Supraventricular Tachycardia and Sinus Rhythm with Contralateral Bundle Branch Block Patterns

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A contralateral bundle branch block (BBB) aberration during tachycardia with a preexisting BBB strongly suggests the presence of ventricular tachycardia. We report on a middle-aged, female patient presented with wide QRS tachycardia. The patient had orthodromic atrioventricular reentrant tachycardia with a left BBB aberration in the presence of a preexisting right BBB due to an abnormal His-Purkinje system. We learned that the contralateral BBB aberration with supraventricular tachycardia could be seen when the His-Purkinje system was abnormal. (Korean Circ J 2014;44(4):271–273)

KEY WORDS: Bundle-branch block; Tachycardia, supraventricular; Bundle of His; Purkinje fibers.
of the QRS complex, which ruled out an ART. The site of the earliest atrial activation during the LBBB-T was in the mid-CS rather than in the His-bundle. Delivery of premature ventricular stimulus during the His-bundle refractory terminated tachycardia without atrial activation. This confirmed that the tachycardia was an ORT using a concealed left posterior AP. Ablation was successful and the tachycardia could no longer be induced. After ablation, VA conduction was present through the AV node only, but a VA conduction block occurred at the VH level with a Wenckebach pattern (Fig. 3), which suggested a conduction abnormality in the His-Purkinje system or between the His-Purkinje system and the ventricle.

Discussion

Bundle branch block aberrancy during SVT in the presence of pre-existent contralateral BBB is extremely rare, even in the presence of a His-Purkinje system dysfunction. A functional or anatomical block at one or more levels in the conduction system can cause LBBB.\(^2\) It can occur at the His bundle level (dedicated fibers to LB) before its bifurcation, the left bundle branch level, the left fascicle level (due to variation in the anatomy of fascicles\(^3\)), or diffuse disease of the very distal ramifications of the left bundle. Fig. 4 shows conduction patterns during programmed and burst stimulation from the HRA. Burst pacing at 280 msec revealed a conduction delay between the His and BB resulting in an infra/intra Hisian block (Wenckebach type). The interval following a non-captured beat allowed recovery of the left bundle, and this resulted in the reappearance of the RBBB QRS morphology similar to that of baseline conduction. Early-coupled atrial extrastimuli caused a progressive delay within the His bundle or between the His and BB, and the RB potential to the QRS interval became longer and fixed during the LBBB morphology. The lower tracing in Fig. 4 showed that the LBBB did not recover from previous stimulation, but the interval from His to RB became longer by a premature stimulation without a change in LBBB morphology. This implies that a certain amount of conduction delay between the His and bundle branch may be the cause of manifestation of LBBB in this case.

We propose that conduction delay between His and bundle
branch may be the possible mechanism of the LBBB aberration with SVT during preexisting RBBB.

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