Sustained Double Firing of Atrioventricular Non-reentrant Tachycardia Mis-interpreted As Ventricular Arrhythmia

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Introduction: The differential diagnosis of wide QRS tachycardia is challenging.

Methods: N/A

Result: A 52-year-old male presented with palpitations for 10 years. Right parahisian ventricular tachycardia (VT) was diagnosed and ablated previously. Recurrence of symptom prompted consult. During electrophysiologic study, frequent non-sustained wide QRS tachycardia with right bundle branch block (BBB) morphology and a wobbling tachycardia cycle length was noted. Right paraseptal recording showed 1 atrial (A) followed by 2 ventricular (V) signals preceded by intermittent right bundle potential. Advancing the ablation catheter to left ventricular septum demonstrated left bundle branch (LBB) potential preceding each QRS. One A signal followed by 4 V signals was also observed implying the possibility multiple AVN non-reentrant phenomenon. Atrial pacing reproducibly induced sustained “1P 2Q” with fixed coupling interval of slow pathway, reflecting “double fire” of dual atrioventricular nodal non-reentrant tachycardia (DAVNNT). Different LBB-V interval was observed during the fast and slow pathway conduction, emphasizing the involvement of LBB responsible for this phenomenon. Tachycardia was terminated after elimination of the slow pathway.

Conclusion: DAVNNT can be mis-interpreted as VT, especially when there is BBB pattern. Involvement of slow pathway could extend to LBB as shown in our case. Detailed recording of both RBB and LBB potentials can provide clues for diagnosis.