ABLATION FOR INCESSANT IDIOPATHIC ACCELERATED IDIOVENTRICULAR RHYTHM

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Introduction: Accelerated Idioventricular Rhythm (AIVR) is usually asymptomatic and is a marker of coronary reperfusion, structural heart disease or drug overdosage. We report a successful radio frequency ablation (RFA) for a rare case of incessant, symptomatic and drug refractory idiopathic AIVR arising from the left posterior fascicle (LPF) near the apical septum. Successful RFA brought symptomatic relief by restoration of atrioventricular (AV) synchrony in sinus rhythm.

Methods: A 50-year-old female with no known comorbidities presented with recurrent palpitations associated with giddiness and shortness of breath of 3 months duration. The 12-lead ECG (Fig1) suggested AIVR at rate of 85 BPM with isorhythmic AV dissociation. The R wave in V1, RS in V6, superior axis and relatively narrow QRS complexes indicated the origin from the LPF region. Her echocardiogram, contrast enhanced cardiac MRI and coronary angiogram were normal. A 24-hour Holter (Fig2) revealed incessant AIVR. She was on metoprolol succinate 50mg OD and amiodarone 200mg OD.

Result: Under conscious sedation a standard invasive electrophysiology study was performed. Incessant AIVR with stable hemodynamics was observed. Atrial overdrive pacing (AOD) confirmed normal AV conduction. The AIVR reinitiated immediately after AOD and ventricular overdrive pacing. Adenosine (12 mg IV), metoprolol (10 mg IV) and verapamil (10 mg IV) did not influence AIVR. The ventricular rate accelerated during isoprenaline infusion. A 8F Abbott FlexAbilityTM irrigated bidirectional ablation catheter was used to map the left ventricle by retrograde aortic approach under fluoroscopy (7.5 FPS). At a site near the apical septum posteriorly where sharp potentials preceding the onset of QRS on ECG by 30ms were found, unipolar recording showed QS pattern (Fig3) and where pace mapping was of satisfactory match (Fig4) a single RF energy (40 W, 50°C) resulted in cessation of AIVR in 3 seconds (Fig5 and 6). The energy was continued for total of 120 seconds. The AIVR did not recur even on isoprenaline. At 6 months of follow-up (Fig7) patient remained asymptomatic in sinus rhythm.
Conclusion: Rarely AIVR can occur in normal heart and gives rise to symptoms despite slow ventricular rate. It can be resistant to multiple drugs. It can be effectively cured by RFA.