Adding His bundle pacing to the biventricular pacing case with persistent bradycardic atrial fibrillation

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Introduction: HIS bundle pacing (HBP) has been reported as an alternative to biventricular pacing (BiV). Here we report a CRT- indication case treated simultaneously with biventricular pacing and HBP.

Methods: A 70-year-old man was diagnosed with hypertrophic cardiomyopathy. Two years ago, VVI pacemaker with right ventricular apical pacing (RVAP) was placed for bradycardic atrial fibrillation, but heart failure was exacerbated, and it increased to NYHA1 → 3 and decreased to EF55% → 35%. We considered that the dyssynchrony by RVAP contributed more to the development of cardiac dysfunction than the progression of cardiomyopathy and judged it to be an indication for CRT. In order to evaluate the effectiveness of BiV and/or HBP, invasive hemodynamic monitoring was performed as a preoperative examination. We examined LV dP/dt max and QRS duration for each of RVAP, left ventricular pacing (LVP), HBP and their combinations as shown in the Fig.1. LV dP/dt max tended to increase and QRS duration tended to short with HBP alone or with two-point and three-point pacing with HBP. Based on this result, we actually upgraded. Since left subclavian vein occlusion was founded, the RV lead that had been placed from the left side was removed, and then the device implantation was performed with the right approach. After placing the LV lead in the lateral branch, the SelectSecureTM3830 Lead was placed at the HIS bundle potential recording site using Fixed Shape C315 Catheters and connected to the atrial lead port of the generator to complete the implantation. The QRS duration of RVAP is 180 ms, and the QRS duration of the two-point pacing of RVAP and LVP is 130 ms, while the QRS duration of the two-point pacing of HBP and LVP (LV + 50 ms) is 100 ms. Postoperatively, symptoms of heart failure and BNP levels improved.

Conclusion: Adding His bundle pacing to the biventricular pacing case with persistent bradycardic atrial fibrillation was effective in shortening the QRS width. It is also a successful case of HIS lead placement with the right approach, which is considered to be difficult.