Histopathological Analysis of Endocardium in Patient with Subclinical Cardiac Sarcoidosis Associated with Pacemaker Failure Following External Cardioversion

Junji Matsuda, Katsuaki Yokoyama, Masakazu Komoriya, Yasuhiro Kubochi, Mitsunobu Enomoto, Eizo Tachibana, Kagari Matsudaira, Shinobu Imai, Ken Nagao, Atsushi Hirayama

1The Division of Cardiology, Nihon University Surugadai Hospital, Tokyo, Japan, 2Kawaguchi Municipal Medical Center

In patients with pacemaker implantation the pacemaker failure after administered external cardioversion have been reported resulting in myocardial damage at the electrode-endocardial junction. A 81 y.o. man with DDD (ventricular lead in mid RV septum) pacemaker implantation for the treatment of complete AV block occurred hemodynamically unstable ventricular tachycardia (VT). The patient progressed VT storm and Stimes cardioversion were accomplished with 200J (Biphasic), pacemaker failure was occurred. The echocardiogram suggested cardiac sarcoidosis. The cause of pacemaker failure is the increase in stimulation threshold of ventricular pacemaker lead. After that, the patient died of cardiac shock. Autopsy showed fibrosis of myocardium extended from basal septum to apex in ventricle in gross. The site of ventricular pacemaker lead is the normal myocardium surrounding fibrosis. In microscopy, the fibrotic change of myocardium revealed the invasion of epithelioid granuloma. The granulomatous inflammation extended to the subendocardium adjacent to the lead tip area which including electrode-endocardial junction. The lead tip area revealed interstitial edema with dilatation of lymph ducts and capillaries. The injury of the survived myocardium due to the application of direct current through the pacemaker lead at the RV septum where is adjacent to the lesion of coexisting cardiac sarcoidosis had exhibited pacemaker failure.

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