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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

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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 Posterior AV Node are at risk of
- AV node reentrant tachycardia (AVNRT) involving an individual AV node in patients with twin AV nodes has not been reported previously

SVT supported by a macroreentrant circuit

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	

Patient #3 Patient #1 Patient #2 Morphologies Inferior AVN Superior and His Potentials Superior and inferior AVN inferior AVN **Adenosine Effect** VA block VA block VA block Tachycardia CL 312 ms 318 ms 405 ms VA Interval 146 ms 144 ms

50 ms

Cryo and RF at RF at superior, cryo RF at

at inferior AVN

Findinas	Supporting	Macroreentrant	Twin A	V Nodal	Tachycardia	
		Madidicalit		VIIVAGI	iadilydalala	

inferior AVN

56 ms

PPI-TCL

Ablation

PVC Advanced A Yes

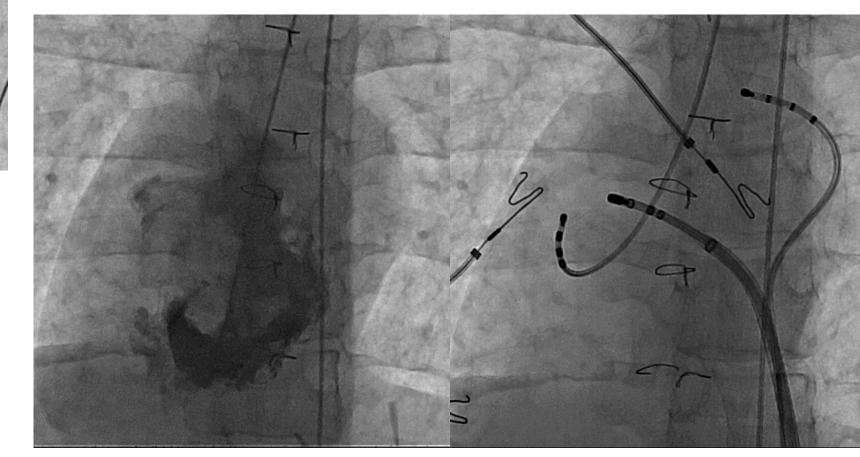
Findings Patient #1 Patient #2 Patient #3 SSPC Borderline AH Jump Borderline Typical AVN Echos No Slow-Fast AVNRT 268 ms -18 ms Slow-Slow AVNRT | No 272 ms 100 ms PPI-TCL 155 ms Cryo at inferior RF at superior Ablation |Cryo at superior AVN inferior AVN AVN

Findings Supporting AVNRT of Individual AV Nodes

Ablation of AVNRT at Inferior AVN in Patient #1

All catheters antegrade via IVC

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



	aVF V1	aVF V1	avr avr
V ₂	- HRA 3-4	ABL D	V3 V6 V6 V6 V6 V7
V3 V4 V5 V5 Change in ODC with degree and de	RVA 3-4	Typical avnrt via anterior av node	ABL D RVA 3-4 A bolotions of Atyroical Clavy Clavy AVADT
Change in QRS with decremental pacing	Entrainment of TAVNT, VAV Response and PPI-TCL 36 ms	Typical Slow-Fast AVNRT	Ablation of Atypical Slow-Slow AVNRT

Conclusions

Twin AV nodes may be present in complex CHD, especially patients with heterotaxy

36 ms

- 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

	Patient #1	Patient #2	Patient #3
Access	IVC	IVC	Transconduit and retrograde
EAM (NavX, St Jude)	Yes	Yes	Yes
Duration	3 hrs	5.5 hrs	5 hrs
Fluoro Time	6.4 min	3 min	5.9 min
Complications	None	None	1 st degree AVB
Follow-up	No recurrence in 10 months	No recurrence in 10 months	No recurrence in 34 months

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