Verapamil-sensitive ventricular tachycardia originating from anterior papillary muscle

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Introduction: Verapamil-sensitive VT generally presents with RBBB + left axis deviation and originates from posterior fascicle of left bundle branch. Purkinje potential is usually observed at the successful point of ablation. Verapamil-sensitive VT with RBBB + right axis deviation is relatively uncommon and is thought to be originated from anterior fascicle. Here we reported a case of VT with this pattern.

Methods: The patient is 66-year-old male. He presented to ER with dizziness. ECG showed tachycardia with wide-QRS complex at 180bpm. Verapamil was administered intravenously and promptly convert it to sinus rhythm. During observational admission, he repeatedly had sustained VT episodes several time and was referred for ablation. Echocardiogram showed moderate mitral regurgitation, mildly dilated left atrium, preserved LV function (EF=57%) with no asynergy. 12-lead ECG showed wide QRS complex with AV dissociation, RBBB, inferior axis and right axis deviation, suggesting VT originating from lateral part of the base of LV. Clinical VT was readily induced during the procedure. We used Rhythmia 3D-mapping system and intracardiac echo to localize the origin. Orion catheter was introduced to LV through transseptal puncture sheath. Activation mapping and pace mapping located the origin to be at the tip of anterior papillary muscle, close to A1 (lateral part of anterior leaflet of mitral valve).

Result: Ablation was applied supraavalvularly but failed to terminate VT. Alternatively infravalvular approach by making a U-shape of ablation catheter had a good contact with the target site and successfully rendered VT non-inducible.

Conclusion: Intracardiac echo is a useful tool to correlate 3D mapping with anatomical structure in cases of verapamil-sensitive VT.