The Catheter Ablation of Monomorphic Ventricular Tachycardia Related to Hypertrophic Cardiomyopathy - Its Anatomical and Electrophysiological Characteristics -

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Background:
The monomorphic ventricular tachycardia (MMVT) is rare in patients with hypertrophic cardiomyopathy (HCM). This study analyzed the anatomical and electrophysiological characteristics in patients with HCM complicated with MMVT.

Methods and Results:
The patient population consisted of 11 patients (3 female and aged 60±12 years) with HCM-related MMVT, including 2 apical aneurysm and 2 apical HCM and no left ventricular outflow tract (LVOT) obstruction. The 12-ECG during VT (mean CL 378±78msec) demonstrated LBBB in 2 and RBBB in 9. Catheter ablation was performed in 6 patients with VT map based ablation and 4 with substrate based ablation. In 5 of 10, VTs have been non-inducible after procedure. During 60±45 months follow-up, 5 of 10 had recurrence of MMVT. The autopsy and histopathological analysis was undergone in a patient who died from pneumonia before the catheter ablation. The pathological finding demonstrated the endocardial fibrosis at the site close to His bundle branch of LVOT, where the MMVT origin was estimated from 12-ECG morphology.

Conclusion: In patients with HCM-related MMVT, endocardial catheter ablation resulted in low success rate and a high recurrence of VT, seemed to have a limited role to prevent lethal arrhythmia. The myocardial fibrosis within hypertrophic myocardial wall may be the substrate of MMVT in HCM.

Keywords: monomorphic ventricular tachycardia, hypertrophic cardiomyopathy, ablation