Left Posterior Fascicular Ventricular Tachycardia Unresponsive To Verapamil

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Introduction

Ventricular tachycardia (VT) originates from right ventricular outflow tract or left ventricular septum in children with normal heart. VTs originating from the left ventricular septum are often re-enterant and responsive to verapamil. Left fascicular VT from an ectopic focus are less frequent. We present a patient with left posterior fascicular VT unresponsive to verapamil and treated with ablation.

Case

Fourteen-year-old male patient presented with a wide QRS tachycardia. His only symptom was palpitation, no history of syncope or signs of cardiac failure was present. Heart rate was 170 bpm, and blood pressure was 120/60 mmHg. Echocardiography revealed an anatomically normal heart, with mildly decreased systolic function (FS=27%, EF=55%). The case was unresponsive to adenosine or metoprolol, and amiodarone infusion was started. Heart rate decreased to 130/min, but sinus rhythm could not be obtained. Atrioventricular dissociation became visible with an atrial rate of 75 bpm and ventricular rate of 137 bpm. Right bundle branch block morphology and left axis deviation suggested left posterior fascicular VT and diltiazem was given. However, tachycardia did not resolve. Therefore; radiofrequency ablation was planned. Tachycardia mapping was performed by a quadripolar catheter in His position. First, right bundle crioablation was attempted considering bundle branch re-enterant VT because of verapamil resistance. Since the tachycardia persisted, mapping at left ventricular septum was performed, purkinje cell action potential was detected at the left posterobasal area, close to the apex. Radiofrequency waves at 50 watt, 60 °C were applied to this region for 4 minutes. Tachycardia was terminated, and could not be induced with single or double ventricular extrastimuli. The patient is being followed-up without any anti-arrhythmic medication.

Conclusion

Left posterior fascicular VT causes right bundle branch block morphology and left axis deviation on the surface ECG. Verapamil responsiveness is typical. This case was interesting for its verapamil unresponsiveness.