PURKINJE PREMATURE VENTRICULAR CONTRACTION INDUCED VENTRICULAR FIBRILLATION

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Introduction: Idiopathic Ventricular fibrillation (IVF) is a rare cause of sudden cardiac arrest (SCA). It is reported in 6.8% of all patients surviving a cardiac arrest and is more common in young patients. IVF is a diagnosis of exclusion in patient who has survived a VF episode without any identifiable cause. In majority of cases, VF is triggered by premature ventricular contraction (PVC) from purkinje network. Ablation of these VF triggers is associated with good longterm outcome.

Methods: A 45 years lady, known hypertensive for 2 years presented with recurrent episode of palpitations and 2 episode of syncope. She was found to have ventricular tachycardia / fibrillation. As there were multiple episodes of VT/ VF, she was managed in the ICU with xylocard, amiodarone and metoprolol, and repeated cardioversions and defibrillation. ECG revealed short coupled (280 msec) Monomorphic PVC giving rise Ventricular fibrillation (VF) (Figure 1). Morphology of the triggering PVC was similar in all the VT/ VF episodes. 2 D ECHO and Cardiac MRI was normal. Further evaluation showed normal metabolic parameters and no evidence of structural heart disease on cardiac MRI scan and Cardiac PET scan. Patient was sedated and intubated. However the number of VF storm continued. Patient was taken for catheter ablation under 3 D electroanatomic mapping. Mapping and ablation was done using 3.5-mm open irrigated-tip ablation catheter (Thermocool, Biosense webster). A 3 D electroanatomic map was created using the earliest activation of PVC origin site along the left purkinje network of Left ventricle septum. Earliest site was tagged. Ablation (30W/60 degree) was performed at the earliest activation site (local purkinje potential) which initiated the non-sustained VF. RF Lesions were consolidated by ablation in the surrounding 1-2 cm². No more PVC appeared for a waiting period of 1 hour and with 20 mcg of isoprenaline. Post procedure, patient was stable and discharged. At 2 months follow up, patient did not have any VF episode.

Result: N/A

Conclusion: IVF is a rare cause of SCA. It can present as a an electrical storm. Catheter ablation of the Purkinje trigger is effective therapy for this condition.