

Children's Mercy Kansas City

SHARE @ Children's Mercy

Posters

5-2019

AV Nodal Reentrant Tachycardia in Patients with Twin AV Nodes

Christopher Mathis

Children's Mercy Hospital

Svjetlana Tisma-Dupanovic

Children's Mercy Hospital

Lindsey Malloy-Walton

Children's Mercy Hospital

John Papagiannis

Children's Mercy Hospital

Follow this and additional works at: <https://scholarlyexchange.childrensmercy.org/posters>



Part of the [Cardiology Commons](#), and the [Pediatrics Commons](#)

Recommended Citation

Mathis, Christopher; Tisma-Dupanovic, Svjetlana; Malloy-Walton, Lindsey; and Papagiannis, John, "AV Nodal Reentrant Tachycardia in Patients with Twin AV Nodes" (2019). *Posters*. 157.

<https://scholarlyexchange.childrensmercy.org/posters/157>

This Poster is brought to you for free and open access by SHARE @ Children's Mercy. It has been accepted for inclusion in Posters by an authorized administrator of SHARE @ Children's Mercy. For more information, please contact library@cmh.edu.

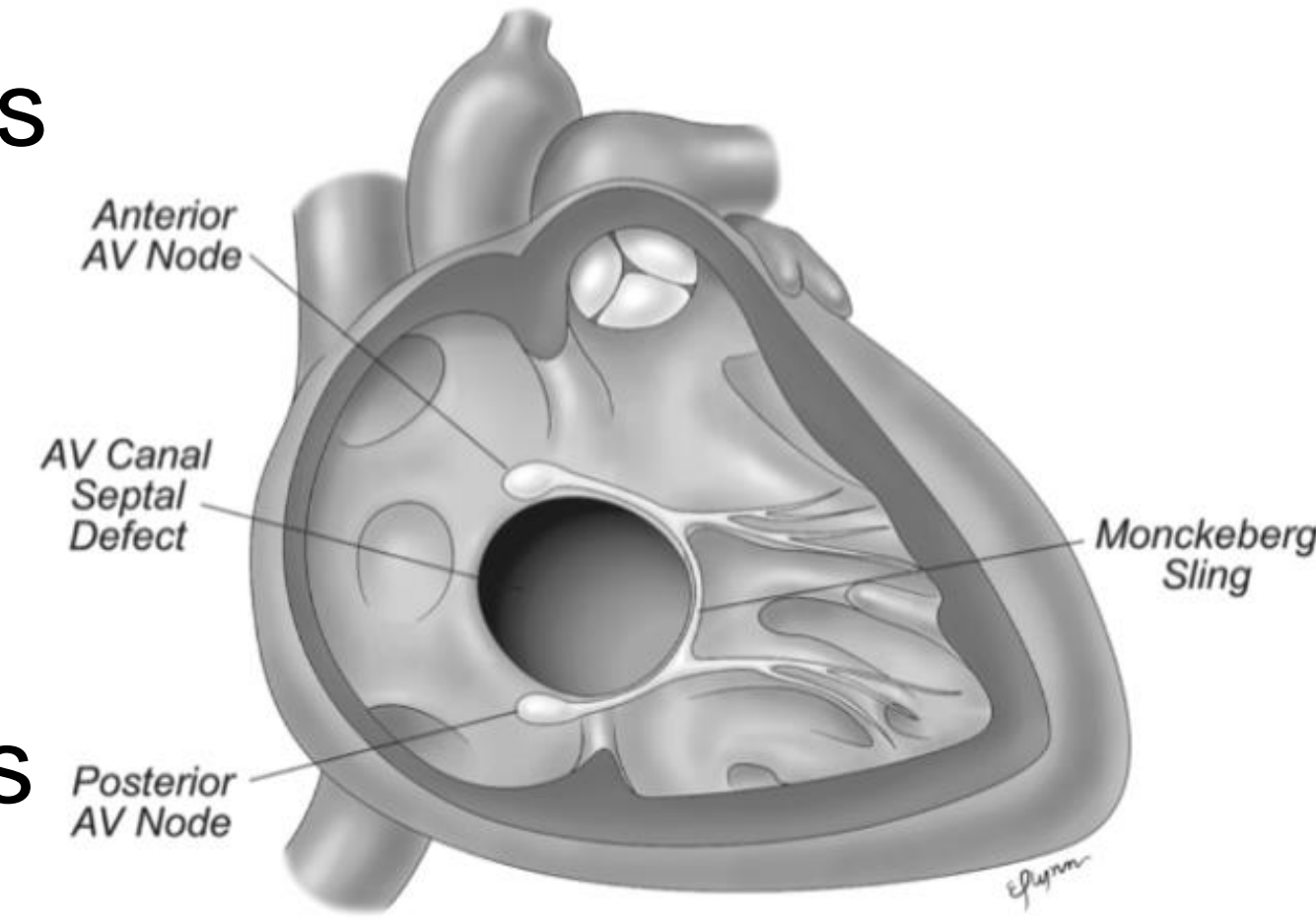
AV Nodal Reentrant Tachycardia In Patients With Twin AV Nodes

Christopher Mathis, MD, Svjetlana Tisma-Dupanovich, MD, FHRS, Lindsey Malloy-Walton, DO, John Papagiannis, MD, FHRS

Children's Mercy Kansas City, Kansas City, MO

Background

- Twin AV nodes have been demonstrated in complex CHD
- These patients are at risk of SVT supported by a macroreentrant circuit
- AV node reentrant tachycardia (AVNRT) involving an individual AV node in patients with twin AV nodes has not been reported previously



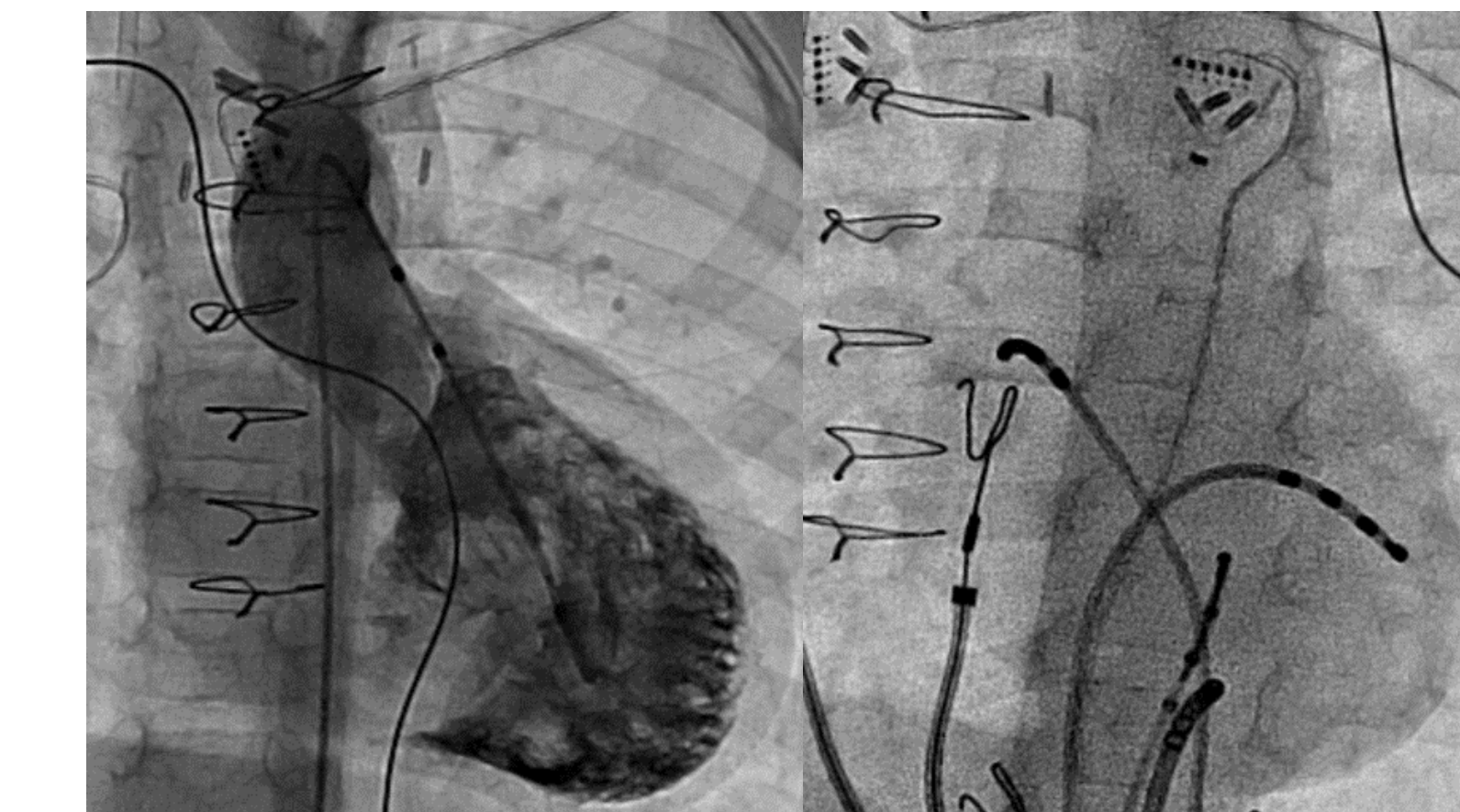
Findings

	Patient #1	Patient #2	Patient #3
QRS Morphologies	2	1	2
His Potentials	Superior and inferior AVN	Superior and inferior AVN	Inferior AVN
Adenosine Effect	VA block	VA block	VA block
Tachycardia CL	318 ms	312 ms	405 ms
VA Interval	146 ms	132 ms	144 ms
PPI-TCL	56 ms	50 ms	36 ms
PVC Advanced A	Yes	Yes	Yes
Ablation	Cryo and RF at inferior AVN	RF at superior, cryo at inferior AVN	RF at superior AVN

Findings Supporting Macroreentrant Twin AV Nodal Tachycardia

	Patient #1	Patient #2	Patient #3
SSPC	Borderline	Yes	Yes
AH Jump	Borderline	Yes	Yes
Typical AVN Echos	No	Yes	Yes
Slow-Fast AVNRT CL	Yes 410 ms	Yes 268 ms	Yes 286 ms
VA	-22 ms	-18 ms	26 ms
Slow-Slow AVNRT CL	No	Yes 272 ms	No
VA		100 ms	
PPI-TCL	N/A	155 ms	N/A
Ablation	Cryo at inferior AVN	Cryo at inferior AVN	RF at superior AVN

Findings Supporting AVNRT of Individual AV Nodes



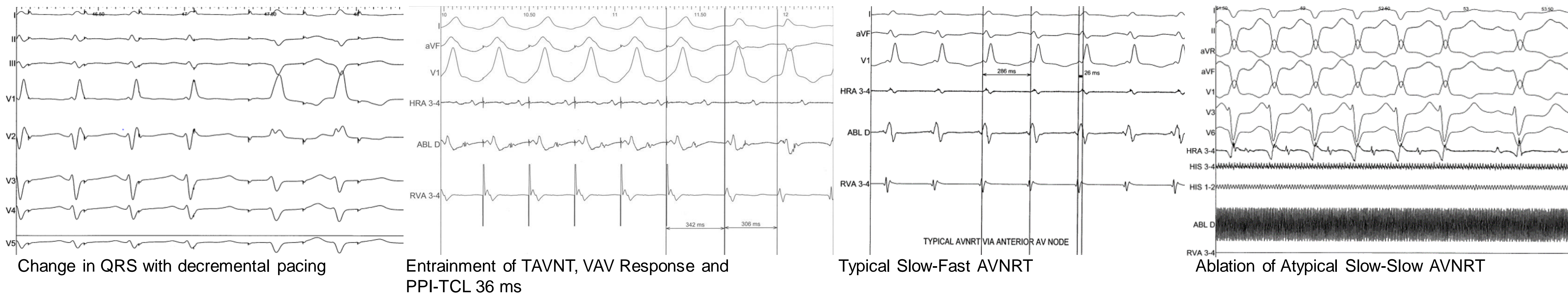
Ablation of AVNRT at Superior AVN in Patient #3: Transconduit access with ablation catheter, atrial pacing catheter at PA-SVC junction, RV pacing retrograde via aorta

Ablation of AVNRT at Inferior AVN in Patient #1: All catheters antegrade via IVC



Methods

	Patient #1	Patient #2	Patient #3
Age (years)	3	8	18
Weight (kg)	14	18	53
CHD Diagnosis	Right atrial isomerism, {I,D,D} CAVC, DORV, s/p bilateral, bidirectional Glenn	Right atrial isomerism, {I,D,D} CAVC, DORV, s/p bidirectional Glenn	Dextrocardia, right atrial isomerism, {I,L,L} CAVC, DORV, s/p extracardiac Fontan
Indication for EP Study	Anatomy, pre-Fontan cath	Palpitations, anatomy, pre-Fontan cath	Documented SVT
Previous Study?	No	No	Yes



Conclusions

- Twin AV nodes may be present in complex CHD, especially patients with heterotaxy
- Clinicians should be aware of the possibility of multiple mechanisms of SVT in these patients
- Patients with atrial isomerism should be carefully evaluated for twin AV nodes and considered for an EP study at the time of pre-Fontan catheterization

References

- Bae, EJ. Twin AV Node and Induced SVT in Fontan Palliation Patients. *Pacing Clin Electrophysiol*.2005.
- Dickinson, DF. The Cardiac Conduction System in Situs Ambiguus. *Circulation*. 1979
- Epstein, MR. AVRT Involving AV Nodes in Patients with Complex Congenital Heart Disease. *J Cardiovasc Electrophysiol*. 2001.