Atypical Atrial flutter after AF ablation

Seongwook Han, MD,PhD.
Professor of Medicine, Keimyung University School of Medicine
Arrhythmia Service, Cardiology, Dongsan Medical Center
~ Our Story ~

65/M

- Hypertension for the 35 years
- Paroxysmal to persistent AF was treated with amiodarone and several occasions of DCCV since 2000
- The 1st RFCA for the AF was done in 08-11-2014

- Echocardiography (08-11-2014)
  - EF 70%
  - LA volume: 127.49ml, index 63.11
  - Concentric LVH, mild to moderate MR
Lesion sets: Biantral ablation & CTI ablation

Sinus rhythm was achieved by DCCV after biantral ablation
Recurred AF 3 months after 1st ablation
~ Our Story ~

- He complained of shortness of breath while walking with AF
- AF was not controlled with the combination of amiodarone and propafenone
- The 2nd RFCA was done in 02-09-2015

Echocardiography (02-09-2015)

- EF 64%
- LA volume: 94.99ml, index 45.45
- Concentric LVH, minimal Mr
Lesion sets: Biantral, Roof, MI ablation

- 4 PVs: isolated, CTI: bidirectional block (+)
- Biantral ablation was done for the anchoring point
- Linear ablation @ roof & MI was done. MI block was achieved by ablation inside the CS
Sinus rhythm
He complained of significant shortness of breath while exerting
~ Our Story ~

- Echocardiography (12-04-2018)
  - EF 70%
  - LA volume: 82ml, index 39.61
  - Concentric LVH, minimal Mr, mild Ar
Baseline intracardiac EGM

1
F
V1
HRA-p

HRA-d
His-p
His-d
CS-p

CS-d
ODP from low RA @ 320 msec
ODP from low RA @ 310 msec
Progressive Fusion?
ODP from CSp @ 320 msec
ODP from CSp @ 310 msec
ODP from CSp @ 300 msec
Progressive Fusion
ODP from CSd @ 320 msec
ODP from CSd @ 310 msec
ODP from CSd @ 300 msec
Progressive Fusion
Set up of Activation map
LSPV: No Potential
LIPV: No Potential
RSPV: No Potential
RIPV: No Potential
Activation mapping
Propagation map
Delineation of the P wave onset
Define the systole & diastole

systole

diastole
Change of Window Of Interest (WOI)
Activation mapping
Orion catheter @ Mitral isthmus
Overdrive pacing @ diatolic potential in Orion catheter
MI ablation from endocardium (high sweep speed)
Nothing changed by endocardial ablation
Activation mapping include the CS
Propagation map
Overdrive pacing from inside the CS

Concealed Fusion
Ablation inside the CS
Termination of the tachycardia
LAA pacing to posterior wall (Abl)

Proximal  Distal

1F V1
Abl-d  Abl-p
Orion-A

205

Orion-H  HRA-p

HRA-d  His-p
His-d  CS-p

177

Orion-H  HRA-p

HRA-d  His-p
His-d  CS-p

177

167
LAA pacing

CSp pacing
Summary of the case

- Do not rely on the color on the 3D map
- Activation map & entrainment are complementary
- Try to seek the missing area if the mapped activation does not cover the tachycardia cycle length in case of macro-reentry
- Validation of the putative target site by the entrainment could lead the case successfully
Thank You for Your Attention!