

AF-Controlling the Rhythm

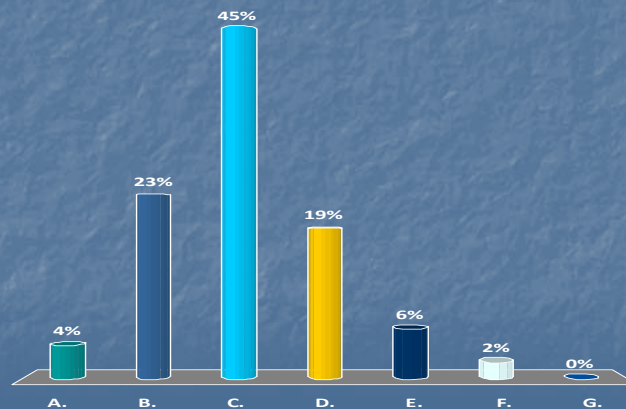
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EP Lab Director, United Hospital

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A 56 year old male with hypertension, obesity, OSA, and diabetes presents with increased shortness of breath. Exam finds an irregular pulse and ecg confirms AF with a controlled rate at rest (on beta blocker for HTN). Echo shows normal LV systolic function with mild LVH. TSH is normal.

What is the CHADS score?

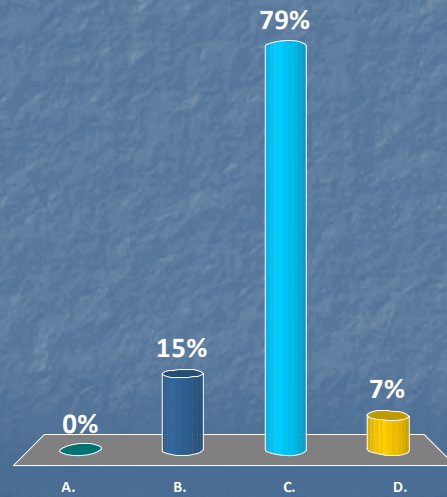
- A. 0
- B. 1
- C. 2
- D. 3
- E. 4
- F. 5
- G. 6



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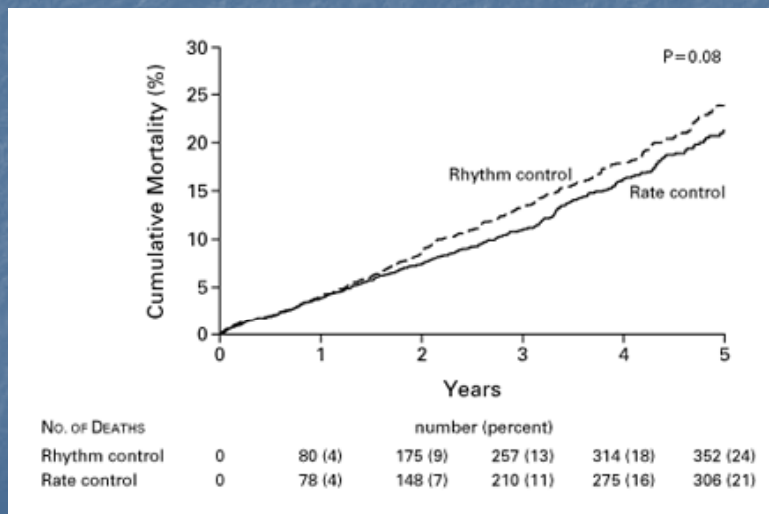
With the rate controlled, what is the next step for treatment?

- A. AF ablation
- B. Cardioversion
- C. Anticoagulation
- D. Start anti-arrhythmic medication (sotalol or dronedarone)



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Rate vs. Rhythm-AFFIRM



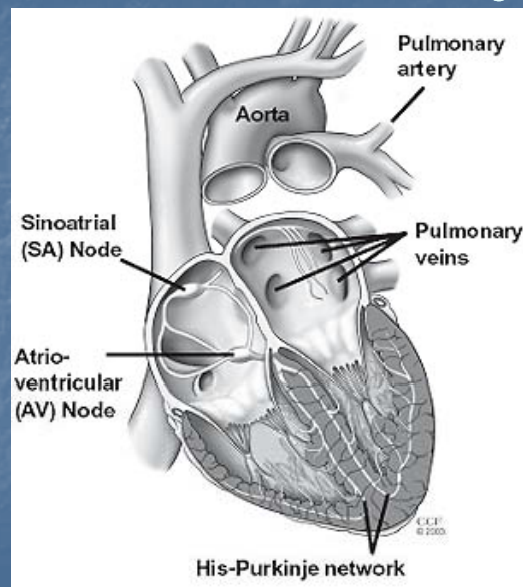
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Rate control

- Medications (IV and po):
 - Digoxin
 - Beta-blockers
 - Calcium blockers
 - Occasionally adenosine (diagnostic)
- AVN ablation/pacemaker

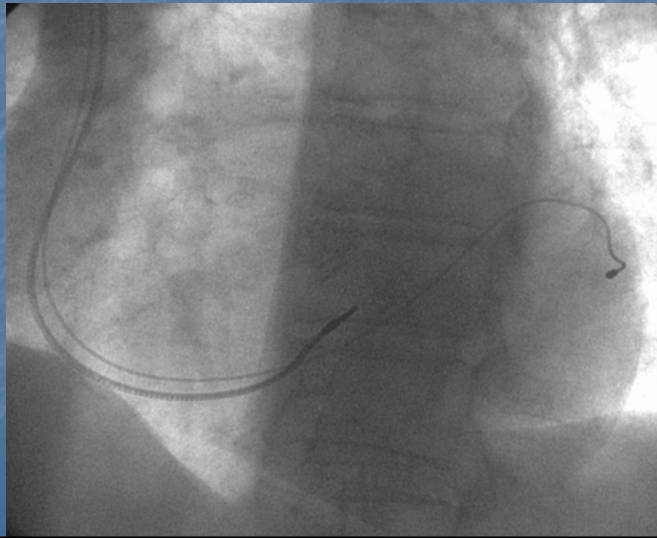
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EP cardiac anatomy



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Bi-ventricular pacing-LAO view



Rhythm options

- DCCV
- AA drugs
- AF ablation
- Maze and variations

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Anti-Arrhythmic Medications

- Class IA: Quinidine, procainamide
- Class IC: Flecainide, propafenone
- Class III: Sotalol, dofetilide, dronedarone, amiodarone (some of all 4 classes)

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Dronedarone (Multaq)

- Designer drug (amiodarone)
 - Class 3 effects
 - Avoid in patients with Class IV CHF
 - Approved in trials against placebo
 - Longer time to first recurrent AF event
 - Less hospitalizations

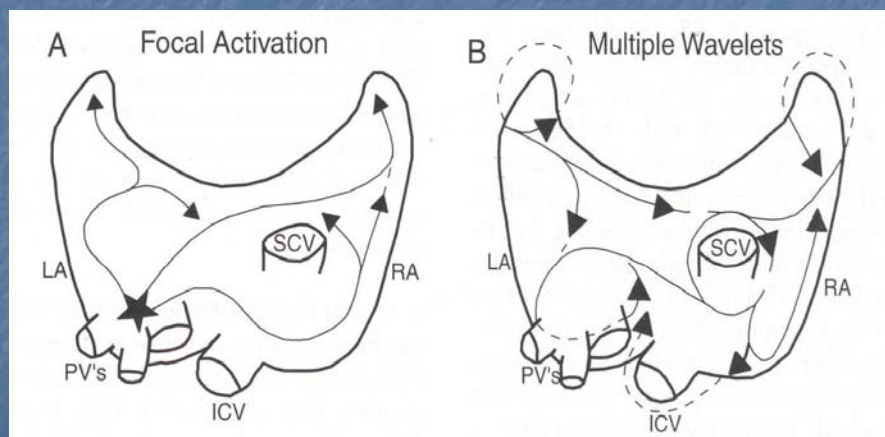
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Dronedrone

- Positives:
 - Low side effect risk
 - Low pro-arrhythmia risk
 - Easy to initiate as outpatient
 - One dose: 400 mg BID
- Negatives:
 - Weaker anti-arrhythmic
 - Avoid in severe CHF

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Proposed mechanisms for AF

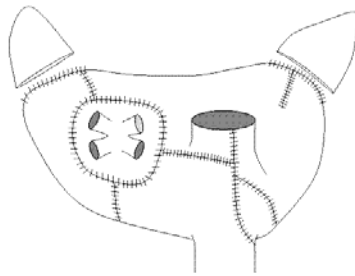


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Surgical Maze

- Original cut and sew maze
- Now variations with cryo, RF.
- Open chest vs. minimally invasive

Figure 1.



Long term follow up of Maze

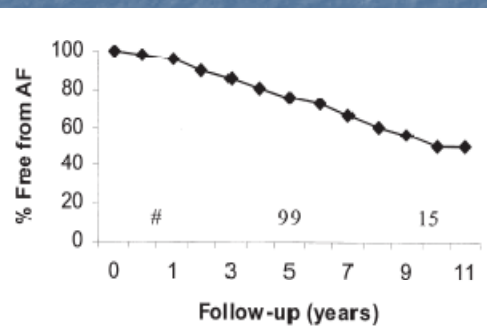


Fig 1. Batrial maze (♦). The Kaplan-Meier curve demonstrating the freedom from atrial fibrillation in patients who have undergone a Cox-maze procedure.

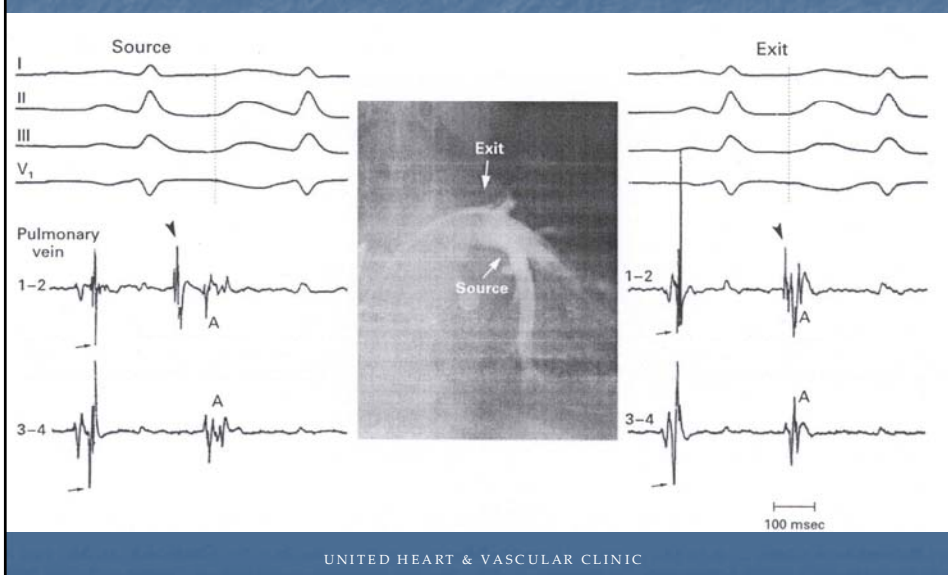
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AF Ablation

- Derived from surgical maze
- Early attempts without 3-D mapping systems very difficult
- Discovery of Pulmonary Vein triggers in '98 begins current era of AF ablation

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Pulmonary Vein Potentials

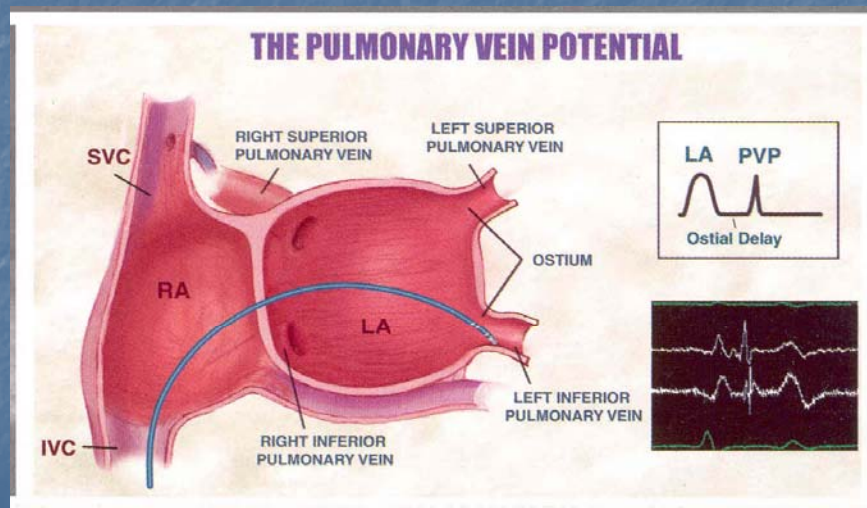


AF ablation

- Primary goal: isolate pulmonary veins
- Secondary goals:
 - Ablation of CFE's
 - Additional lines (roof, mitral annulus)
 - Right sided AFL line
 - SVC isolation
 - Ablation of ganglionated plexus

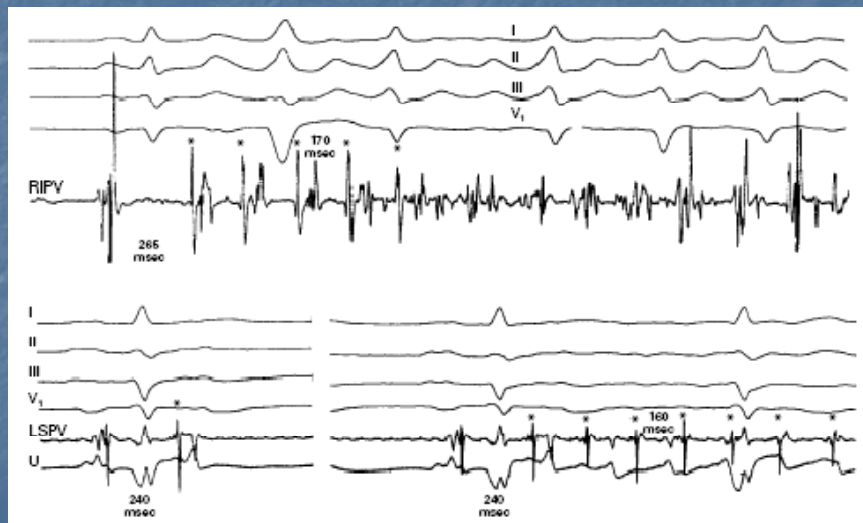
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Schematic of RF catheter



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Initiation of AF



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Evolution of AF ablation

- Early approach was to ablate in vein
- Later moved to os of vein with segmental isolation
- Currently doing a wide-area circumferential ablation around the Pulmonary Veins

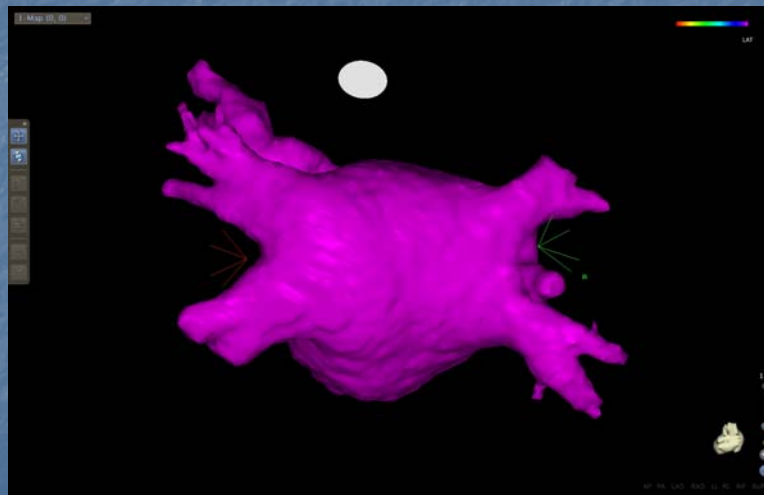
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Set up for AF ablation

- Pre-procedure MRI or CT of LA
- TEE to exclude LAA clot

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PV ablation-MRI



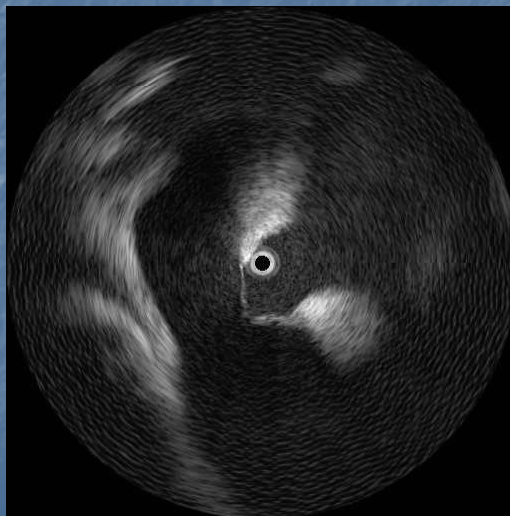
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AF ablation-Lab set up

- General anesthesia for 4 hour case
- 4 central venous access sites
 - Subclavian vein (CS catheter)
 - 2 R femoral venous sites (trans-septal catheters)
 - 1 L femoral venous site (ICE catheter)
- Anticoagulation during/after ablation

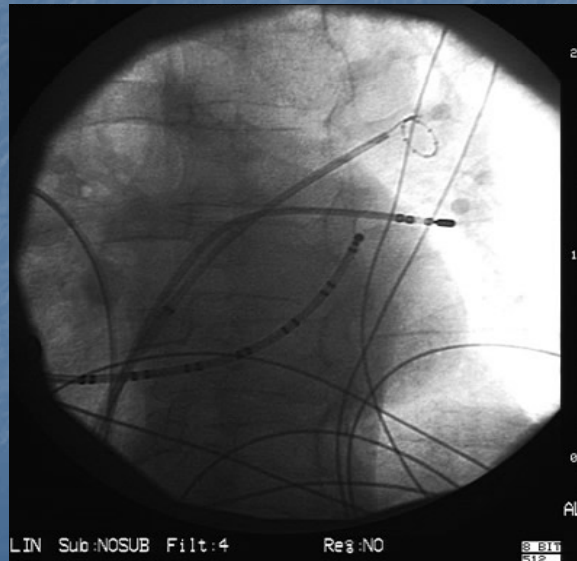
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Access to LA

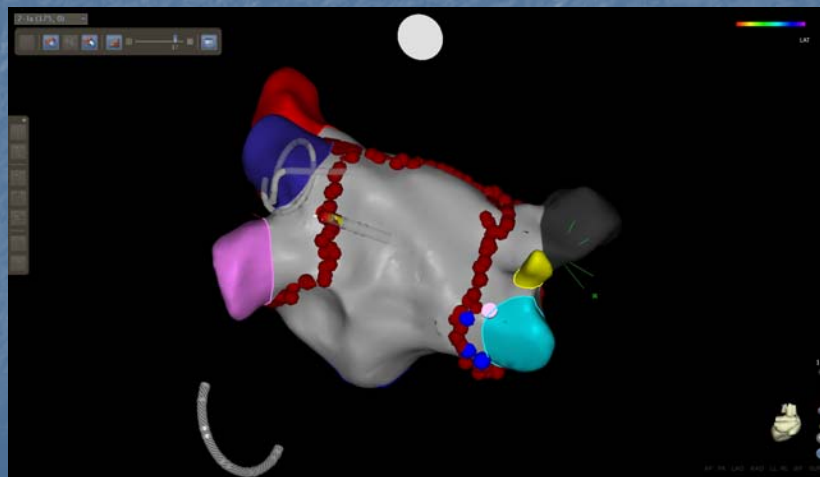


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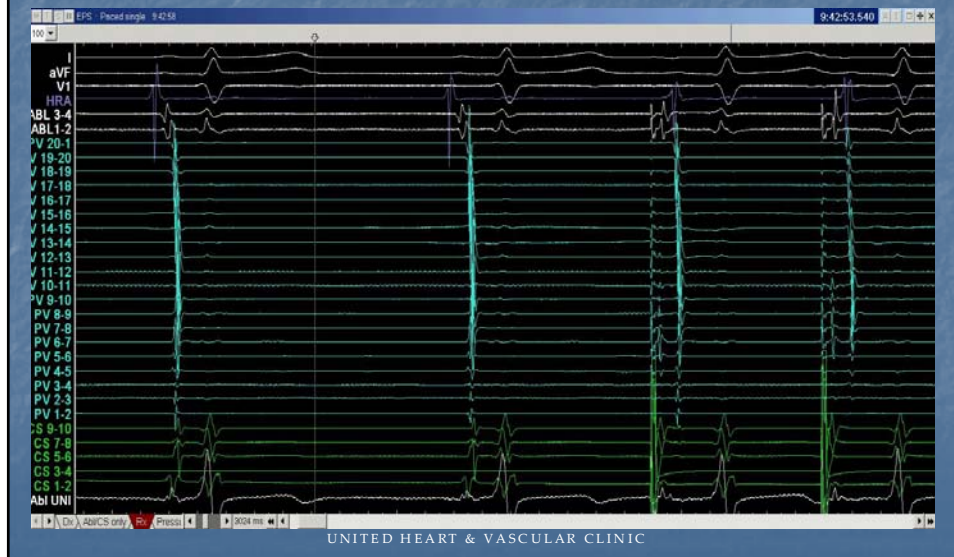
PV ablation-Flouro image



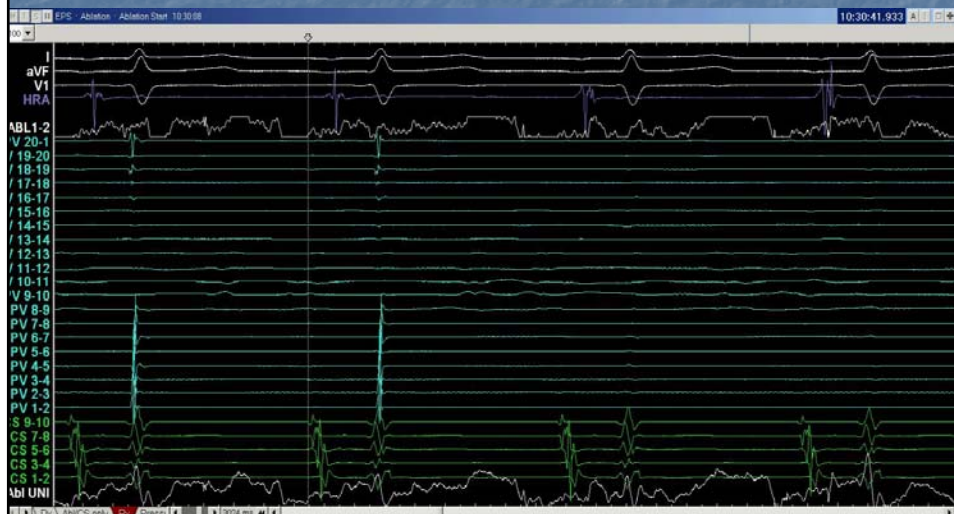
PV ablation



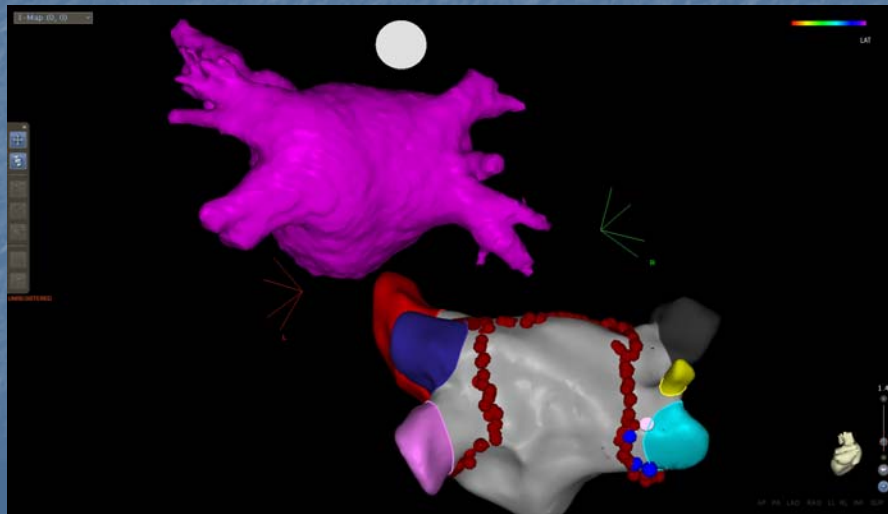
PV ablation-Baseline potentials



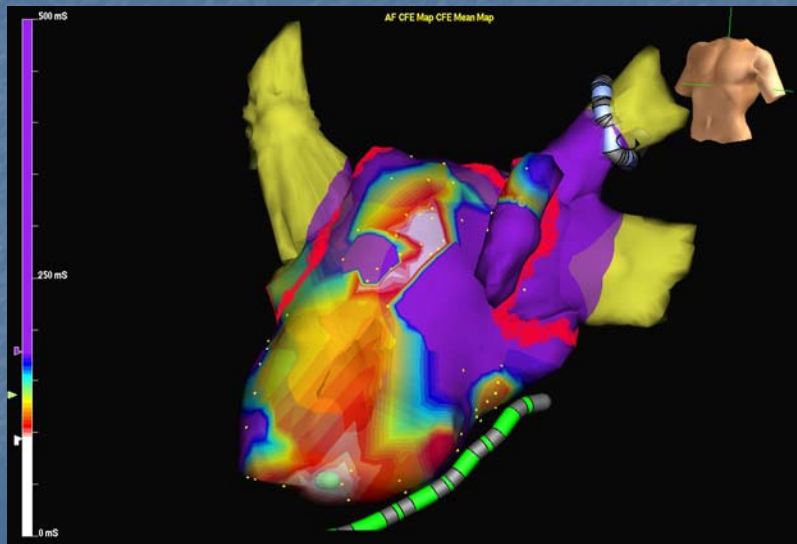
PV ablation-block develops



Match up MRI and Geometry



CFE Map



Results-F/U via Pacemaker

Pacemaker Model: Medtronic Kappa KDR901
Serial Number: PKM135195

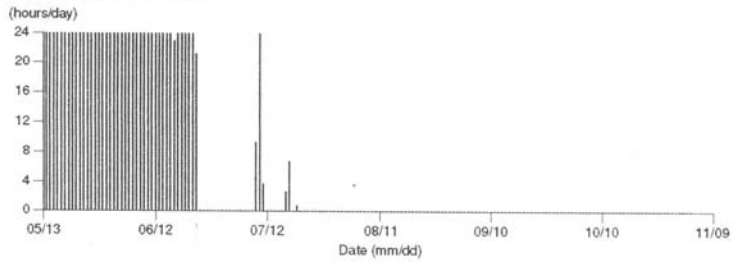
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Initial Interrogation Report

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Cardiac Compass: 05/13/04 to 11/04/04

Atrial Arrhythmia Trend



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