“Accessory pathway conduction including different types of AV reentry”
ECG + intracardiac IECG Tracings – how to ablate?
Differential diagnosis for AP mediated tachycardia

• Clinical history
• ECG diagnosis
• EP diagnosis
1st step: Clinical history

- Paroxysmal tachycardia, related to postural changes, or anxiety, healthy middle aged woman:
  1. Intranodal reentry
  2. AV reentry
  3. Atrial Tachycardia
  4. Common flutter
  5. Atrial fibrillation
1stp: Clinical history

• Middle aged man, endurance training, nocturnal episodes of sustained palpitations:
  1. Intranodal reentry
  2. AV reentry
  3. Atrial fibrillation
  4. RVOT tachycardia
  5. Bigeminy
2nd step. ECG diagnosis
What is this?

1. AV reentry. Infero-septal pathway
2. Atrial tachycardia from de CS os
3. AV nodal reentry
4. Common flutter
5. Sinus Tachycardia
ECG diagnosis
What is this?

1. Slow-fast Intranodal reentry
2. AV reentry due to posteroseptal pathway
3. Atrial Tachycardia
4. Common flutter
5. Sinus Tachycardia
3th step: ECG localization of the pathway
Localization

1. Left lateral
2. Left infero-septal
3. Right infero-septal
4. Right lateral
5. Middseptal
Left-Right. Anterior-Posterior
P-wave during tachycardia
4th step. Electrophysiological diagnosis

- Only need 2 catheters
- Dynamic mapping as compared to multiple recordings and static picture
Left-lateral pathway

Trans-aortic approach   Tran-septal approach

www.escardio.org/EHRA
Uncommon forms of pre-excitation and AV reentry

• AP with slow anterograde decremental conduction properties (Mahaim fibers)
• Permanent junctional reciprocating tachycardia (PJRT, Coumel tachycardia)
AP with slow anterograde decremental conduction properties (Mahaim pre-excitation)

ECG diagnosis

- In sinus rhythm, discrete pre-excitation
- During tachycardia: LBB morphology with left axis deviation
- Typically located along the tricuspid anulus

Kuck KH et al
Rate-dependent anterograde conduction time. During programmed atrial stimulation there is progressive AH interval prolongation combined with decreasing HV interval resulting in a greater preexcitation. At maximal preexcitation the His bundle deflection can be inscribed after the right bundle potential.

Kuck KH et al
Fasciculo-Ventricular Pathway: no increase in preexcitation, No Shortening of the H-V interval. No tachycardia
Ablation strategy

• Look for the Mahaim potential
• Look for the shortest stimulus to QRS interval of fully preexcited beats during atril pacing along tricuspid annulus.
M-potential
Permanent Junctional Reciprocating Tachycardia PJRT

- Concealed AP with slow decremental retrograde conduction
- Incessant tachycardia
- Frequent tachycardiomyopathy
Long P-R.
Negative P waves in inferior leads
Insertion near de CS os
Since the AP is anatomically separated from the AV node/His-Purkinje system, a ventricular extrastimulus delivered when the His bundle is refractory can reset the next atrial activation without changing the atrial activation sequence.
Identification of the ablation target site is guided by the earliest retrograde atrial activation either during tachycardia or pacing. The presence of a discrete AP potential may indicate a successful ablation site.
2-catheter approach

- Shorten procedure and X-ray time
- May decrease the complications associated with multiple vascular access
- Decrease cost
- Need dynamic manipulation of the catheters and is based in activation times
Multiple catheter approach

- Allows a fast view of activation sequences, without the need of catheter manipulation
- Give more information and facilitate pacing maneuvers.