Concomitant Fascicular Ventricular Tachycardia and Total Atrioventricular Block in Mitral Valve Prolapse Syndrome – A Therapeutic Challenge and Dilemma

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Introduction: Apart from refractory ventricular tachycardias (VT) and the associated sudden cardiac death in mitral valve prolapse (MVP), conduction disorders such as sinus node dysfunction, dual AV physiology, and around 12% of second or third degree atrioventricular block had also been demonstrated.

Methods: To the best of our knowledge, this is the very first reported case of simultaneous total AV block (TAVB) and fascicular VT in MVP syndrome.

Result: A 25-year-old male came with dyspnea on effort and repeated presyncopal episodes since one month before admission. Moderate to severe mitral regurgitation due to anterior mitral leaflet prolapse and reduced ejection fraction of 43% were detected from echocardiography. Negative cardiac troponin level excluded the possibility of ongoing acute coronary syndrome or carditis. ECG recording showed TAVB with junctional escape (Figure 1) as the basic rhythm. During palpitations, serial ECGs showed relatively narrow QRS (120-140 ms) tachycardias with right bundle branch block (RBBB) pattern and alternating inferior-superior axis (Figure 2). AV dissociation during electrophysiology study confirmed both tachycardias as ventricular in origin with at least two reentry circuits. However, mapping of the Purkinje potential as ablation target was hindered by ventricular asystole that sometimes followed after intermittent fascicular VTs, therefore we decided to end the procedure and placed a temporary pacemaker. Later, a dual chamber permanent pacemaker was implanted, and the patient was discharged with optimized heart failure medication using ACE inhibitor and diuretics. Fascicular VT episodes seemed to be suppressed quite well by verapamil. Catheter ablation maybe reattempted, preferably with 3 dimensional mapping in case of recurrence.

Conclusion: The rare association of conduction disorders and MVP is sometimes forgotten in clinical practice. Although the etiology is still unclear, it was thought to be related to a more extensive fibrosis of the mitral valve. At the other end of the spectrum, fascicular VTs are usually verapamil sensitive and amenable to catheter ablation.