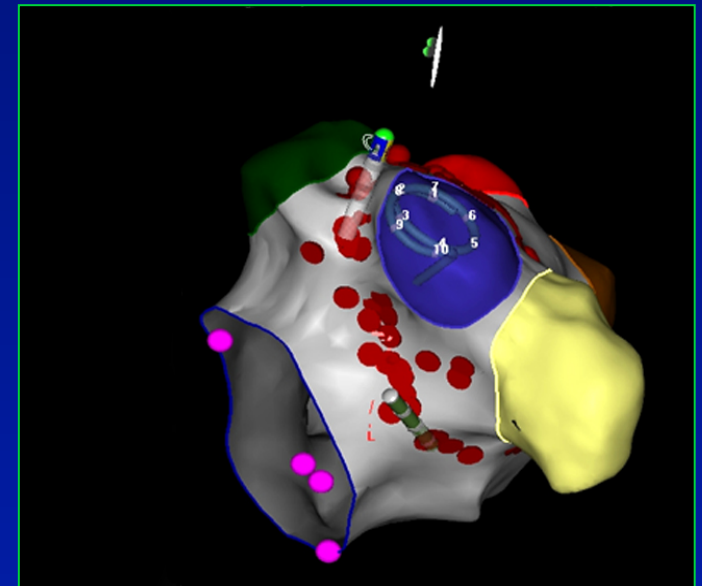
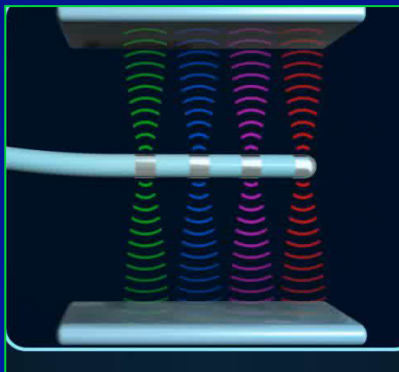
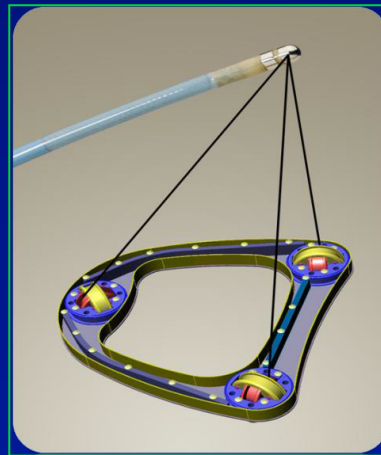
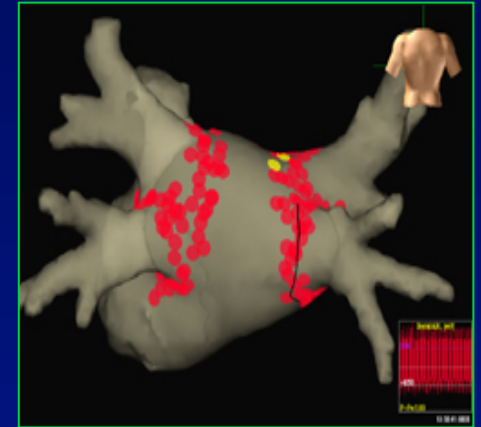
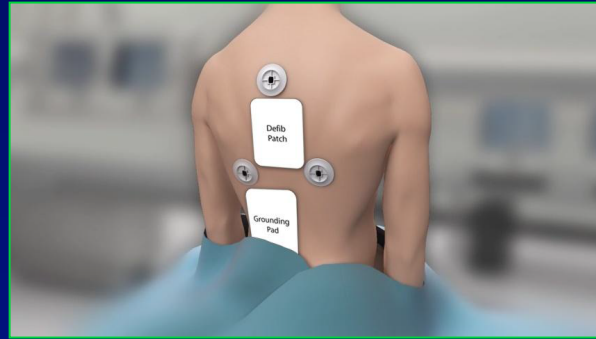
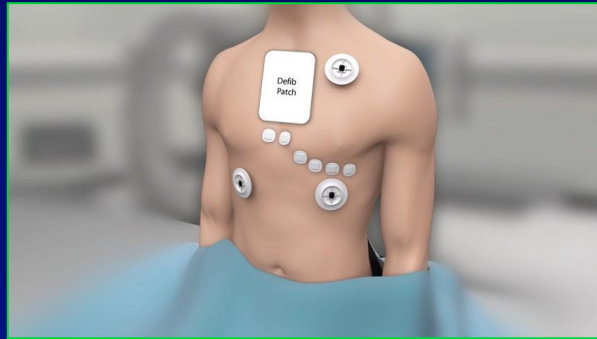
FDA approved for
AF ablation

- Non-fluoro mapping systems
- Lasso mapping catheters
- Cooled ablation catheters
- Cryoballoon
- Atricure surgical system (concomitant)

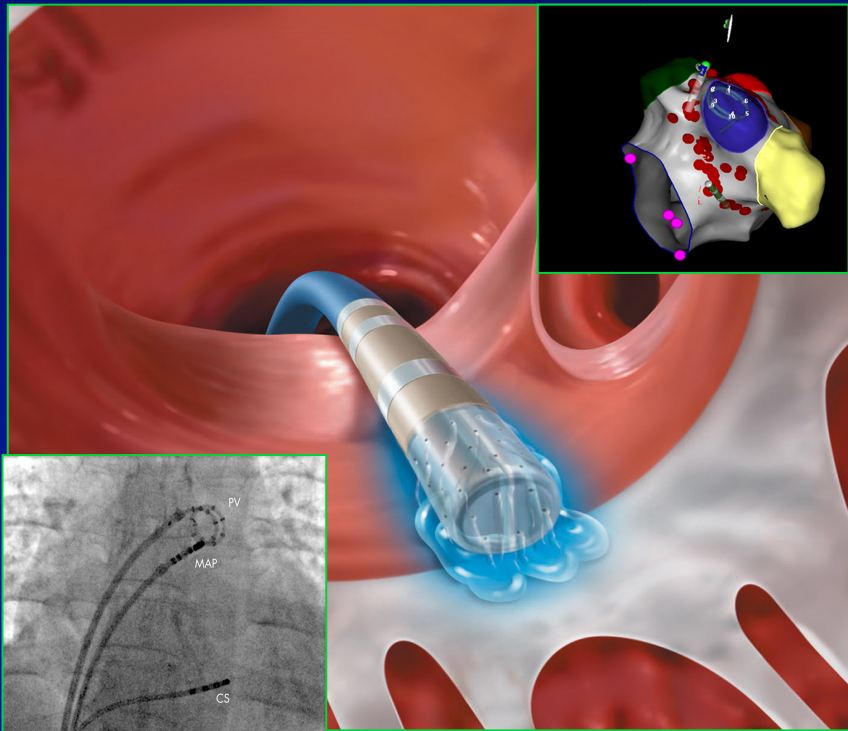
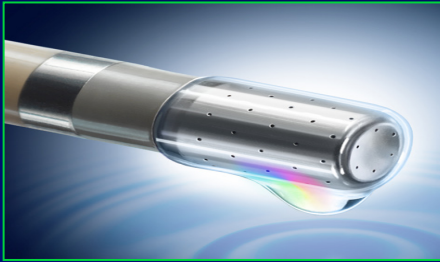
No FDA approval
for AF ablation
** Approved for ablation of
cardiac tissue*

- nContact surgical system*
- Atricure surgical system*
- Phased array ablation (PVAC)
- Lasso mapping catheters
- Topera system (rotor mapping)

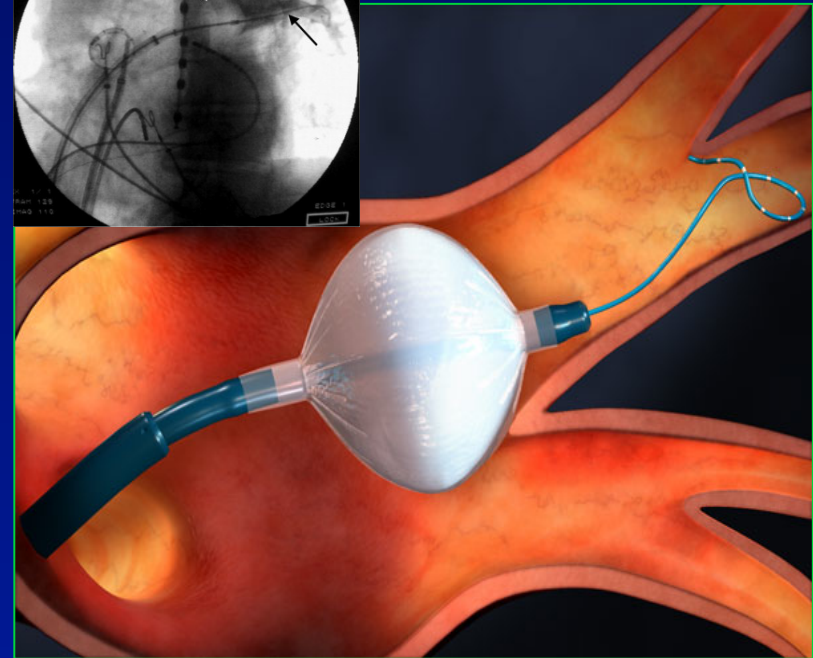
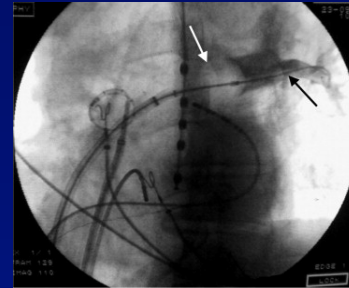
Mapping Systems



Ablation Systems



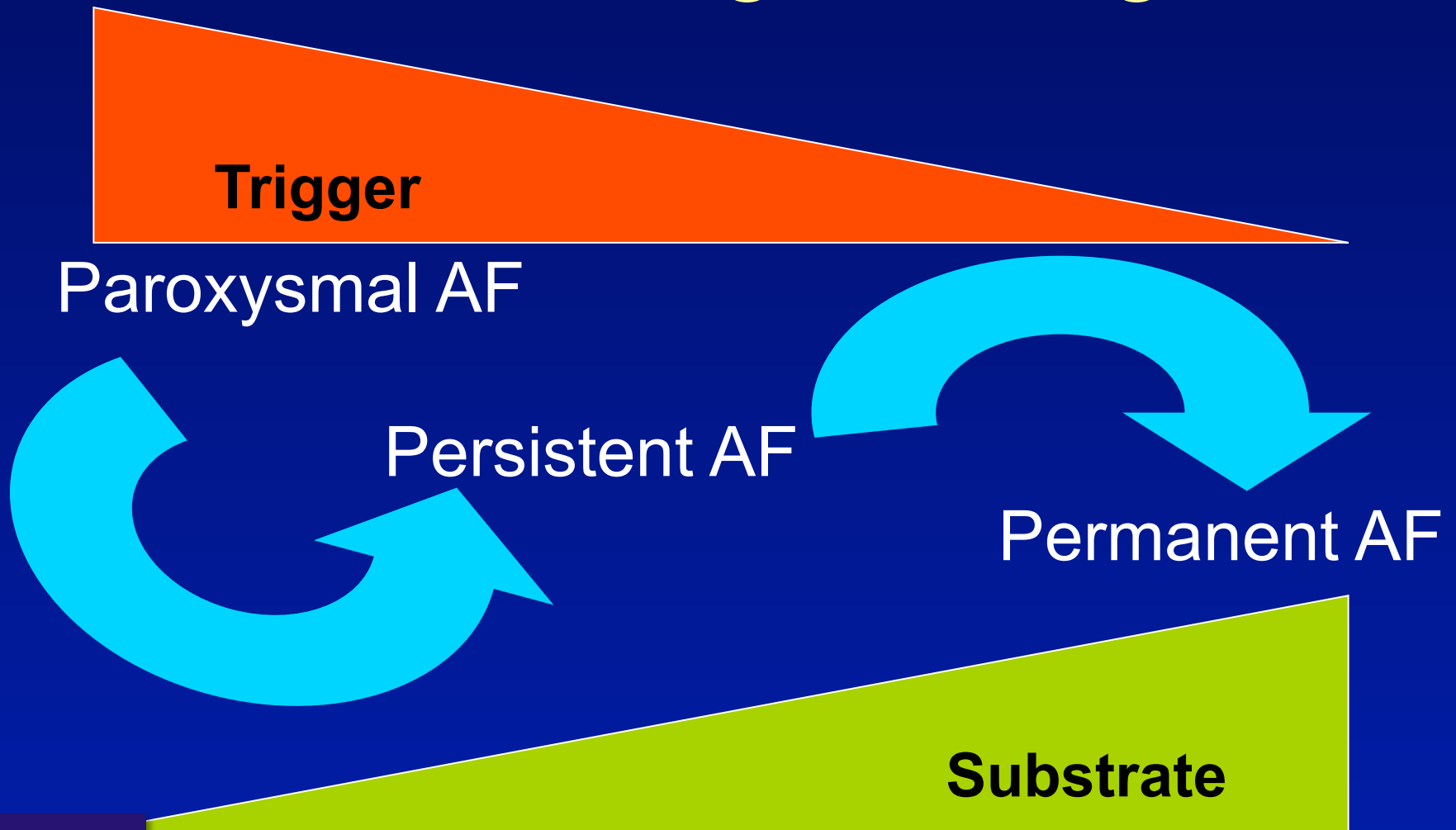
Externally cooled
RF ablation catheters



Cryoballoon ablation
catheter

AF

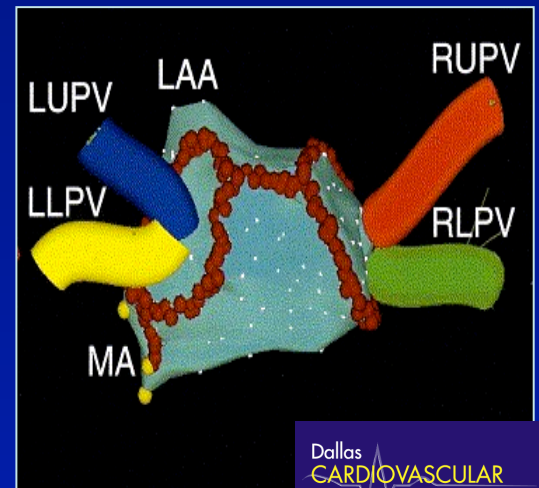
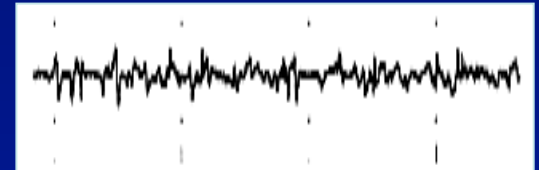
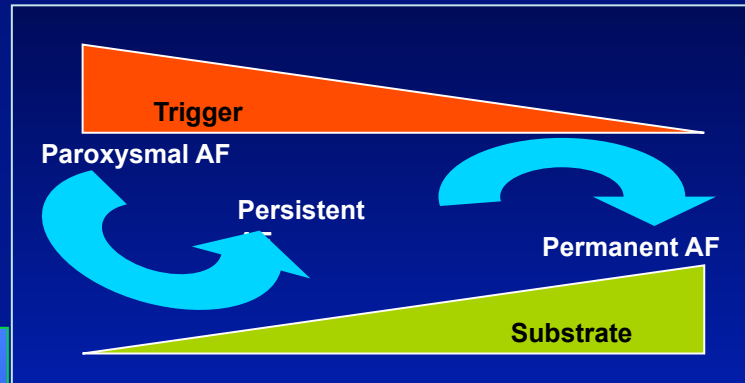
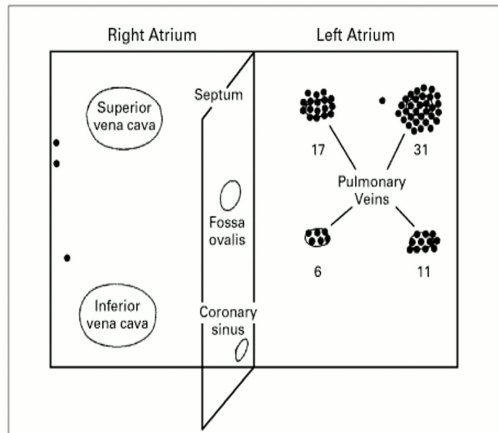
The Working Paradigm



Current Ablation Strategies

Tailored Approach

Ablation of trigger; PV isolation; search for additional triggers

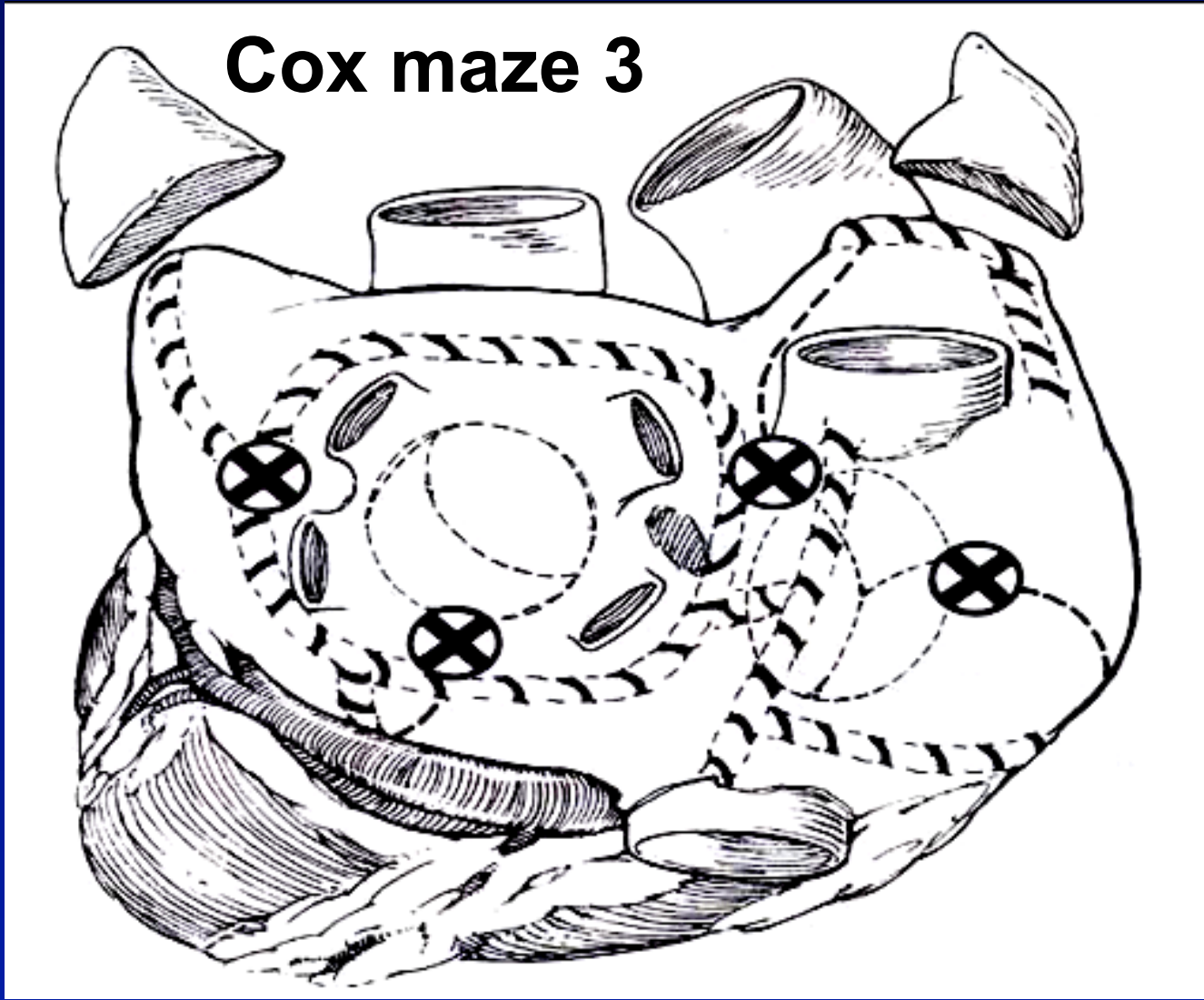


Hybrid therapy:
Ablation
Anti-arrhythmics
Pacemakers

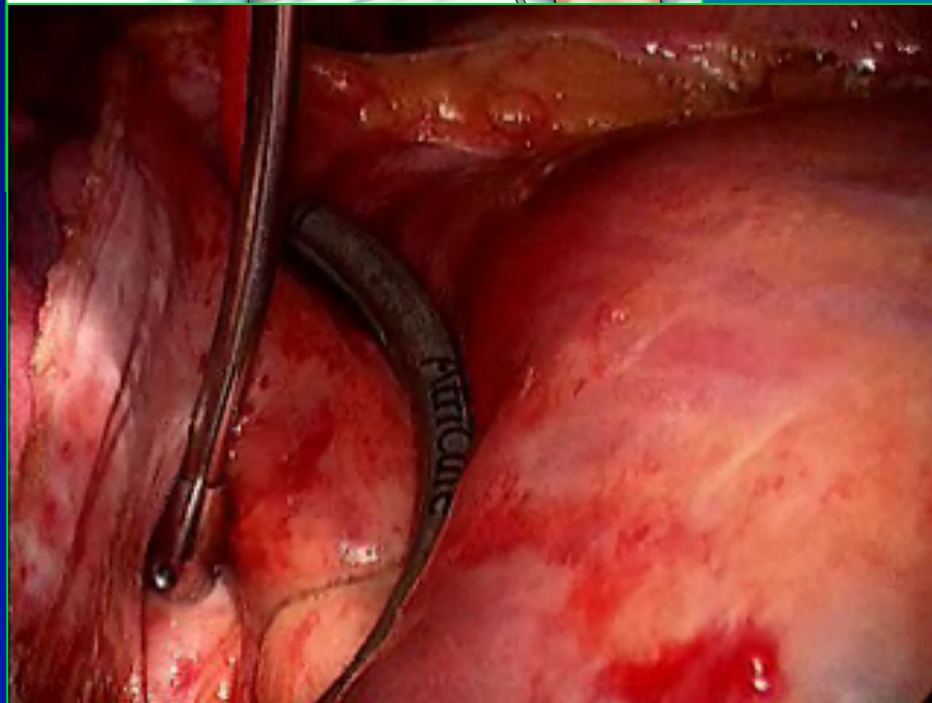
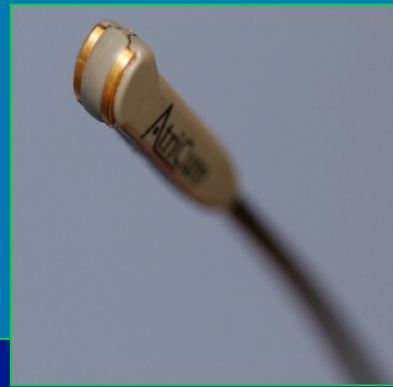
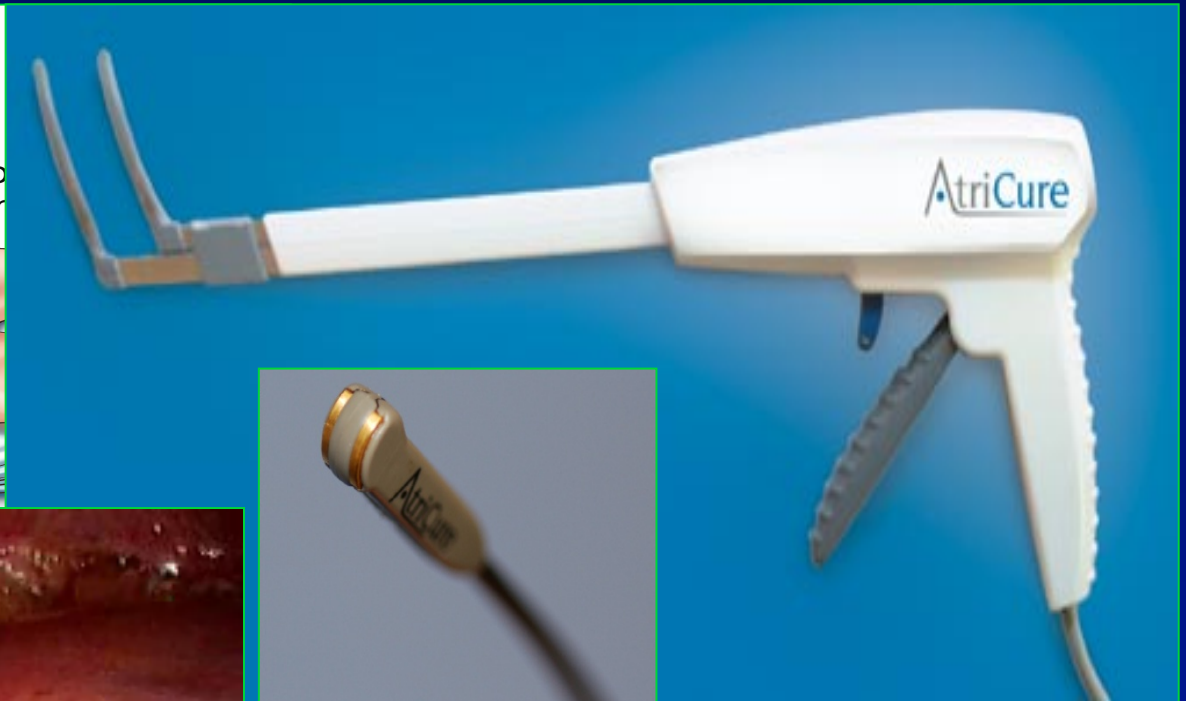
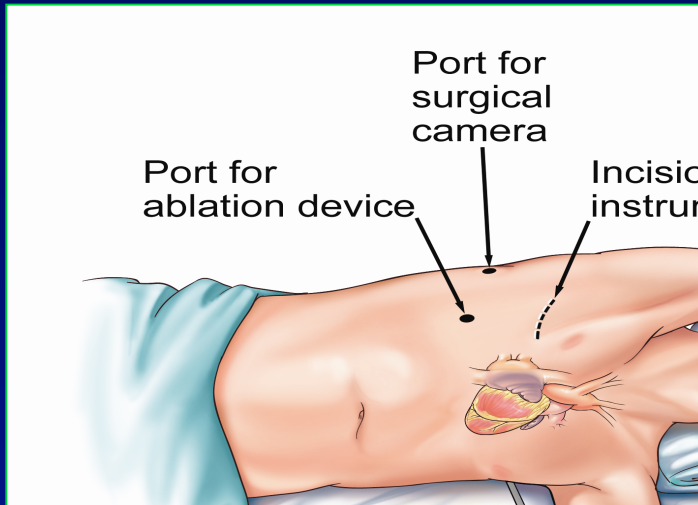
PV isolation; linear ablation; posterior wall ablation

Hybrid AF Ablation

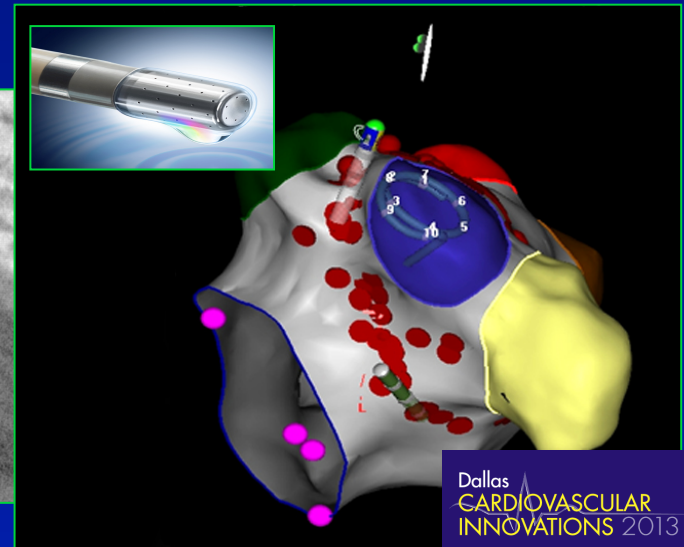
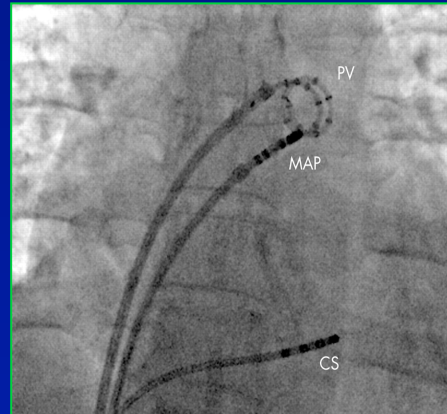
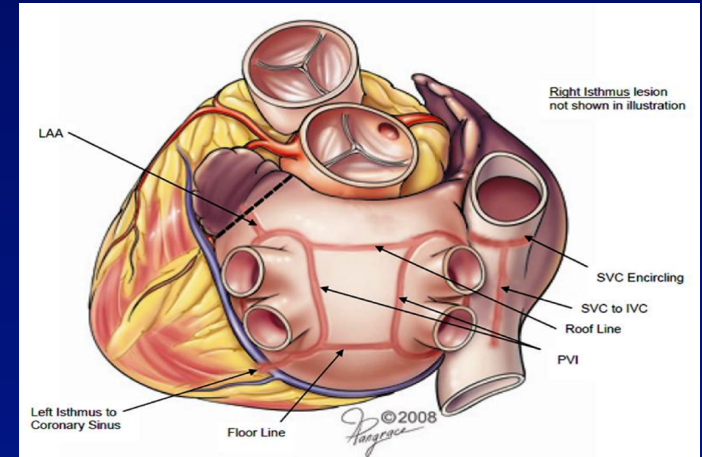
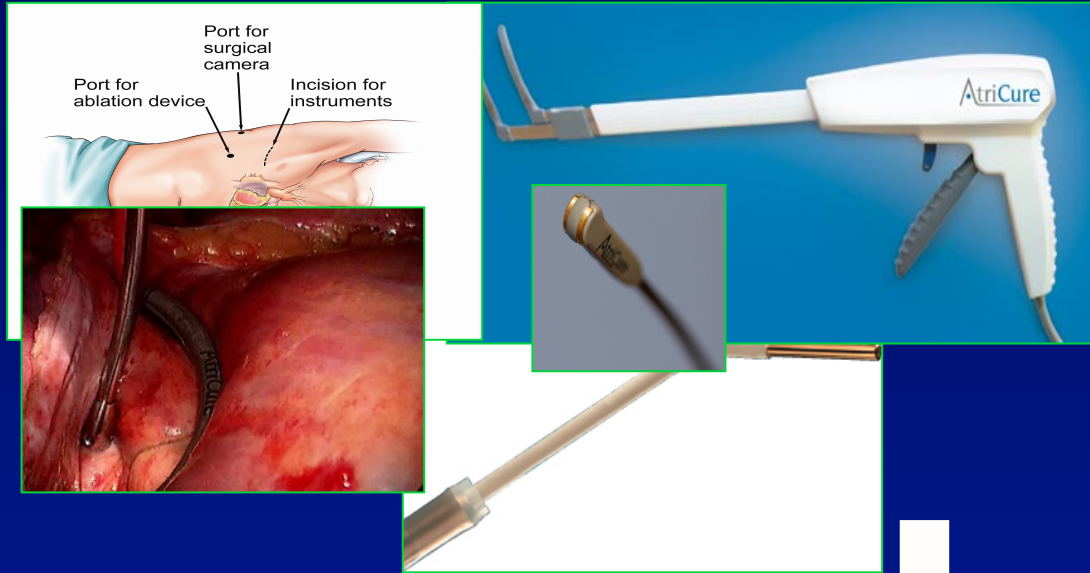
Cox maze 3



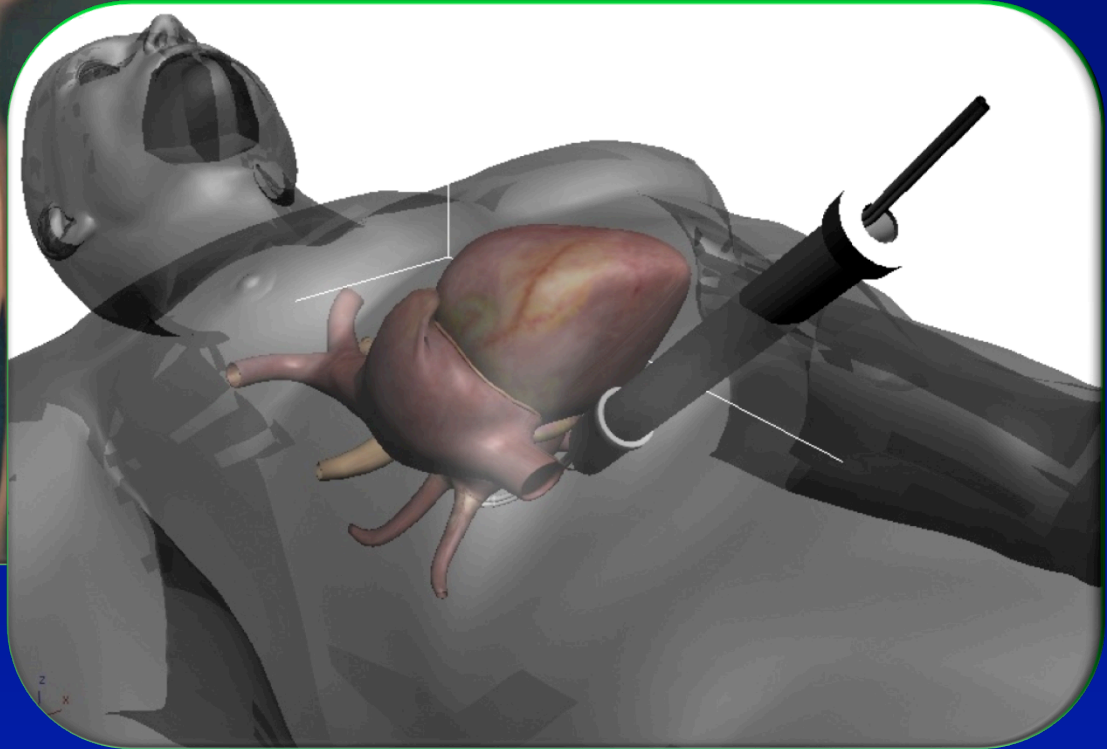
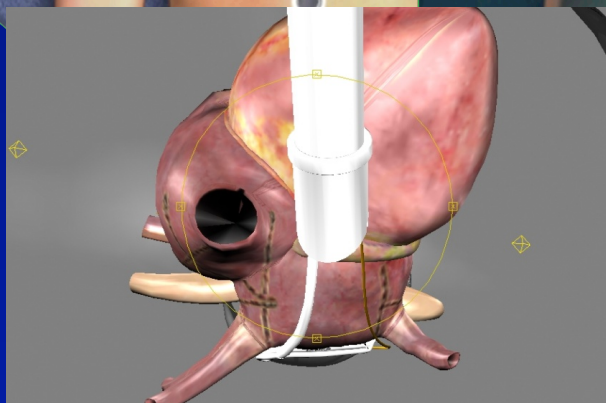
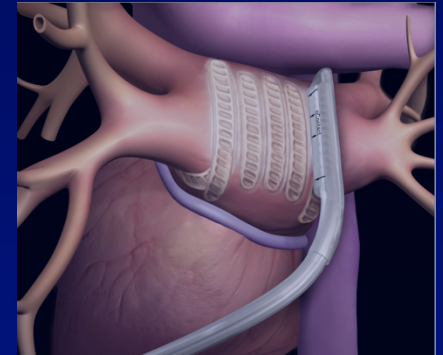
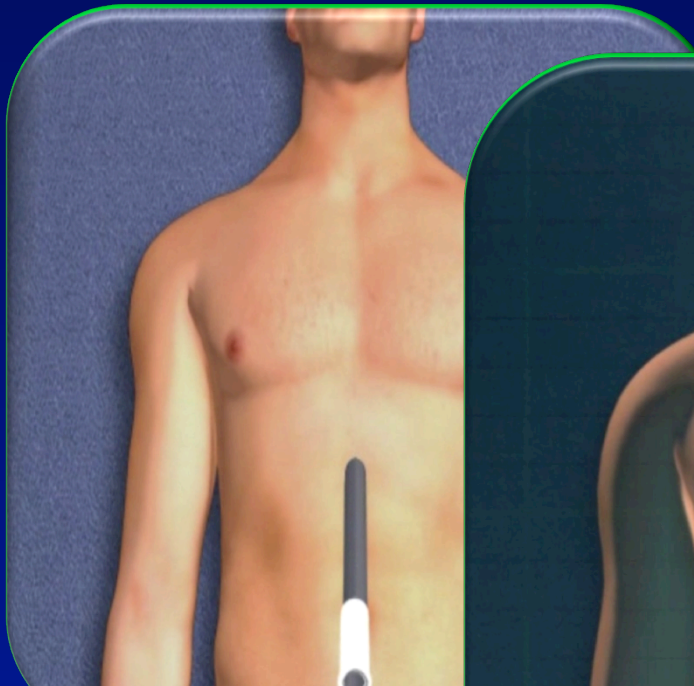
Hybrid AF Ablation



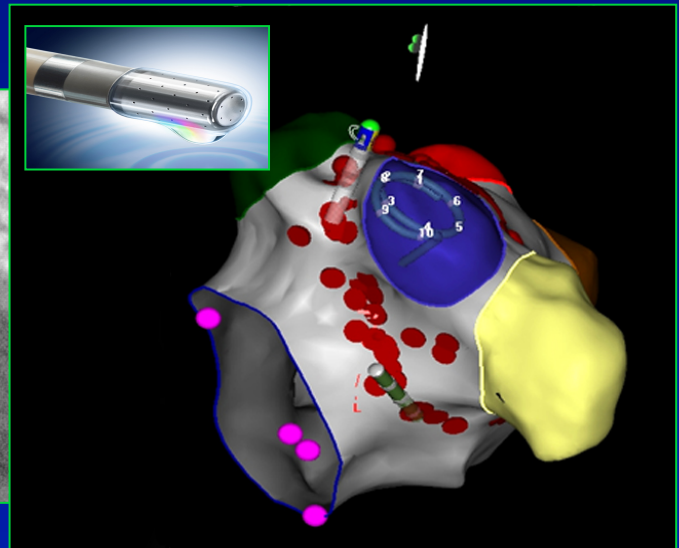
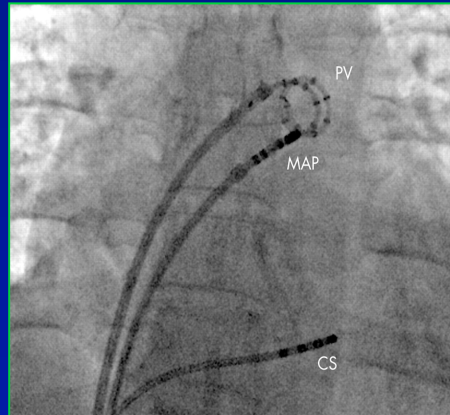
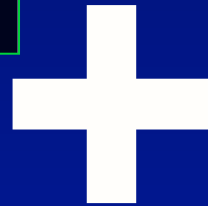
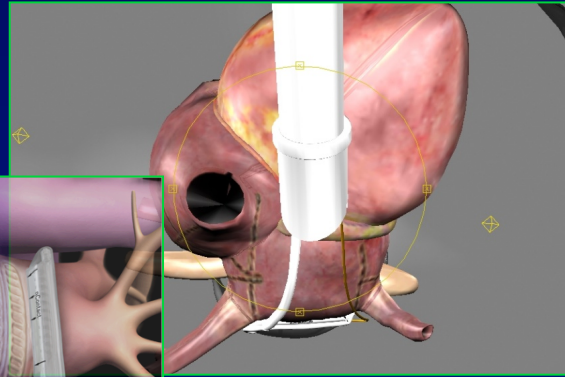
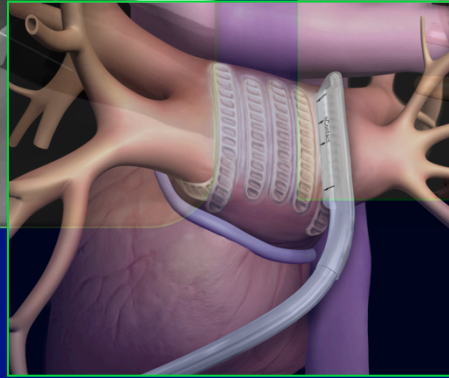
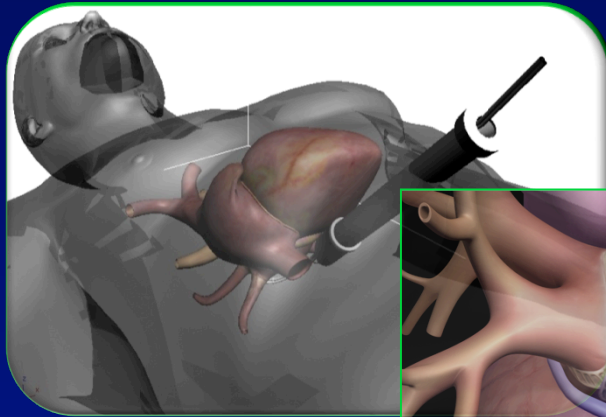
Hybrid AF Ablation



Hybrid AF Ablation



Hybrid AF Ablation

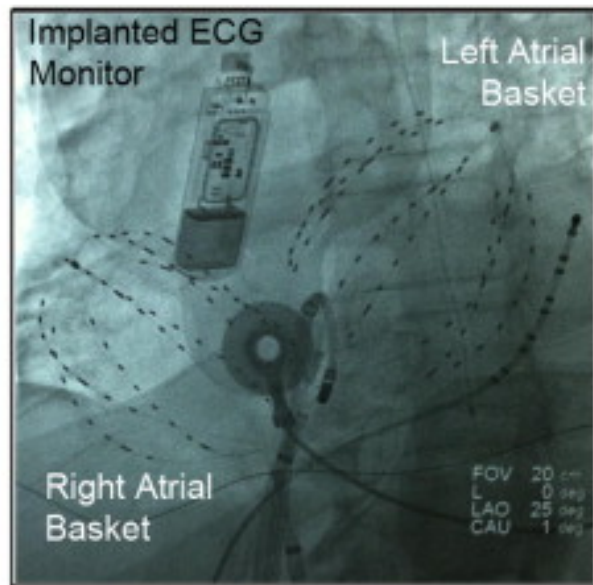


Rotors in AF

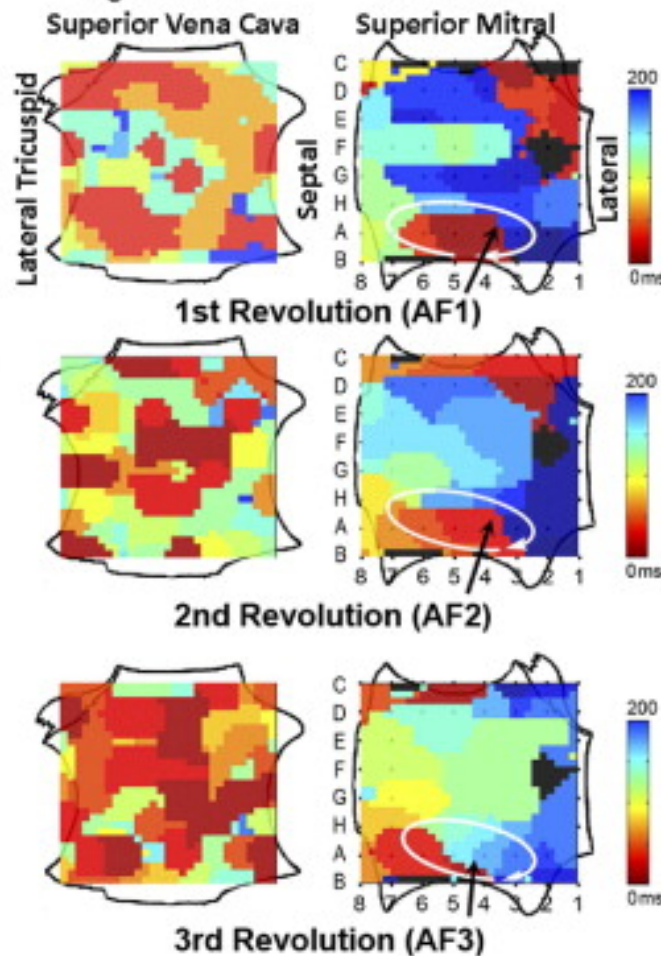
A ECG and Intracardiac Signals of AF



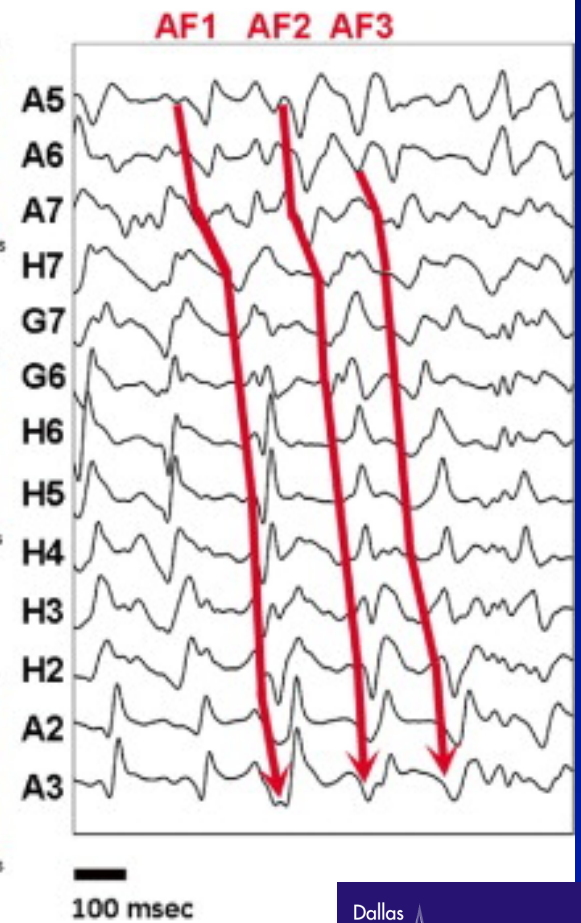
B Basket Catheters in Both Atria



C AF Rotor in Low Left Atrium



D Processed Intracardiac Signals Activation Along Rotor Path



Conclusions

- Symptomatic AF is a management challenge
- New antiarrhythmic drugs have not performed as well as hoped
- Ablation for AF became a possibility in the late 1990s
- Effective isolation of pulmonary veins is a good strategy for paroxysmal AF
- Persistent AF requires significant additional atrial ablation
- Continued innovation in device conception and design is likely to lead to increased success