Case Studies

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Case Studies:
Atrial Fibrillation

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CASE #1
Patient Background

• Initial consultation 2005
  – 62 yo male
  – 15 yr h/o recurrent palps x hrs
  – Normal echo and ETT
  – Multiple ER visits said to reveal “flutter;” no ECG
• Underwent CTI ablation at another hospital x2
• Continues with daily and prolonged palpitations
• Holter confirms PAF with RVR; post-termination pauses up to 3.5 secs
• Rx: digoxin, nadolol, warfarin
Therapeutic Intervention

1. Addition of propafenone
2. Addition of amiodarone
3. Catheter ablation
4. Continued observation
Catheter Ablation Technique

1. Segmental PV isolation
2. Circumferential PV isolation
3. PVI + linear ablation at LA roof and mitral isthmus
4. PVI + GP ablation
5. PVI + CAFÉ lesions
6. PVI + mapping of non-PV triggers
7. FIRM
Follow-up After Ablation

• Complete PVI performed. CTI ablation intact. No other ablation performed and nothing inducible.
• Over next 6 mos, frequent PAF.
• Propafenone CR 225 mg bid started.
• All PAF disappeared but patient strongly preferred no therapy.
• After no AF for few mos, propafenone stopped.
• After no AF for 2 mos, PAF returned but less frequent and prolonged.
• Nonetheless, patient preferred re-ablation.
Technique for Redo Ablation

1. Redo PVI only
2. Redo PVI + additional linear ablation
3. Redo PVI + CAFÉ lesions
4. Redo PVI + GP lesions
5. Redo PVI + mapping non-PV triggers
6. All of the above
7. FIRM ablation
Redo Ablation and Follow-up

• Redo PVI only
  – All 4 PVs had reconnection
  – Recurrent AF throughout procedure
  – RUPV trigger for AF and once ablated, all AF gone
• 2 mos later, AF-free and all meds discontinued except warfarin
• 3 mos later, AF-free off meds and warfarin stopped. Judged to be complete response to ablation.
• Follow-up AECG negative for AF
Long-term Follow-up

• For next 3 years, symptom-free.
• Then began to have infrequent palpitations and AECG confirmed occasional PAF. Some post-termination pauses of 3-5 secs, limited symptoms.
• Over next year, symptoms increased and about 30% prevalence of PAF. Deemed “very late recurrence.”
• Propafenone resumed and ineffective.
Recurrence Rate of AF After One Year
Freedom From Recurrence

Next Therapeutic Intervention

1. Change propafenone for amiodarone
2. Change propafenone for sotalol
3. Change propafenone for dofetilide
4. Permanent pacemaker
5. Repeat ablation
Ablation #3

- Redo PVI of minimal reconnections
- Linear ablation across LA roof
- Linear ablation across mitral isthmus and coronary sinus
- High-dose isoproterenol but no clear triggers
- Dofetilide initiated.
Post-ablation Follow-up

- Very frequent PAF on AECG
- Frequent post-termination pauses up to several secs, with severe lightheadedness or near-syncope
- Dual chamber PPM implanted one month post-ablation
- Following PPM, immediate cessation of PAF symptoms, confirmed by PPM log which revealed only 2.6% PAF and most only few mins
- At next visit 2 mos later, PAF burden only 0.7%
CASE #2
History

• 65 yo male with h/o HTN
• Progressive PAF to persistent pattern
• Failed to respond to propafenone and amiodarone
• Underwent PVI procedure 2/02 and then redo in 3/05 that included LA rool and mitral isthmus lines
• For 18 mos, no AF on no meds
• Then rare and short-lived PAF
Later Follow-up

• For next 2 years, did well but then progressive AF so that cardioversion required for pers AF.
• Symptoms during AF of palpitations and extreme exhaustion despite rate control with metoprolol
• Pers AF recurred early and dofetilide initiated.
• Still could not maintain SR.
• Echo revealed LAE of 4.4 cms and normal LV
Ablation #3 (4/08)

- No PV reconnections
- Endocardial roof and mitral isthmus lines largely intact. CS ablation performed.
- During isoproterenol infusion, no triggering of AF.
- AF easily induced and CAFÉ lesions in LA and RA
- Marked LA scarring present
- SVC isolated
- Patient continued on Tikosyn
Post-ablation Course

• PAF in first week and then all AF dissipated.
• Over next year, occasional PAF on dofetilide; considered an acceptable “partial response” to ablation.
• Over next 3 years, monthly episodes of PAF lasting 3-4 days
• Rx included dofetilide, metoprololol and warfarin.
• Patient comfortable.
Recent Course

• In 2012, symptoms more and more frequent and then constant.
• ECG and monitoring revealed pers AF with VR ~70 bpm for many weeks despite dofetilide
• Symptoms very debilitating, including exhaustion and dyspnea
• In 3/12, a procedure was performed.
Focal Impulse and Rotor Modulation (3/12)

- No LA sources found and no ablation performed.
- Large RA rotor identified on posterolateral wall
- RF delivered at all sites judged to be involved in rotor
  - Phrenic nerve capture avoided
- AF continued without termination or slowing
- Cardioversion at conclusion restored SR
Subsequent Follow-up

- AF recurred prior to hospital discharge.
- For 3 weeks, AF continued, documented on AECG; cardioversion planned.
- 5 days prior to cardioversion, sudden regularization of rhythm over 48 hrs, then abrupt termination to SR; all confirmed by AECG.
- For next 6 mos, no AF by symptoms, ECG or AECG
ECG Recordings Before and at Termination

AF-4/17/12

AFL-4/22/12

NSR-4/24/12