



Narrow QRS Tachycardia with Ventriculoatrial Dissociation: Possible Mechanisms

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Disclosure

none

Step 1: doubt atypical NCT , 'v>a rate'

Narrow Complex Tachycardia

Regular R-R

Irregular R-R

V>A

1:1 A:V

A > V rate

Short RP

Long RP

A on V

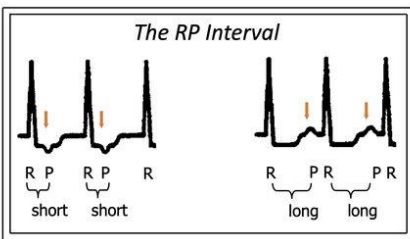
- Narrow QRS
- Regular R-R
- V > A rate
- VA dissociation

- Orthodromic AVRT
- Typical AVNRT
- Junctional Ectopic Tachycardia
- Atrial tachycardia with 1st degree AVB

- Atrial Flutter
- Atrial Tachycardia

- Atypical AVNRT
- Atrial tachycardia
- Permanent Junctional Reciprocating Tachycardia
- Sinus Tachycardia

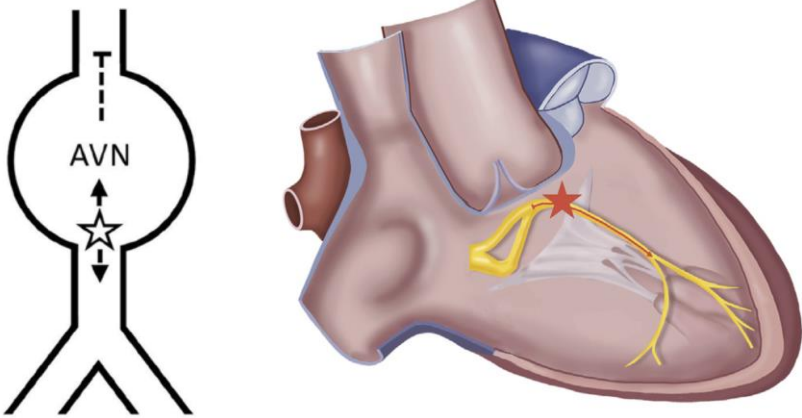
- Atrial Fibrillation
- Atrial flutter with variable ventricular rates
- Multifocal Atrial Tachycardia
- Atrial bigeminy/trigeminy
- Dual AV Nodal Non-reentrant Tachycardia



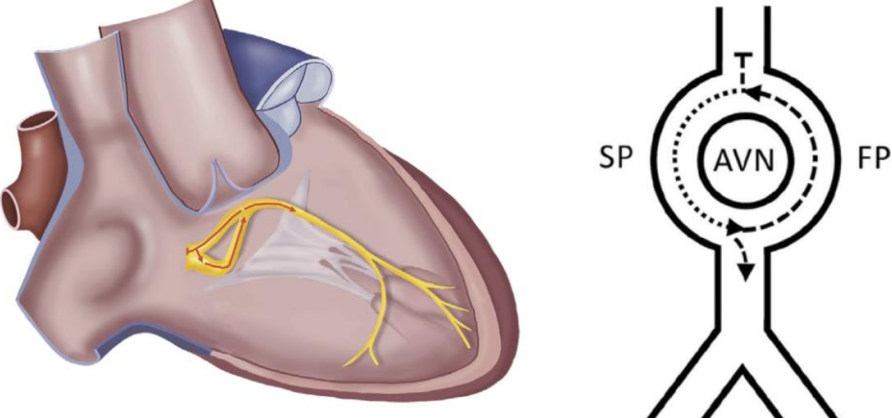
→ The atrium is not included these tachycardia circuit.

Step 2: Tachycardia without atrial involvement

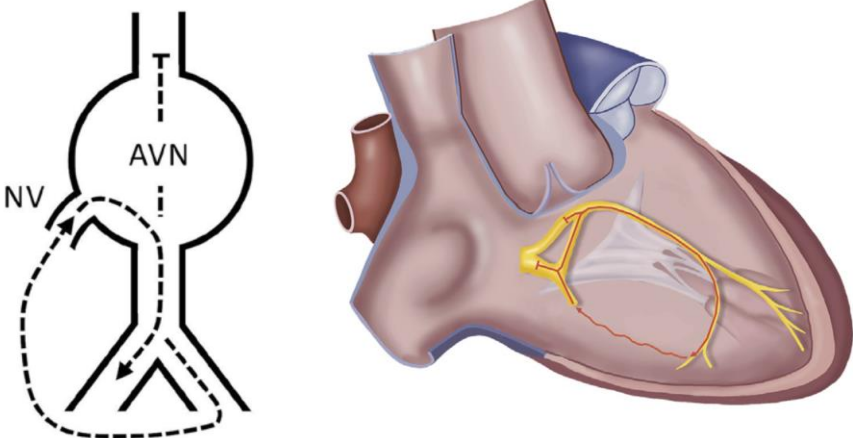
- Junctional tachy with retrograde block to A



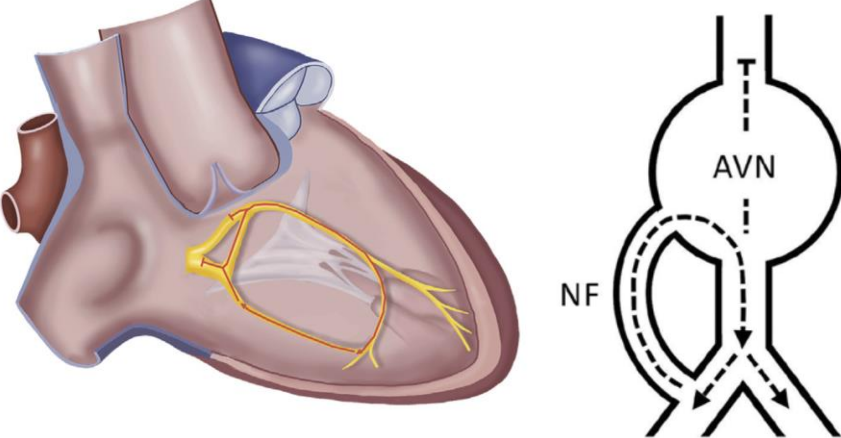
- AVNRT with retrograde block in UCP



- Orthodromic reciprocating nodoventricular tachycardia with block to the atrium

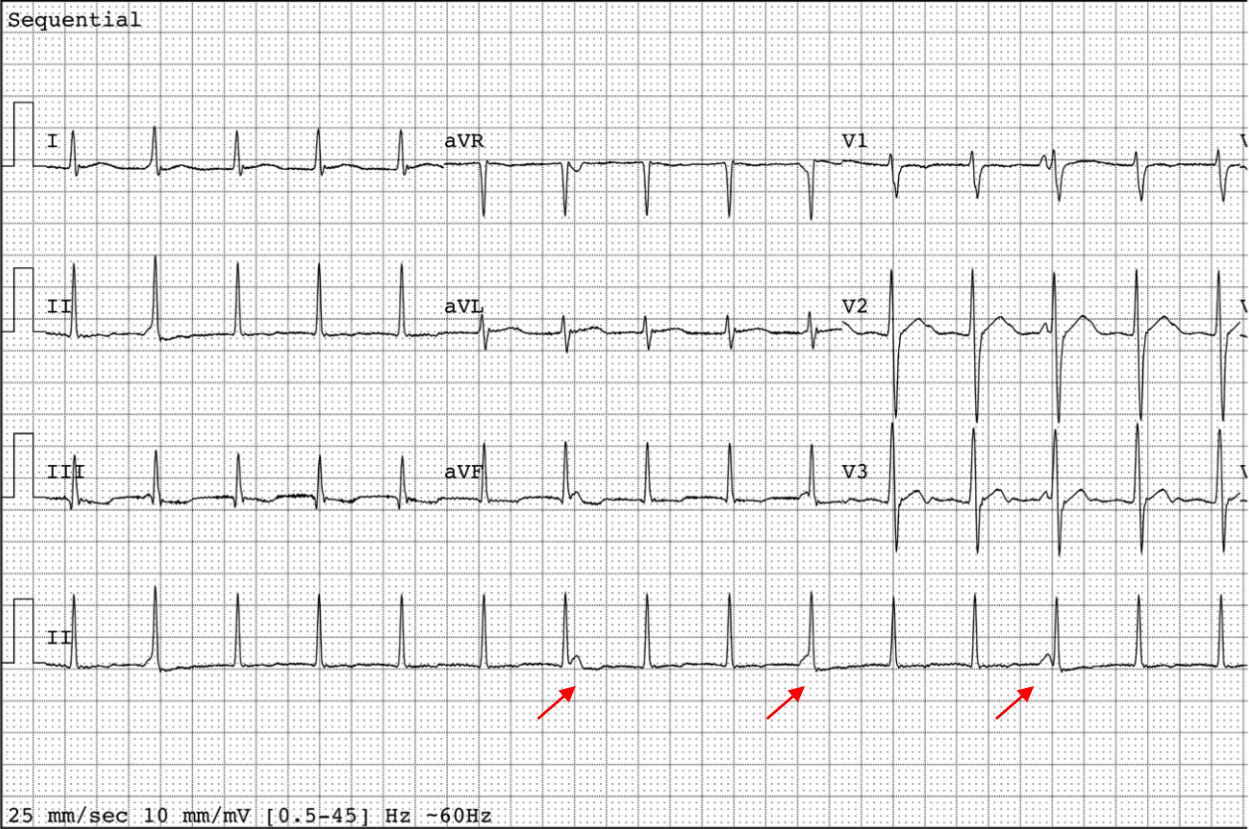


- Orthodromic reciprocating nodofascicular tachycardia with block to the atrium

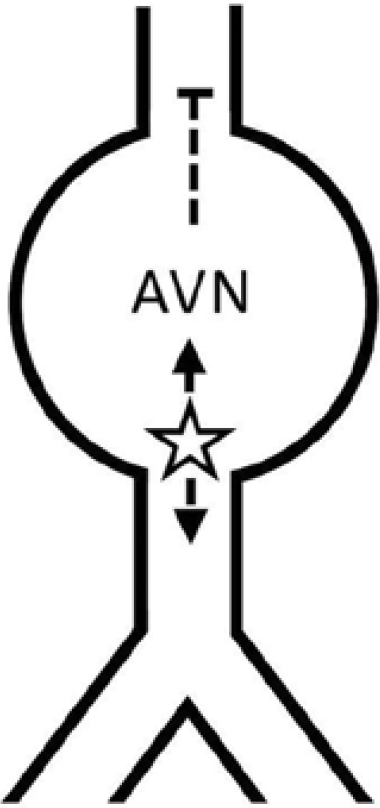


Conceptual mechanism

Dx.1: Junctional tachycardia

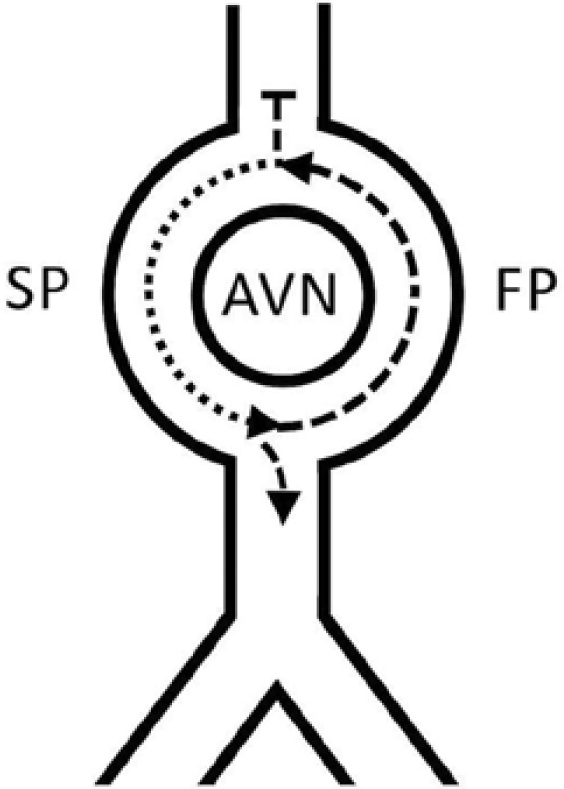
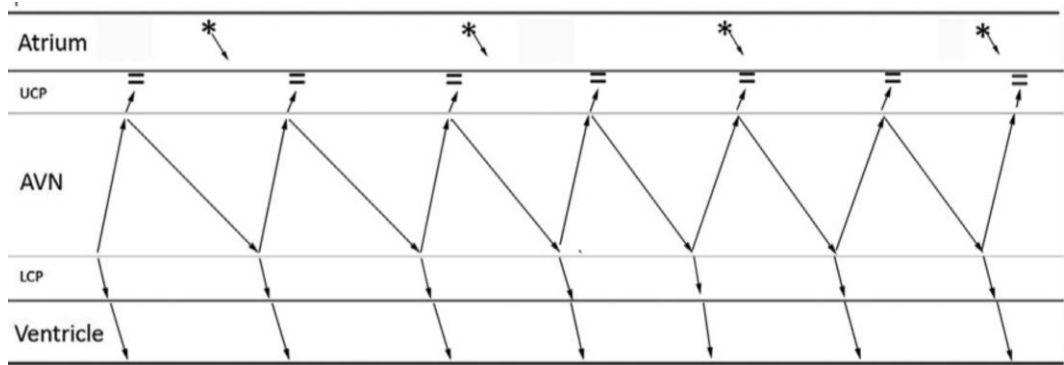
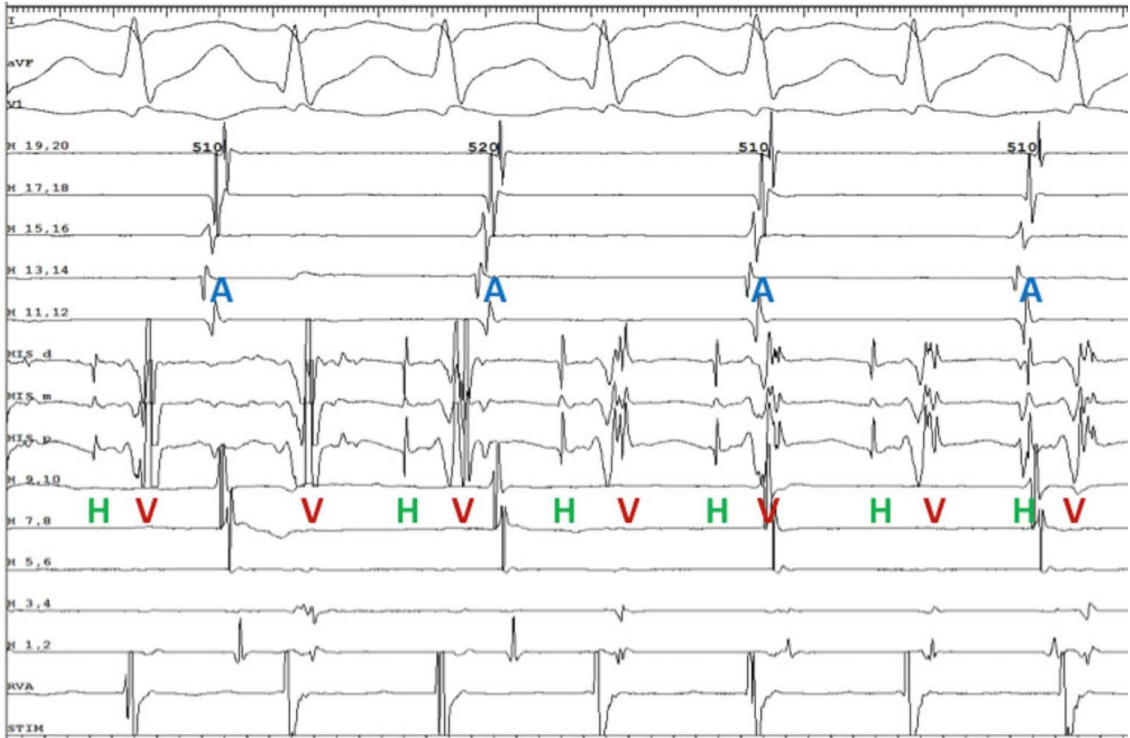


Sinus bradycardia with atrioventricular dissociation and a narrow complex tachycardia



- **Junctional tachycardia with retrograde block to the atrium**

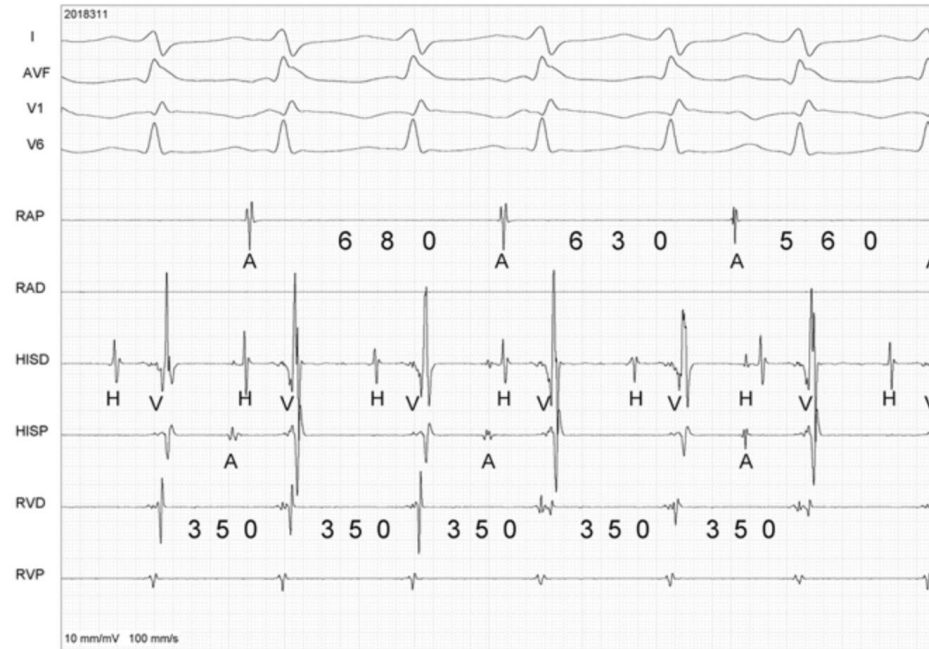
Dx.2: AVNRT with retrograde block in upper common pathway



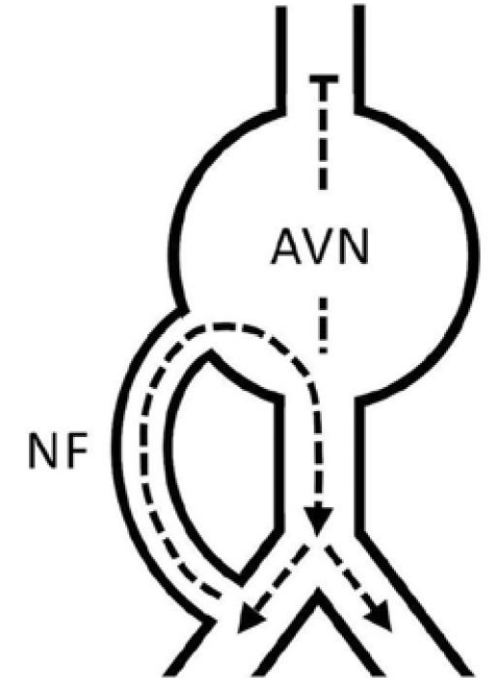
Dx.3-1: Unusual accessory pathway – nodofascicular ORT



Narrow QRS tach with VA dissociation

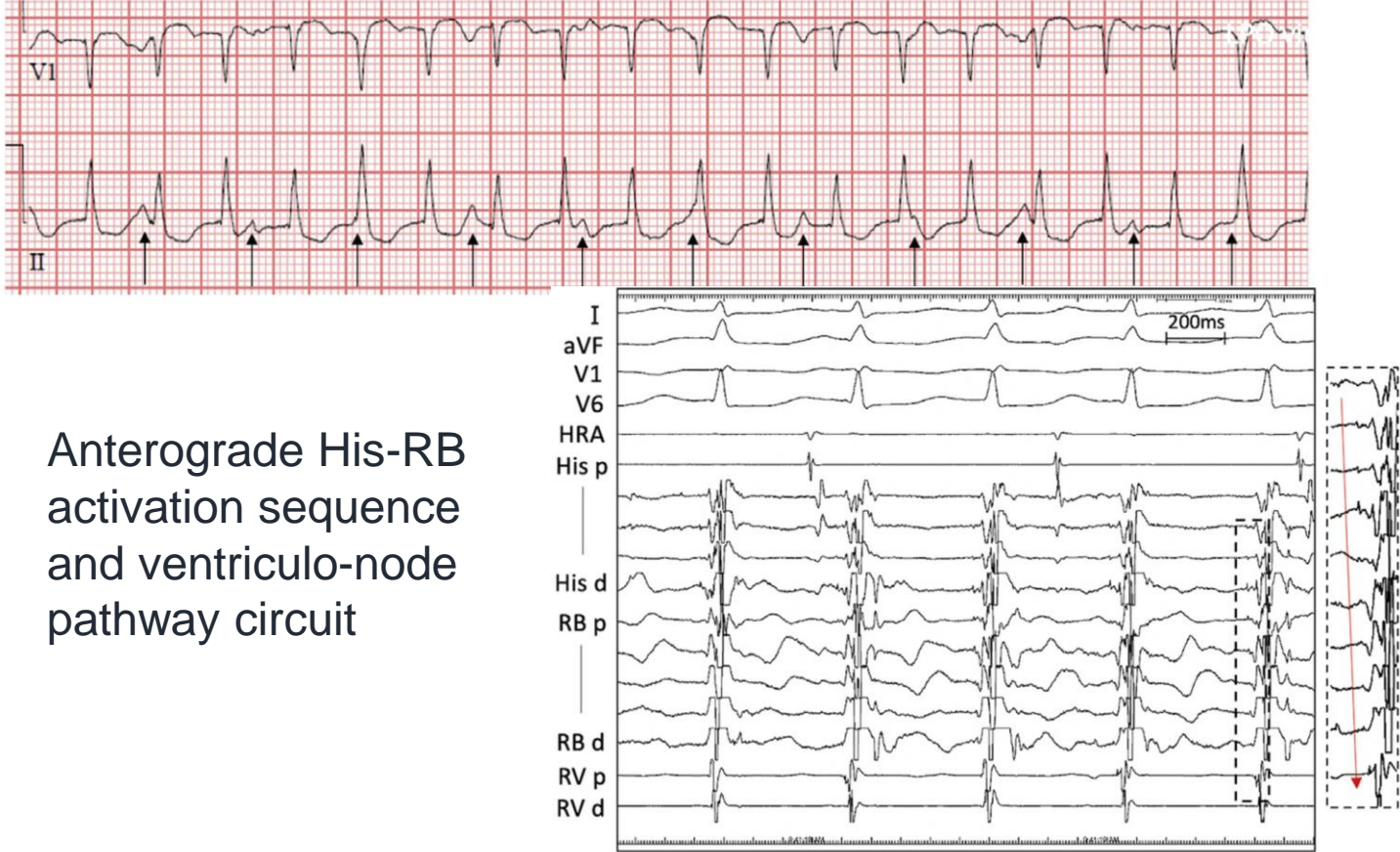


H-V & H-A constant, but variable VA association

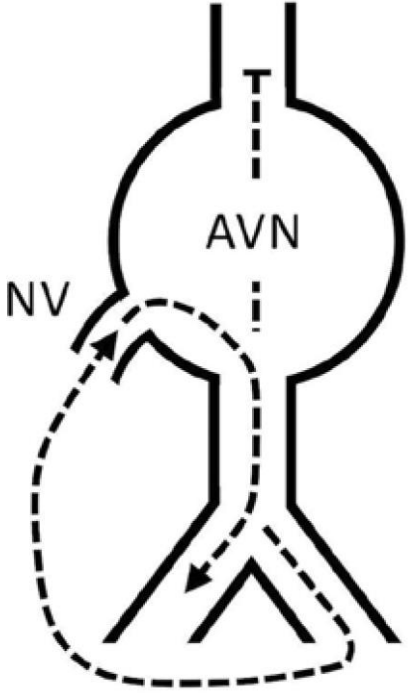


- **Orthodromic reciprocating nodofascicular tachycardia with block to the atrium**

Dx.3-2: Unusual accessory pathway – nodoventricular ORT



Anterograde His-RB activation sequence and ventriculo-node pathway circuit



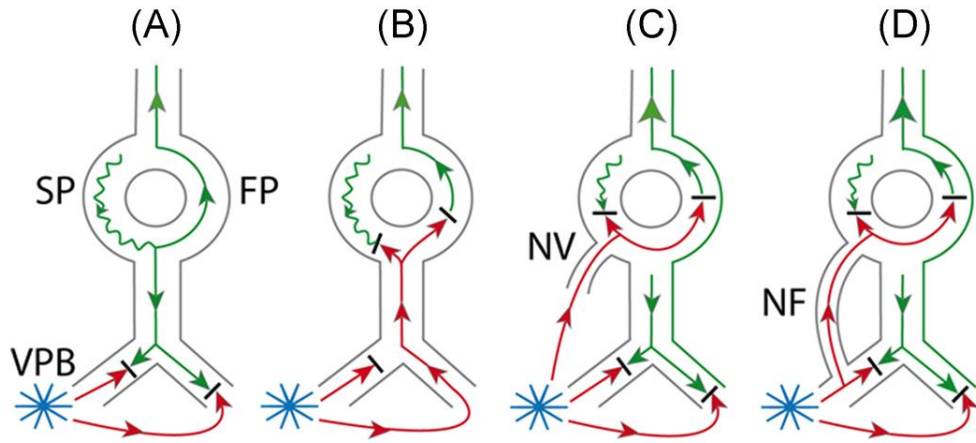
- Orthodromic reciprocating nodoventricular tachycardia with block to the atrium

Differential diagnosis

Challenge : AVNRT vs. NV/VF ORT

- Narrow QRS tachycardia
 - with VA dissociation
 - with variable long VA conduction time

Pacing maneuvers



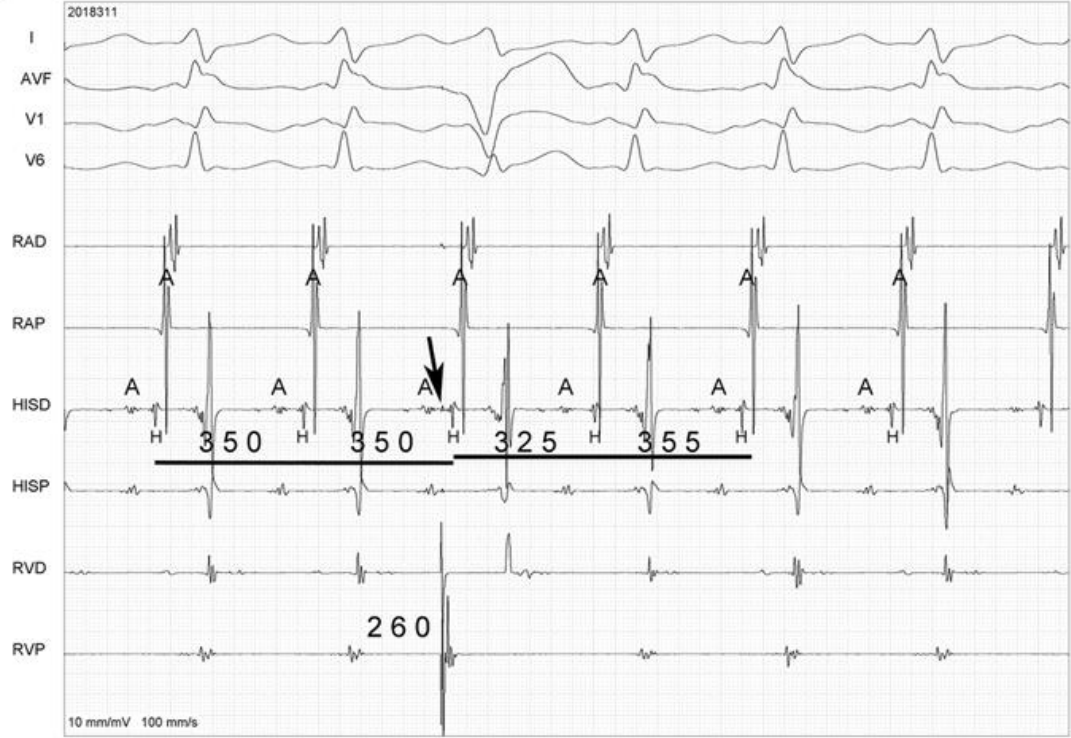
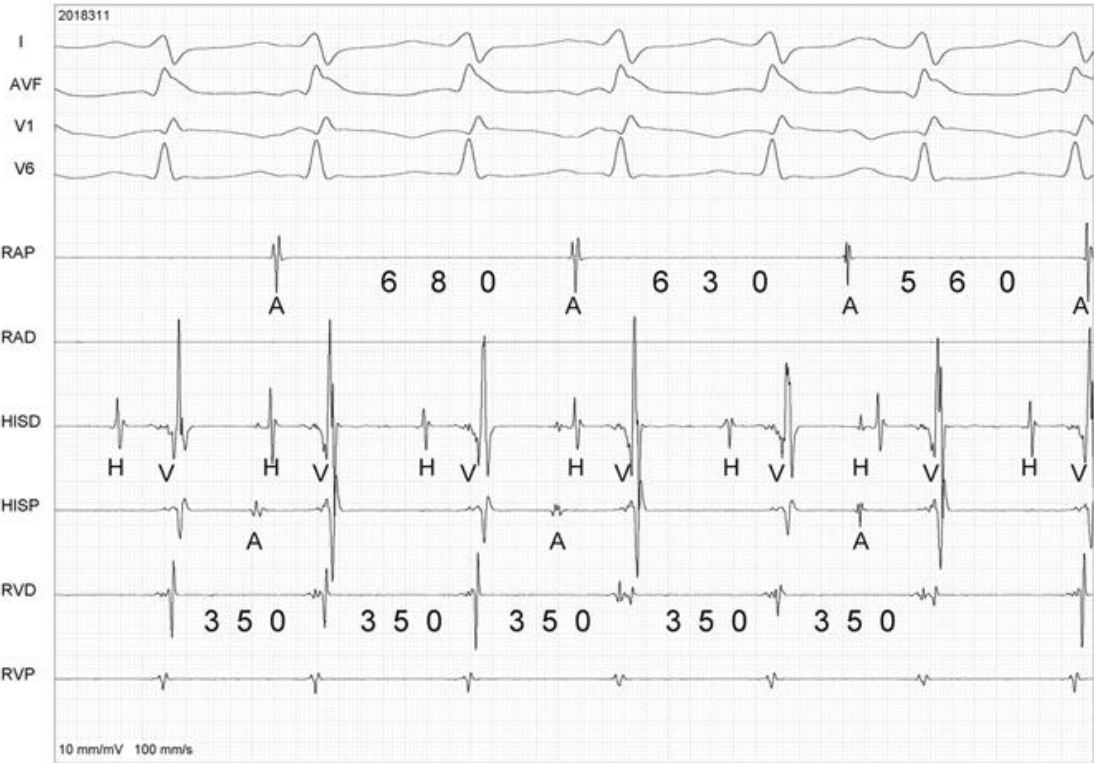
	NV/NF-ORT (n = 7/2)	AVNRT (n = 16)	p Value
Pacing maneuvers			
His reset by His-refractory PVC	5 (63)	0 (0)	0.001
RV overdrive pacing*			
SVT termination	1 (11)	3 (20)	1.0
PPI-TCL, ms	109 ± 43	185 ± 32	0.0002
Corrected PPI-TCL, ms	109 ± 38	176 ± 31	0.001
SA-VA interval, ms	262 ± 183	122 ± 19	0.03
Orthodromic His capture	6/8 (75)	0 (0)	0.0002
V-V-A response	3/8 (38)	0 (0)	0.03
$HA_{SVT} > HA_{RV\ pacing} \dagger$	1/5 (20)	0/1 (0)	1.0

- Reset by His-refractory PVC
- RV overdrive pacing
 - PPI-TCL < 115ms
 - VVA response

NV/NF-ORT favorable features

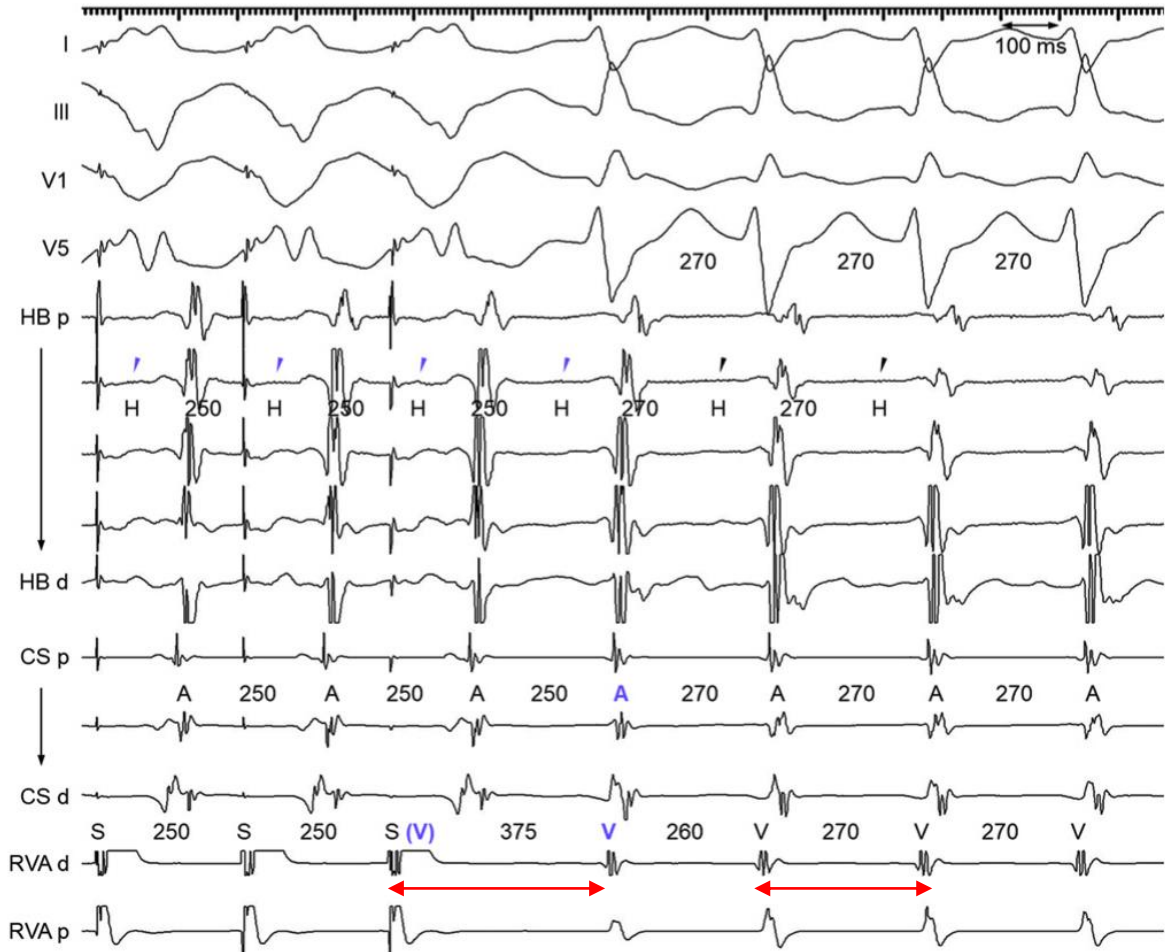
EWHA,
THE FUTURE
WE CREATE

Reset @ NF-ORT



His-refractory premature beat delivered at (RV) apex advanced next His by 25 ms, and reset tachycardia

RV overdrive pacing @ NV-ORT



PPI-TCL=105
VVA response

Summary

- **Narrow QRS + Regular R-R + VA dissociation ($V > A$ rate)**
- **The atrium is not included these tachycardia circuit**
- **Possible mechanism**
 - **Junctional tachy with retrograde block to Atrium**
 - **AVNRT with retrograde block in UCP**
 - **Orthodromic reciprocating nodoventricular tachycardia with block to the atrium**
 - **Orthodromic reciprocating nodofascicular tachycardia with block to the atrium**
- **AVNRT atypical vs. ORT NV/VF**
 - **PPI-TCL < 115**
 - **Reset by His-refractory PVC**
 - **VVA response**

NV/VF-ORT favorable features



Thank you