



SVTs with ventricular-atrial block



Juwon Kim, MD

**Samsung Medical Center,
Sungkyunkwan University School of Medicine,
Korea**



Korean Heart Rhythm Society

COI Disclosure

Juwon Kim

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to disclose concerning the presentation



Supraventricular tachycardia with VA block



Only 26 cases were observed during 2001-2019 in 20 hospitals (Japan)

Europace, 2009, 11, 1235-1237
JACC EP, 2020, 6, 1797-1807



Supraventricular tachycardia with VA block

1. AVNRT with upper common pathway block
2. Re-entrant tachycardia using nodo-ventricular or nodo-fascicular AP
3. Non-re-entrant junctional tachycardia

Only 26 cases were observed during 2001-2019 in 20 hospitals (Japan)

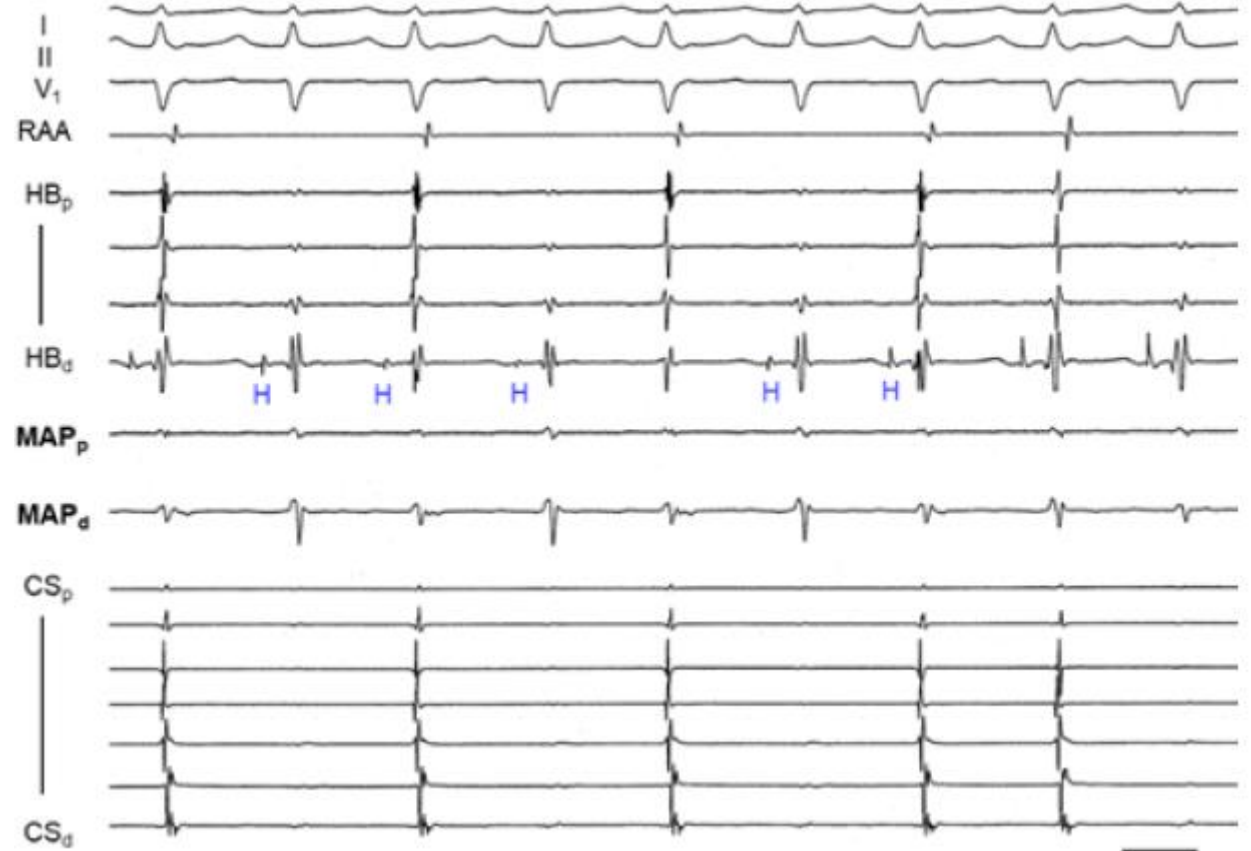
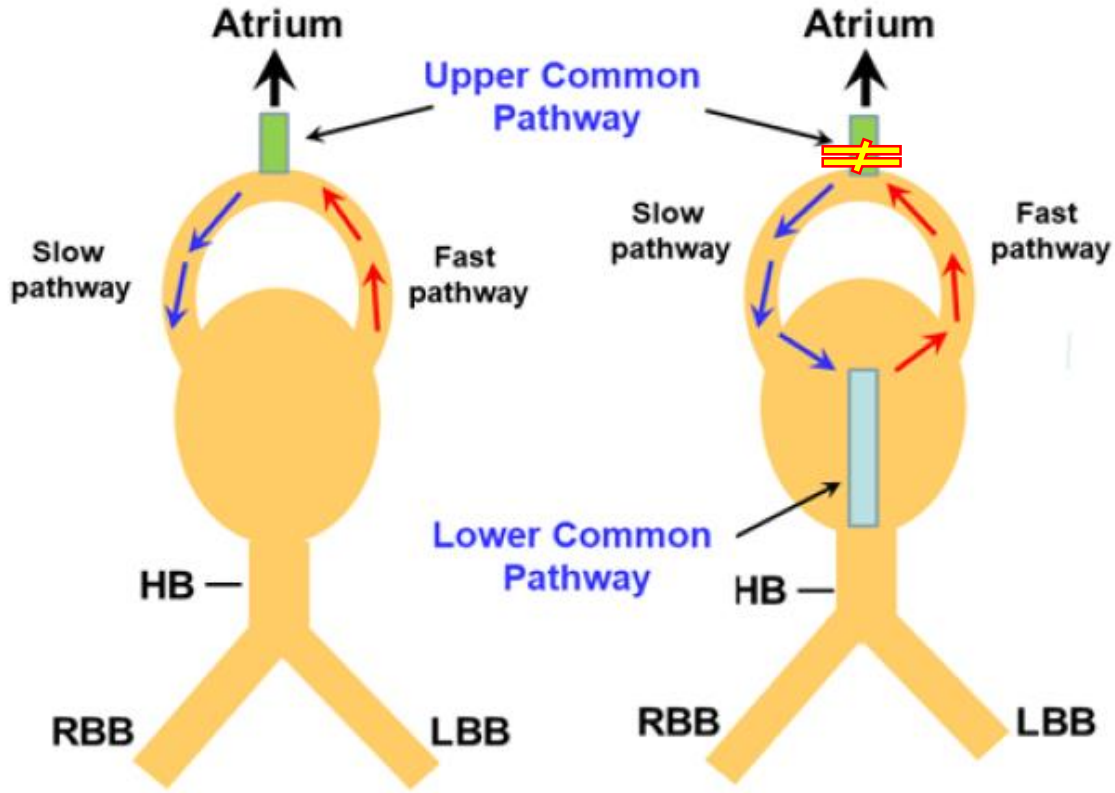
- 16 AVNRT
- 9 NV/NF ORT
- 1 JT

JACC EP, 2020, 6, 1797-1807

KHRS 2023



AVNRT with upper common pathway block



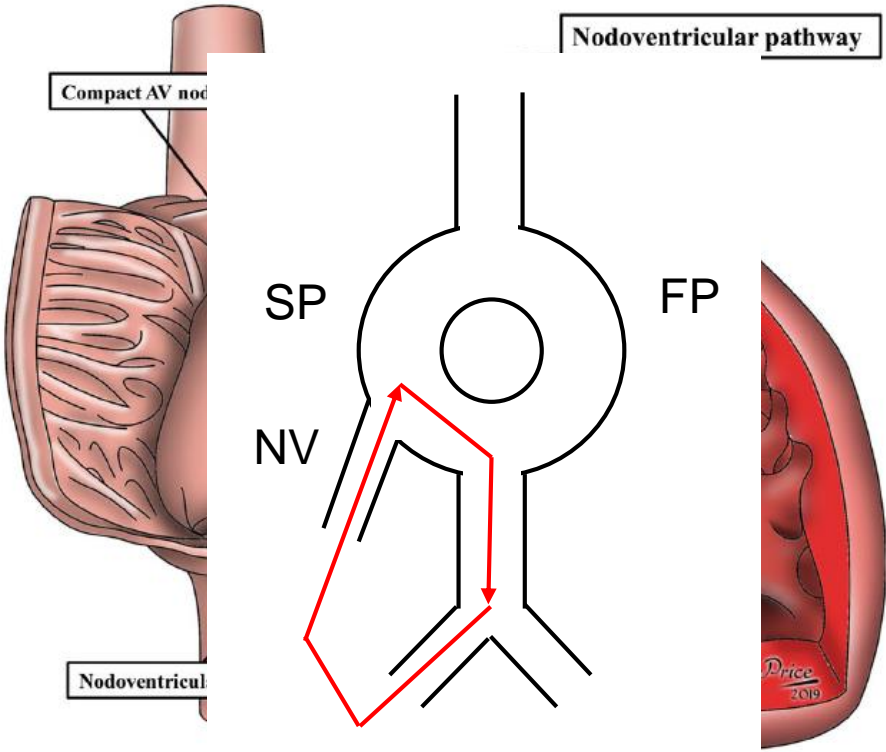
AVNRT: completely intranodal SVT
Atrium is not a part of reentry circuit.

Warren Jackman's Art of War

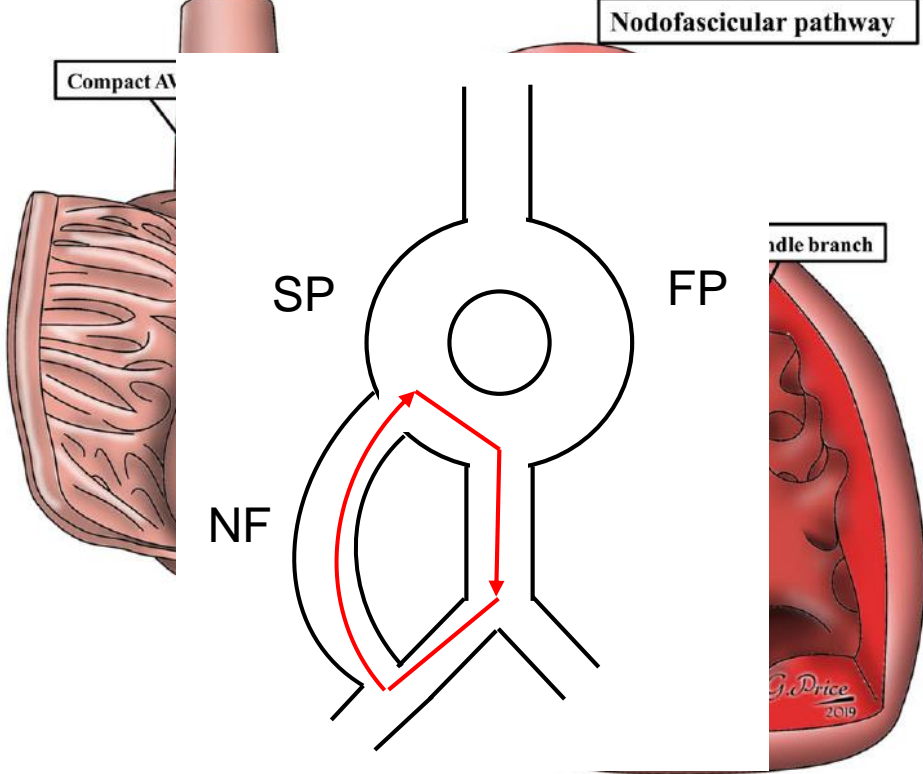
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Re-entrant tachycardia using nodo-ventricular or nodo-fascicular AP



Nodoventricular ORT



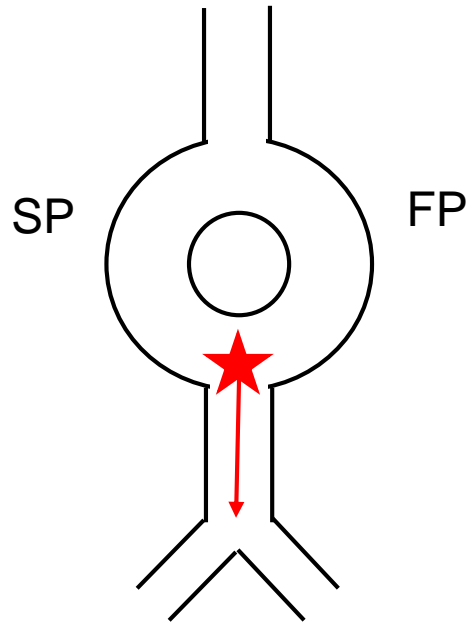
Nodofascicular ORT

JCE, 2019, 30, 3097-3115

Upper limb: intranodal, Lower limb: His/ventricle
Atrium is not a part of reentry circuit.



Non-re-entrant junctional tachycardia



Automaticity, Triggered activity



Differential diagnosis of SVT with VA block

- ◆ Try to make stable 1 to 1 VA relationship (isoproterenol)
 - Difficult, sometimes fail

- ◆ Proof of bypass tract \Rightarrow ORT with NV/NF AP
 1. His-refractory VPD: resetting (His advancement, delay, or termination)
 2. Orthodromic His capture (VOP)

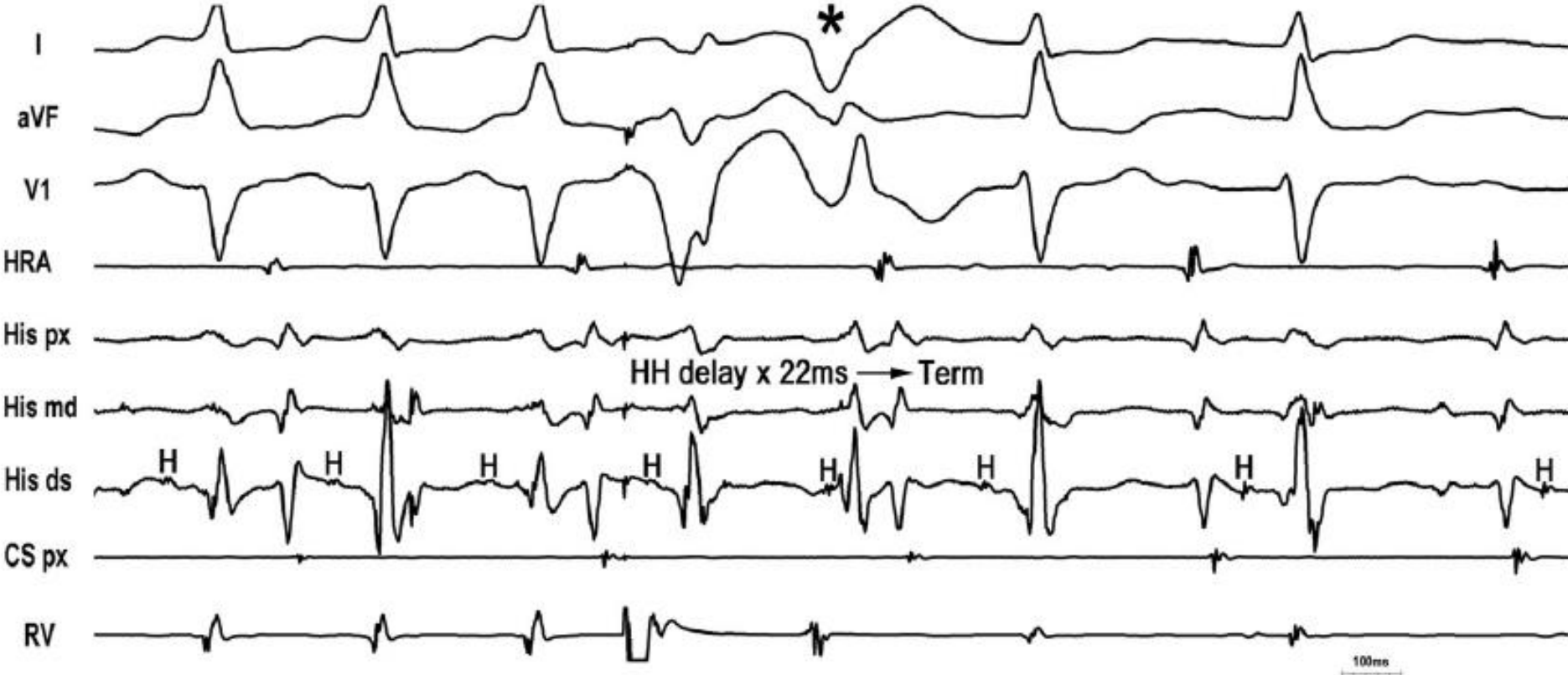
But, possibility of AVNRT with bystander NV/NF AP



Proof of bypass tract: Reset (+) by His refractory VPC



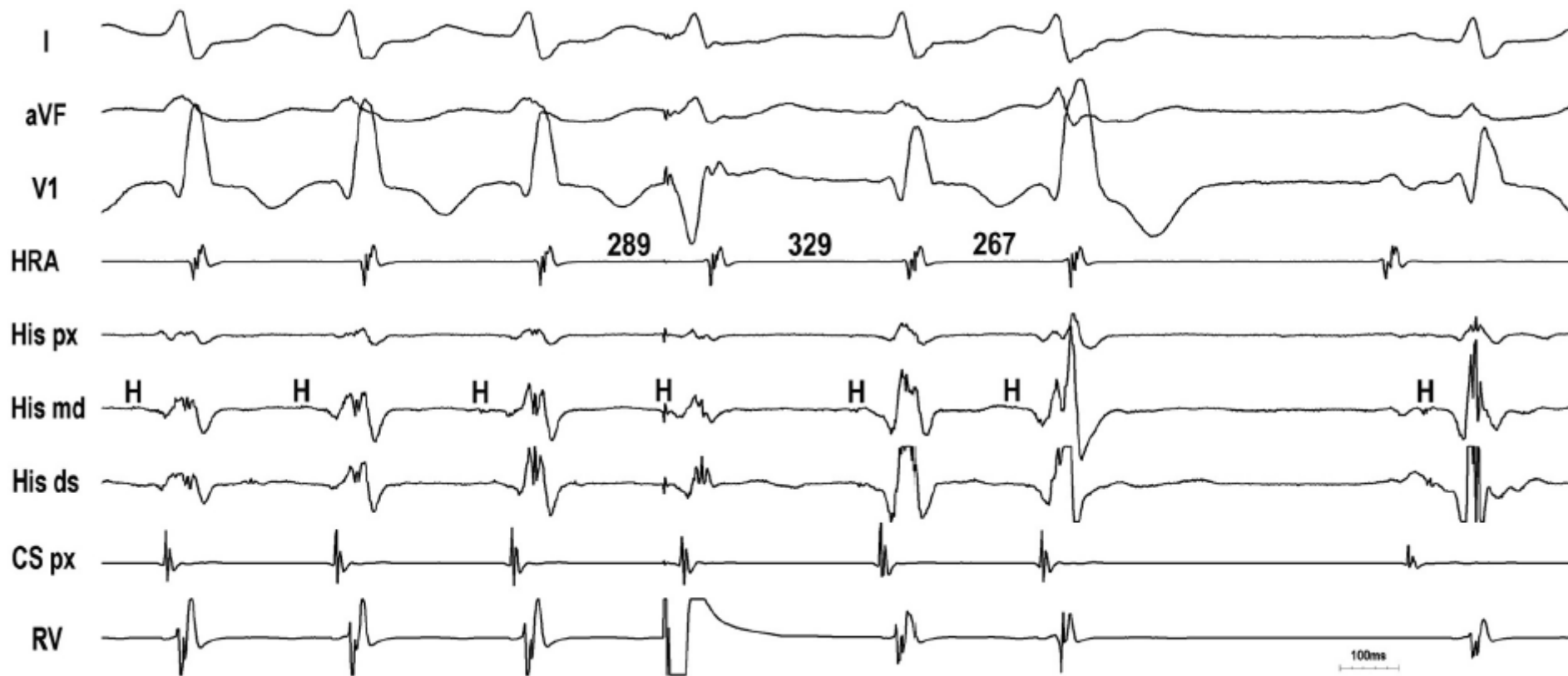
Proof of bypass tract: Reset and termination by His refractory VPC



ORT-NV case 90

But, possibility of AVNRT with bystander NV/NF AP

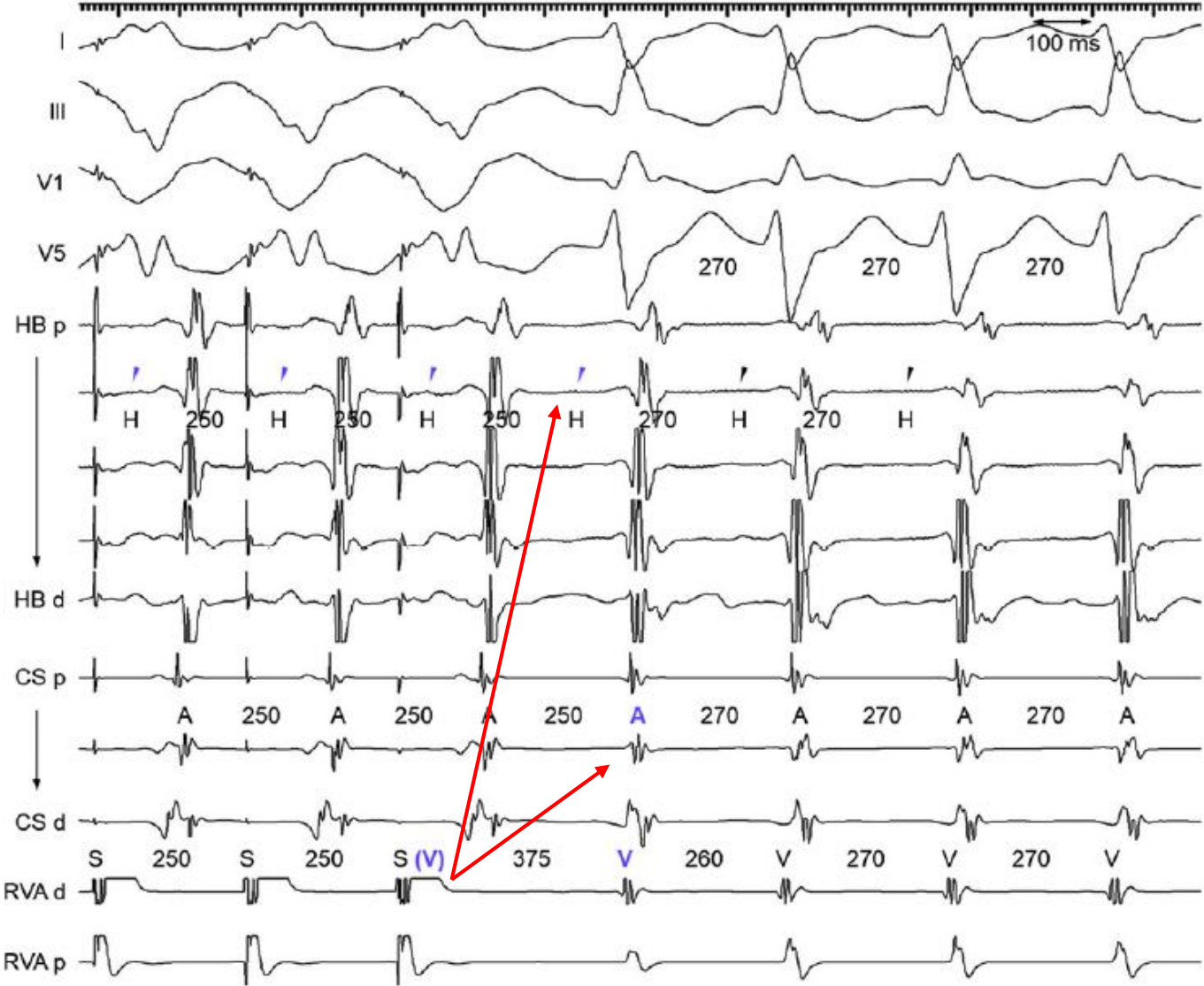
Proof of bypass tract: Reset and termination by His refractory VPC



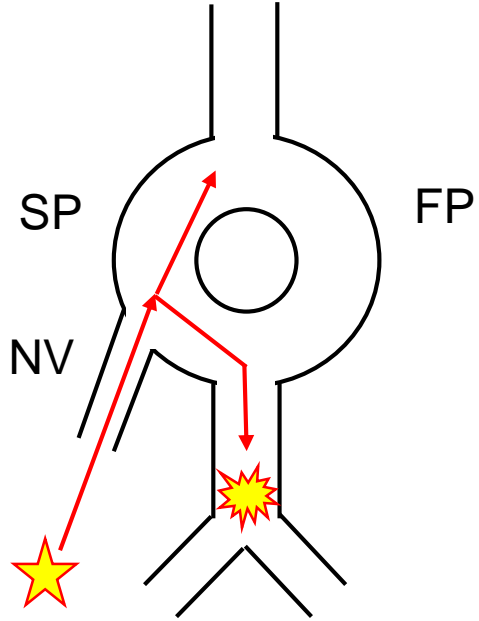
AVNRT with bystander NV AP case



Proof of bypass tract: Orthodromic His capture

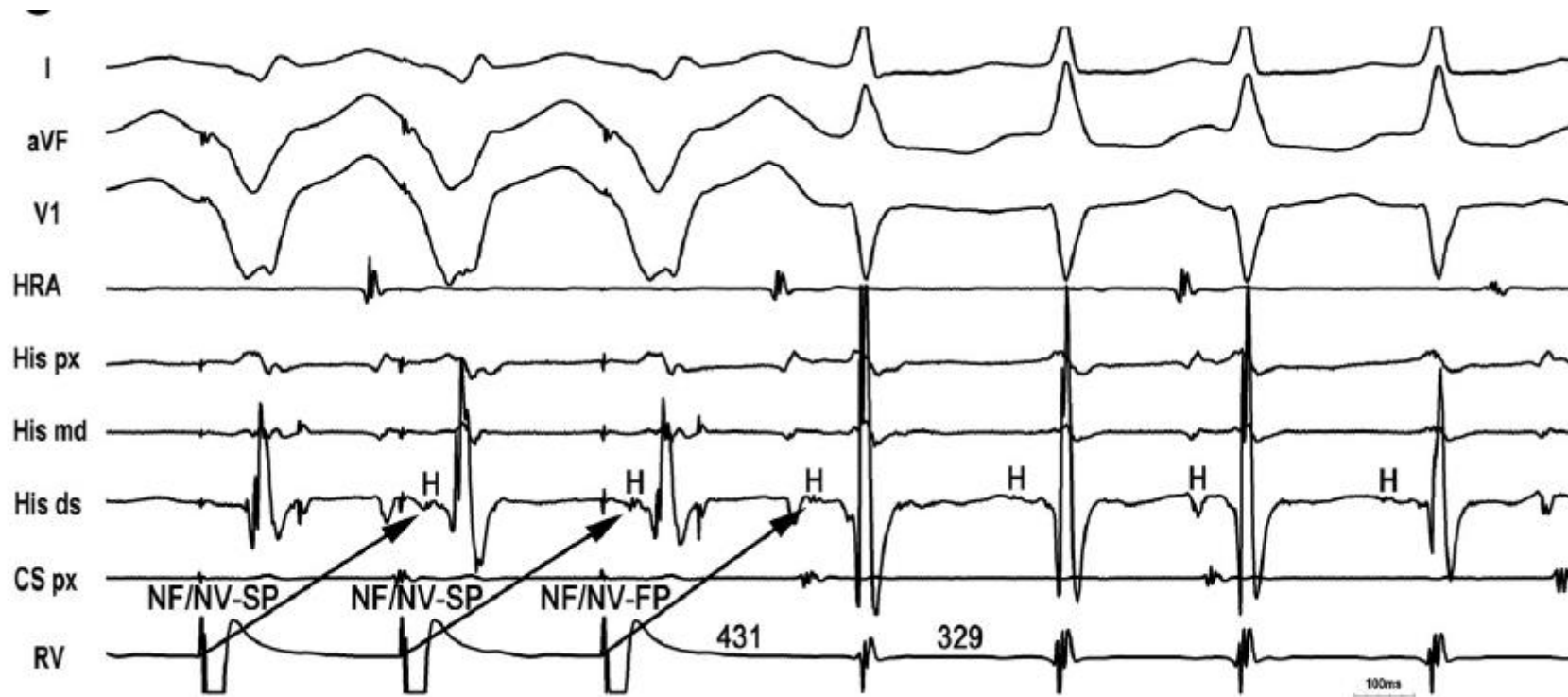


VOP 250ms



ORT-NV case

Proof of bypass tract: Orthodromic His capture



He ORT-NV case

Differential diagnosis of SVT with VA block

◆ NV/NF ORT vs. AVNRT+bystander NV/NF AP

◆ NV/NF ORT

1. PPI-TCL <125ms
2. Increase TCL with BBB (Coumel's law)

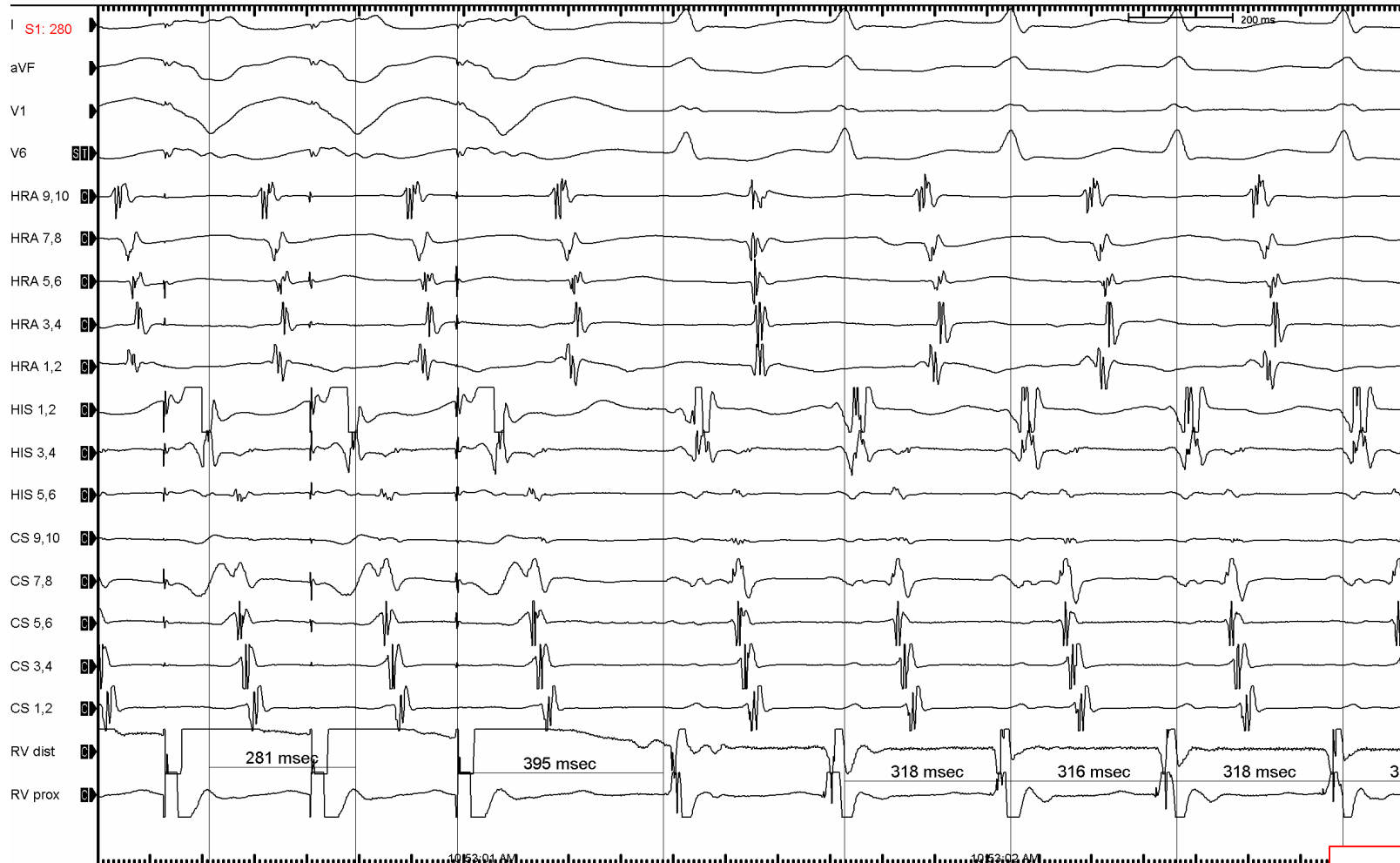
◆ AVNRT+bystander NV/NF AP

1. PPI-TCL >125ms
2. AV block

But, NF ORT can have PPI-TCL >125ms



V entrainment: PPI-TCL <125ms



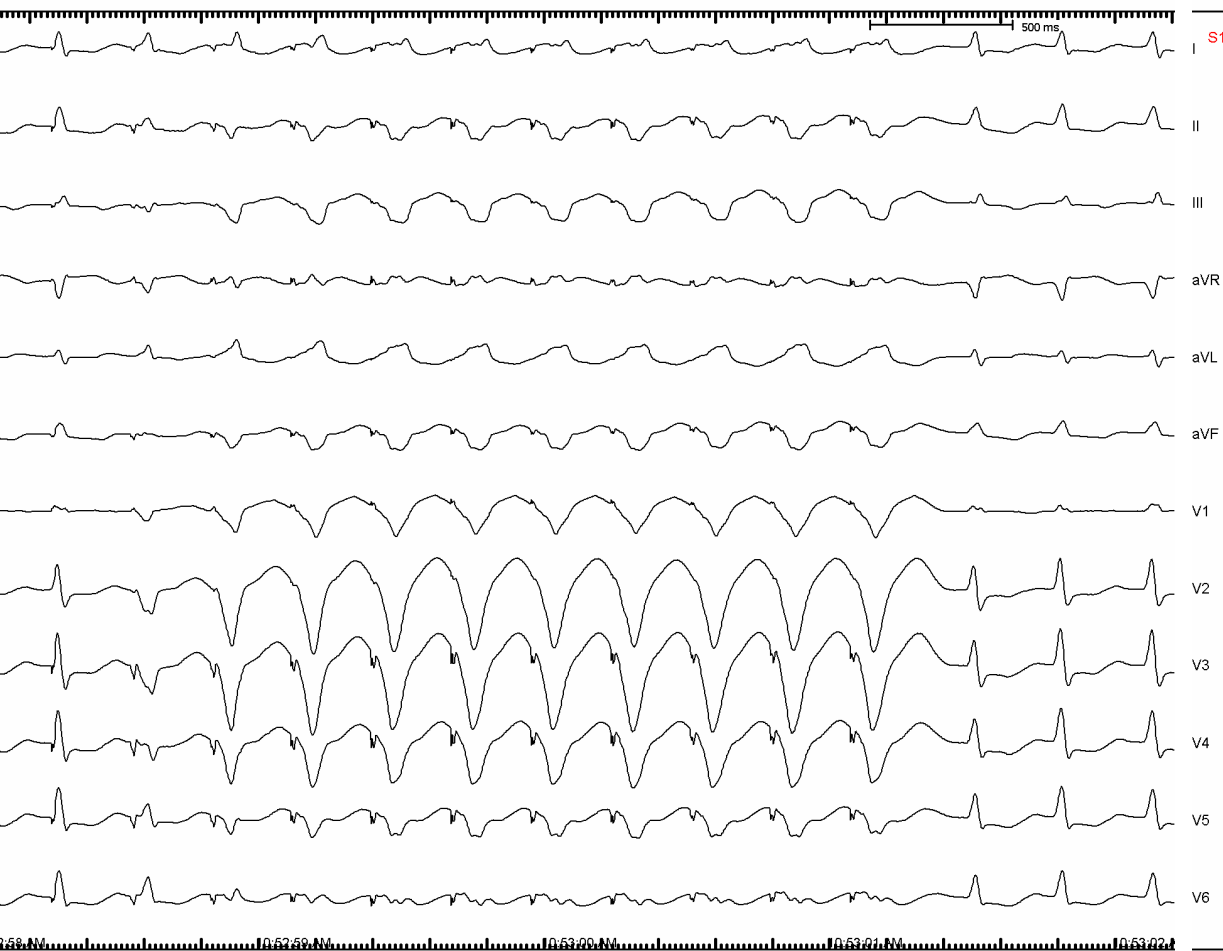
PPI (395ms) – TCL (318ms) = 77ms

ORT-NV case

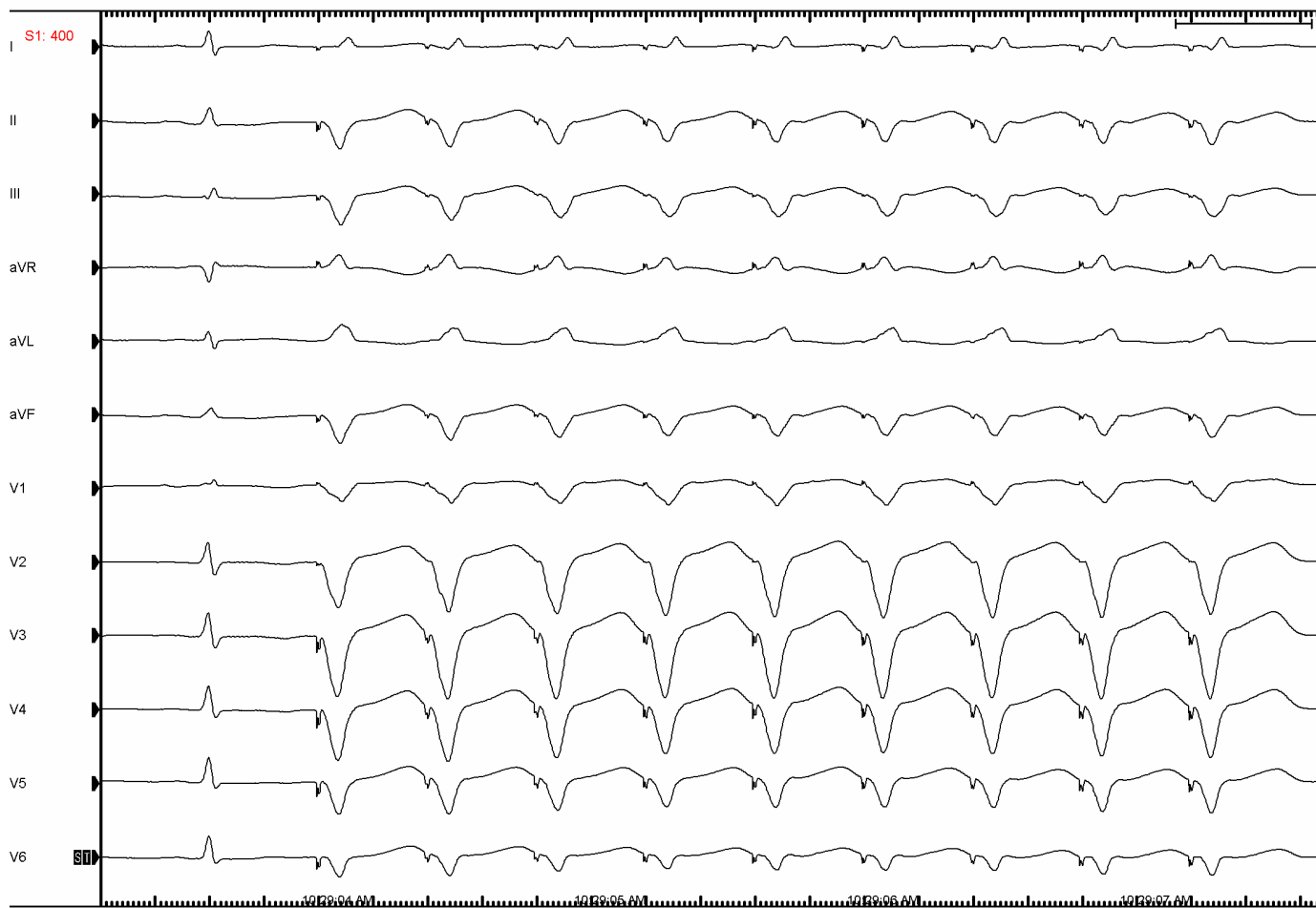


V entrainment during VA block

RVP during SVT



RVP during sinus rhythm



Stable QRS morphology, but a different morphology by RVP during sinus rhythm
⇒ Constant fusion, Entrainment confirmed.



Differential diagnosis of SVT with VA block

◆ NV ORT vs. NF ORT

◆ NV ORT

1. Parahisian pacing: accessory pathway response
2. $VA_{(base)} < VA_{(apex)}$
3. QRS by RVP during SVT \neq QRS by RVP during sinus rhythm

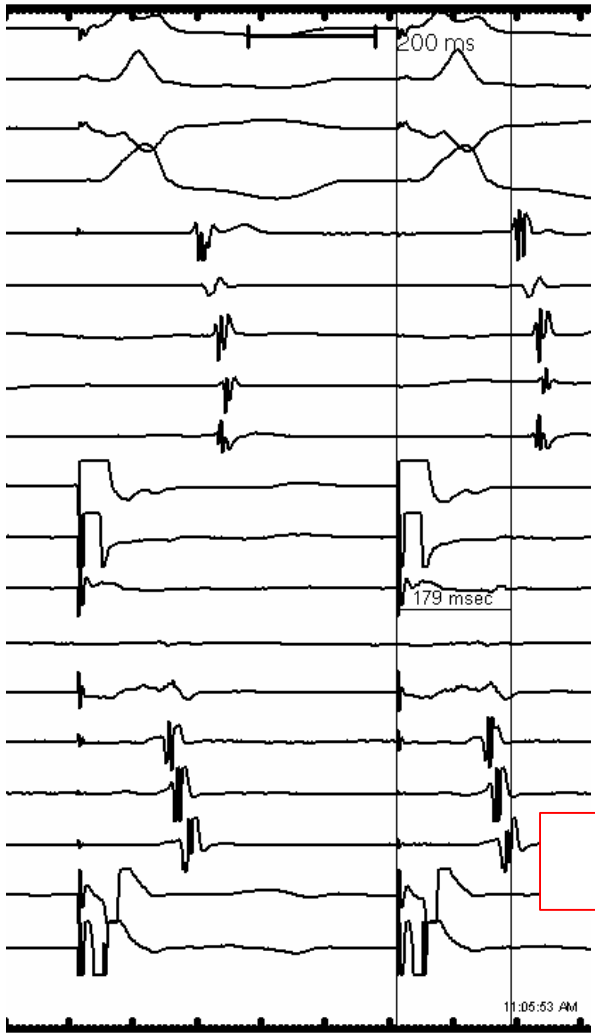
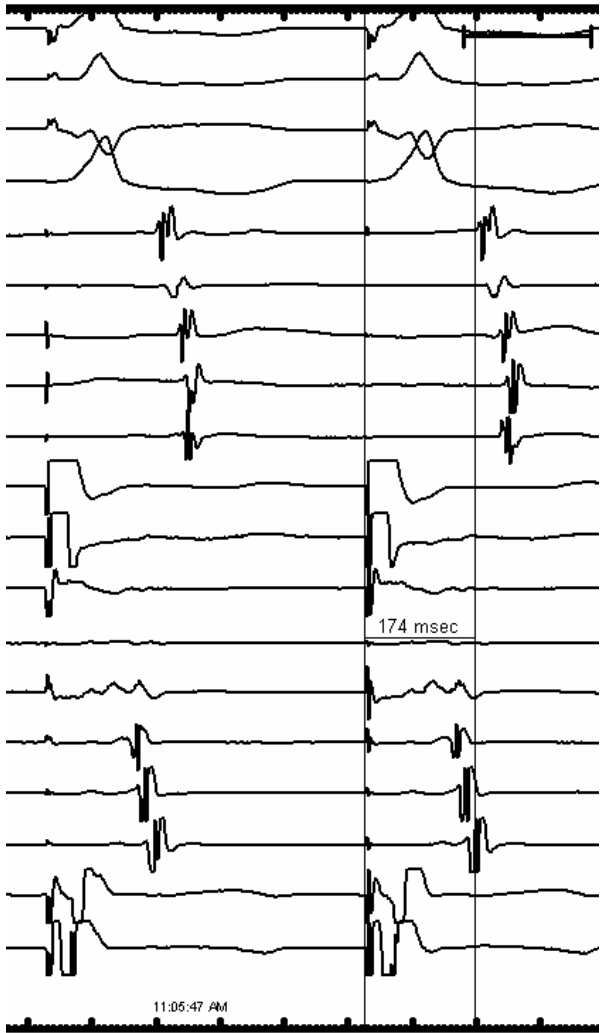
◆ NF ORT

1. Parahisian pacing: AV nodal response
2. $VA_{(base)} > VA_{(apex)}$
3. QRS by RVP during SVT = QRS by RVP during sinus rhythm



Parahisian pacing: accessory pathway response

Stim to A_{Narrow} = Stim to A_{Wide}

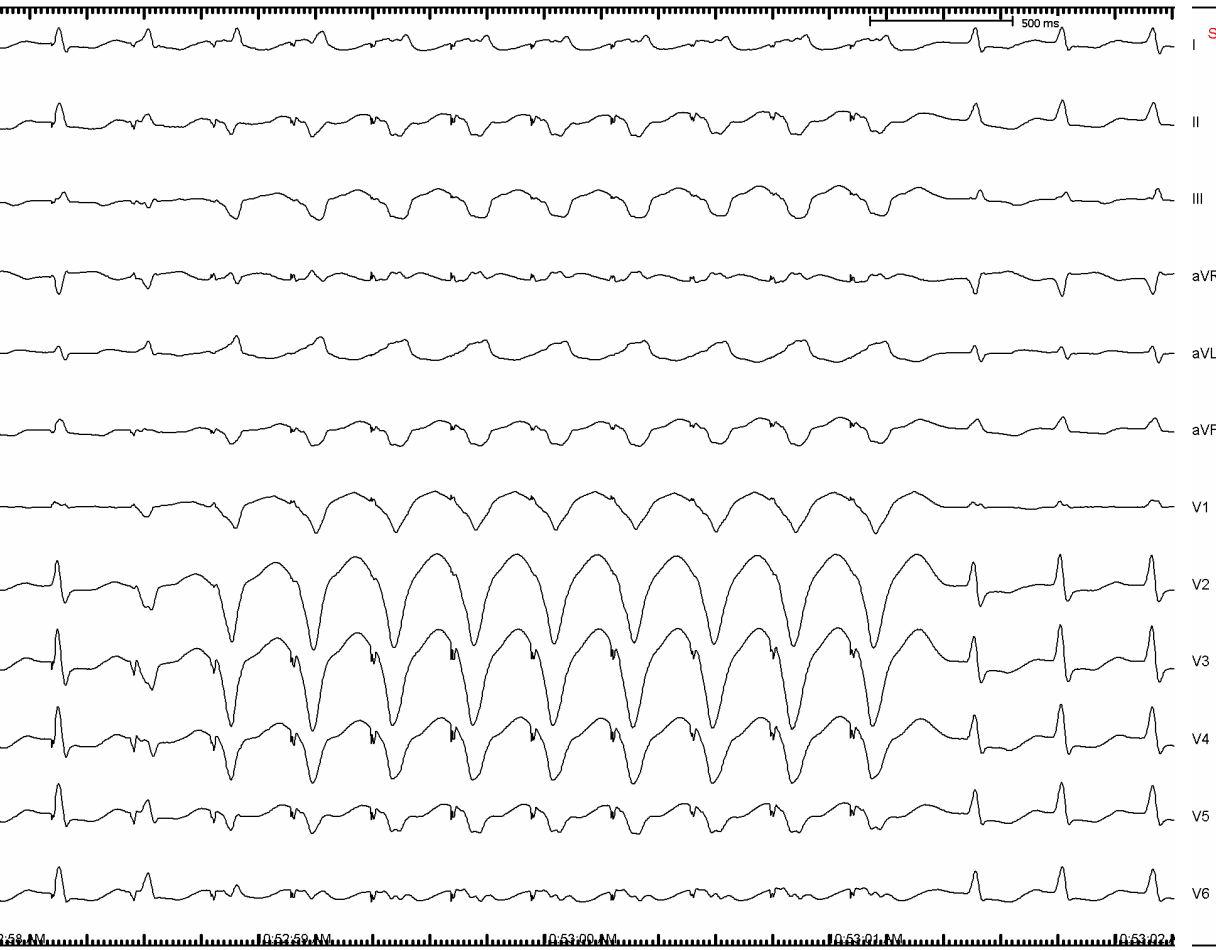


ORT-NV case

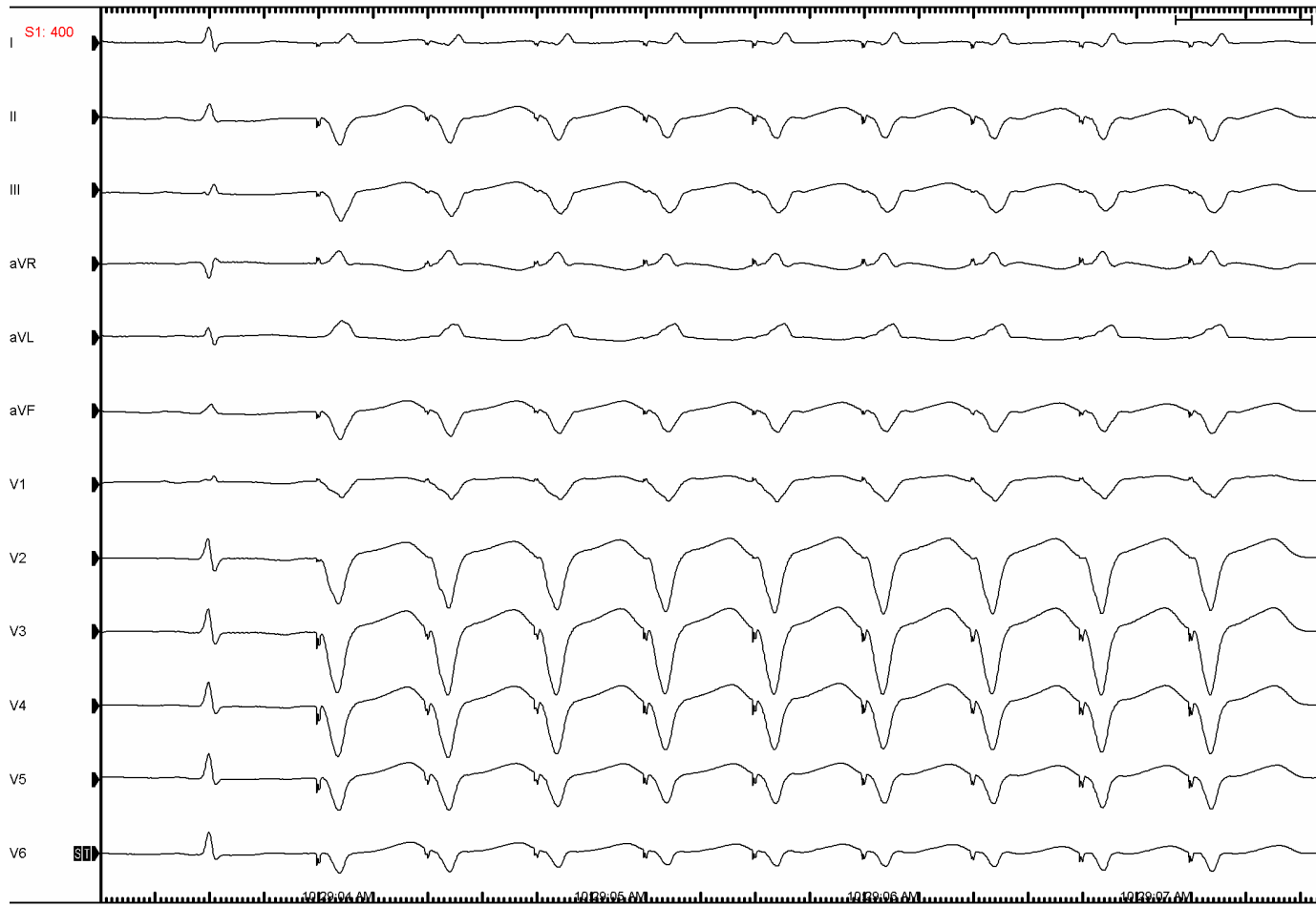


QRS by RVP during SVT \neq QRS by RVP during sinus rhythm

RVP during SVT



RVP during sinus rhythm



ORT-NV case



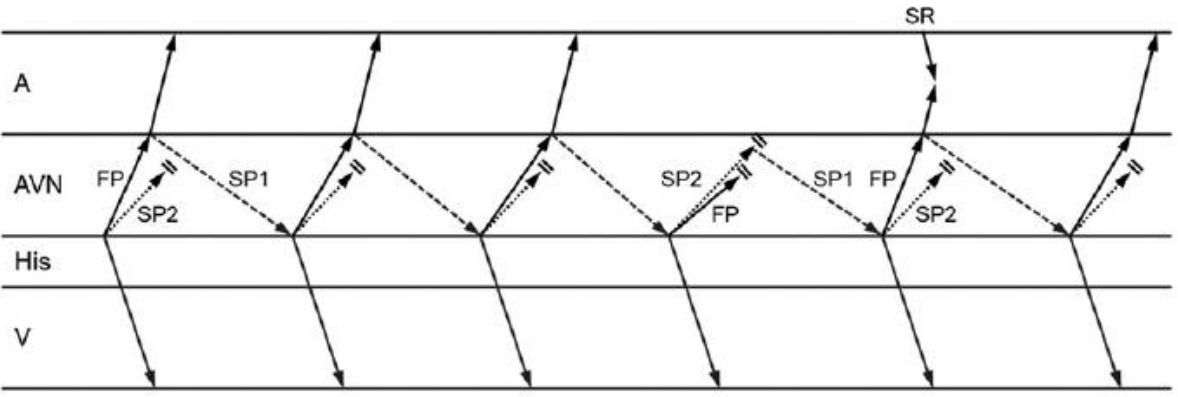
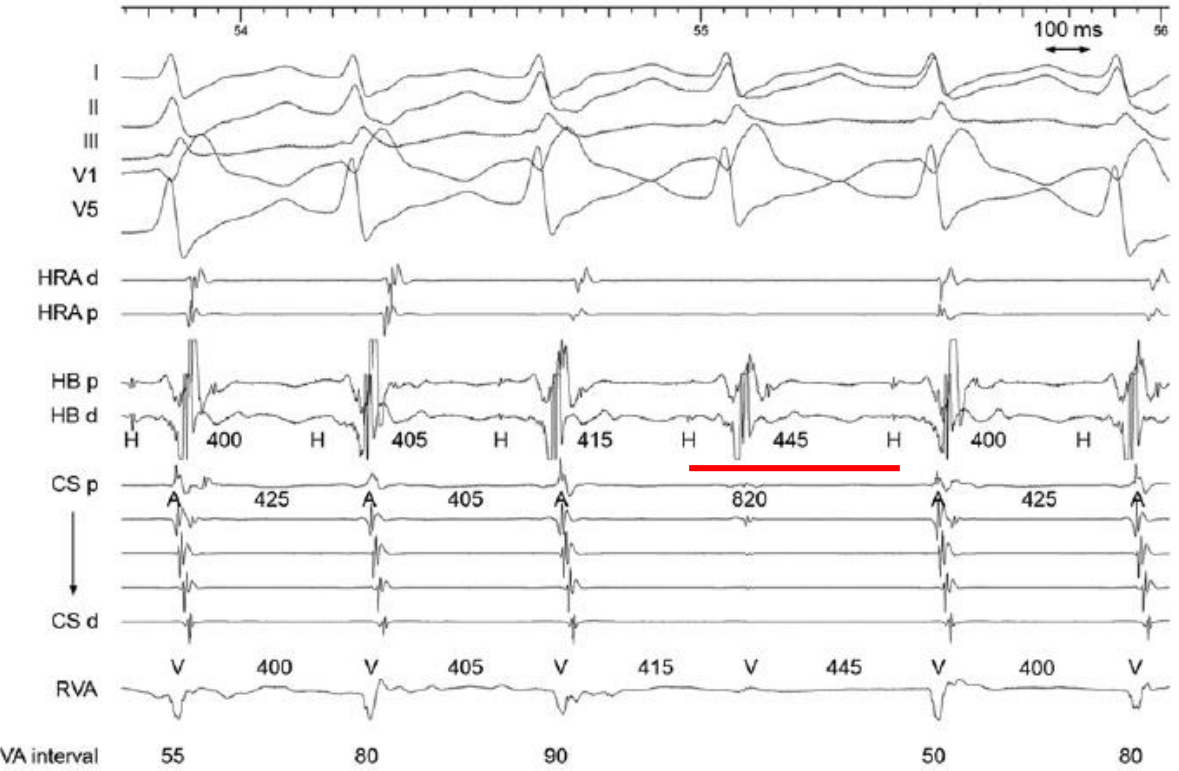
Characteristics of SVT with VA block

	NV/NF ORT	AVNRT	P-value
	N=9	N=16	
Single inducible SVT	9 (100%)	4 (25%)	<0.001
Wenckebach VA block during SVT	7 (78%)	3 (19%)	0.009
HH interval prolongation of >10ms after VA block during SVT	2 (22%)	11/14 (79%)	0.01

JACC EP, 2020, 6, 1797-1807



HH interval prolongation of >10ms after VA block during SVT



Change of retrograde arm after VA block
 ⇒ favor **AVNRT**

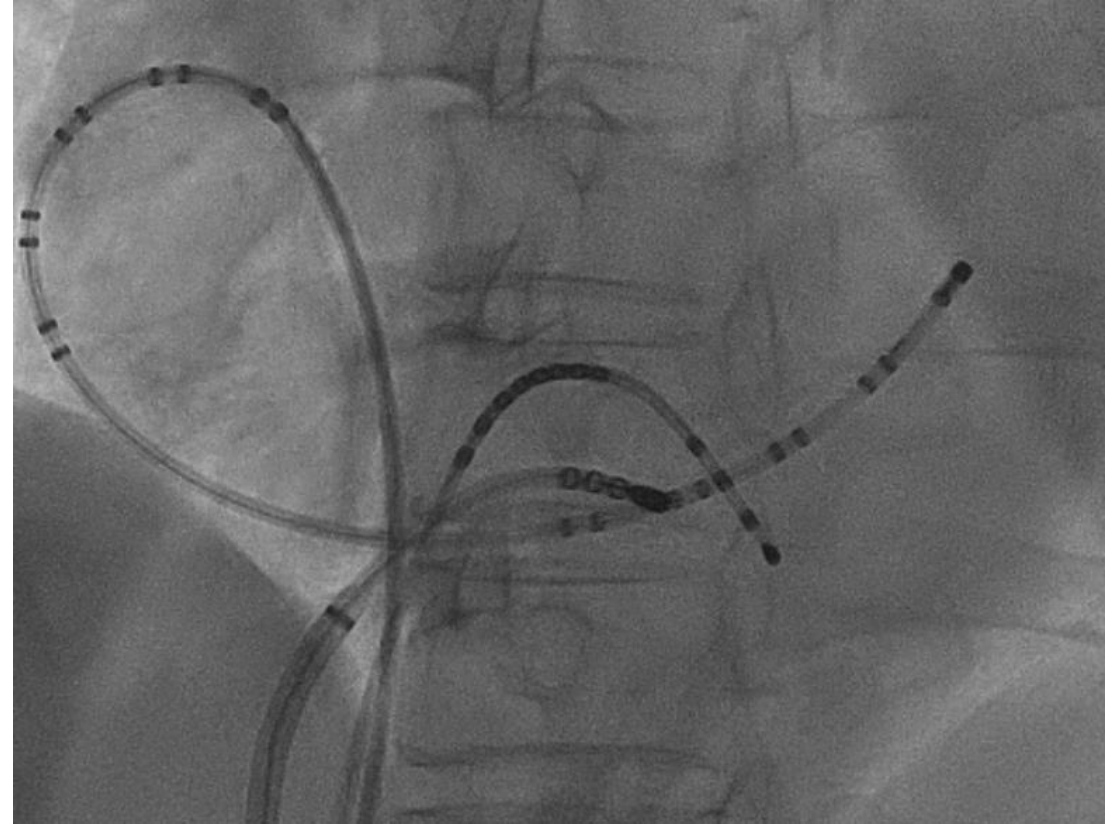
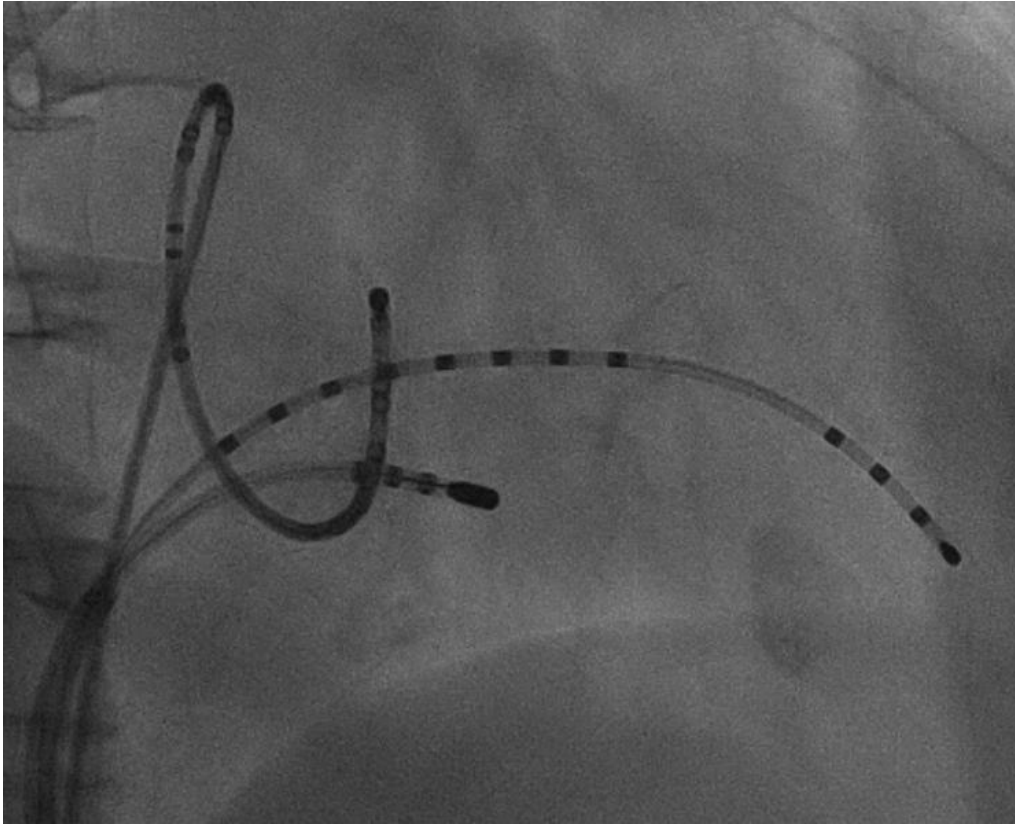
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Reset by A extra stimuli can rule out Junctional tachycardia



Treatment of NV/NF ORT



Slow pathway modification
Most of cases target RIE, sometimes LIE



Thank You For Your Attention !

Juwon Kim

Clinical Assistant Professor

**Heart Vascular Stroke Institute,
Samsung Medical Center, Seoul, Republic of Korea**

**If you have any question, don't hesitate to e-mail me.
abcd186a@naver.com ; abcd186a@gmail.com**