A case of atrioventricular reentry tachycardia circuiting between left and right accessory pathway

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Introduction: A 65 years old man was hospitalized with cerebral infarction. An implantable loop recorder was implanted to detect subclinical atrial fibrillation and it revealed short lasting both narrow and wide QRS tachycardia. The twelve leads electrocardiogram showed negative delta wave in inferior leads and positive delta wave in V1 lead. These suggested the existence of left posterior accessory pathway (LPAP).

Methods: We performed an electrophysiological study (EPS) and catheter ablation for diagnosis and treatment of the atrioventricular reentry tachycardia.

Result: EPS showed ventricular-atrial (VA) conduction via both LPAP and right lateral accessory pathway (RLAP) respectively during ventricular pacing, and VA conduction via RLAP showed alternating 2 to 1 conduction. Orthodromic atrioventricular reentrant tachycardia (AVRT) via LPAP was induced by ventricular programmed stimulation, but orthodromic AVRT via RLAP could not be induced. During EPS, wide QRS tachycardia with right bundle branch block was induced by atrial pacing. Intracardiac electrocardiogram during this tachycardia showed that atrial-ventricular (AV) conduction run through LPAP and VA conduction run through RLAP. The His wave did not precede the V wave at His region during tachycardia, that suggested this tachycardia as AVRT circuiting between LPAP and RLAP. This AVRT was not tolerant hemodynamically, and was terminated with rapid atrial pacing immediately. Firstly, we performed catheter ablation for LPAP and LPAP was eliminated. After eliminating LPAP, we performed catheter ablation for RLAP. During catheter mapping for RLAP, orthodromic AVRT via RLAP occurred and was terminated with VA block by catheter ablation. Interestingly, AV conduction via RLAP appeared transiently during catheter ablation for RLAP although it had never been observed clinically.

Conclusion: AVRT circuiting between both sides of AP is rare and is intolerant hemodynamically.