KHRS EGM case

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Case

- 61-year-old male
- **Chief Complaint**: dyspnea/ post-op atrial tachycardia
- **Past medical history**:
  - End stage IPF
    - s/p 2018.05.12. lung transplantation, double
- **Echocardiography (2018.6.21)**
  1. Normal sized LA/LV with preserved LV systolic function (EF: 53%)
  2. Normal sized RA/RV with preserved RV systolic function (FAC: 32%)
  3. Normal range of RVSP (25mmHg)
- **CAG (2018.1 pre-op)**: minimal CAD
Pre-op 12-Leads ECG

(2018.1)
Immediate post-op AF

(2018.5.13)
12-Leads ECG

HR=120BPM
Chest X-ray
EP Study
Catheter positioning
Initial rhythm: AT (P-P=242ms)
12-leads ECG
Overdrive High RA pacing
(PPI-TCL=119ms)
Overdrive proximal CS pacing

(PPI-TCL=124ms)
Overdrive distal CS pacing
(PPI-TCL=61ms)
LA angiography
Isolated LIPV
Isolated LSPV
Activation time mapping
(LASSO = Posterior roof near LSPV)
Overdrive posterior roof near LSPV pacing

(PPI-TCL=4ms)
Activation time mapping
(LASSO=Posterior wall)
Overdrive upper posterior wall pacing
(PPI-TCL=3ms)
Overdrive mid posterior wall pacing
(PPI-TCL=1ms)
Activation mapping
Voltage mapping
3D mapping
Propagation
RF ablation at posterior roof between superior PVS
RF ablation posterior wall to perimitral
AT termination (perimitral)
AT#2 induction
by RAP220ms
AT#2
(P-P=214ms)
12-leads ECG

Age: 
Gender: 
Height: 
Weight: 
Vent Rate (BPM): 144
RR (msec): 415
PR (msec): 139
QRS dur (msec): 58
QT / QTC (msec): 208 / 323
Display speed: 25 mm/sec
Display Scale: 10 mm/mV
Activation time mapping
(LASSO=Anterior roof near RSPV)
Overdrive anterior roof pacing
(PPI-TCL=30ms)
Activation time mapping
(LASSO=Anterior septum)
Overdrive anteroseptum pacing
(PPI-TCL=16ms)
Activation mapping
3D mapping
Propagation
Overdrive proximal CS pacing (PPI-TCL=8ms)
RF ablation CTI
AT#2 termination
(CTI)
CTI block by proximal CS pacing
NSR after ablation
OPD follow-up
Atrial arrhythmia after lung transplantation

- common early postoperative AA: 20%-50%
- AF is rare after healing of left atrial incisions

Table 4. Management of Atrial Arrhythmias After Lung Transplantation

<table>
<thead>
<tr>
<th>Management Strategy</th>
<th>No.</th>
<th>Patients With Arrhythmia, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiofrequency ablation</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Operative management</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Electrical cardioversion</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Anti-arrhythmic medication*</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Acute rate-control therapy</td>
<td>19</td>
<td>56</td>
</tr>
</tbody>
</table>

*Vaughn-Williams class IC or class III agents.

Table 5. Findings and Mechanisms at Electrophysiology Study

<table>
<thead>
<tr>
<th>Patient</th>
<th>Mechanism</th>
<th>Site of Isthmus or Focal Activation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Macroleventract</td>
<td>Mitral isthmus: Left inferior PV–mitral isthmus</td>
</tr>
<tr>
<td>2</td>
<td>Macroleventract</td>
<td>LA roof: Between right/left superior PVs</td>
</tr>
<tr>
<td>3</td>
<td>Focal</td>
<td>PVs: Left (1st EPS)(^{20}); right (2nd EPS)</td>
</tr>
<tr>
<td>4</td>
<td>Macroleventract</td>
<td>Cavo-tricuspid isthmus</td>
</tr>
</tbody>
</table>

Vincent Y. See et al. Circ Arrhythmia Electrophysiol. 2009;2:504-510

- Double LT seemed to protect against late AF but not against late AFL recurrence.
- Raised PAP before LT, which could also predispose to CTI-dependent flutter.

Thank you for attention