A case in which remote monitoring was useful for analysis of unexpected ventricular pacing observed above the upper rate

Taishi Hirahara
Yoshimasa Tsurumaki
Norifumi Kubo
Hideo Fujita
Shin-ichi Momomura

Introduction: We reported a case in which remote monitoring was useful for analysis of unexpected ventricular pacing observed above the upper rate after pacemaker implantation for transient complete atrioventricular block.

Methods: none

Result: The case was an 82-year-old woman. She was diagnosed obstructive hypertrophic cardiomyopathy (HOCM) with severe left ventricular outflow tract pressure gradient, non-sustained ventricular tachycardia and paroxysmal atrial fibrillation. She was taking cibenzoline, atenolol and amiodarone. She visited our hospital for syncope in 2016 and transient C-AVB was observed after admission. It was possible that syncope was caused by the side effect of anti arrhythmic drugs. But we decided to perform pacemaker implantation, because the medication for HOCM was necessary and she did not want ICD implantation. She was performed dual chamber pacemaker implantation. (Boston Scientific, ACCOLDADE MRI L331) Atrial lead fixed at right atrial appendage and ventricular lead fixed at right ventricular apex. After implantation, she had been followed at an outpatient clinic. Device’s setting was DDD mode. Atrial tachycardia appeared in 2017. we recommended her to have catheter ablation, but she rejected and electrical cardioversion was performed. On July 2018, she visited our hospital because of palpitation. On the ECG, atrial tachycardia appeared. The ECG showed atrial tachycardia at a rate of 140 and ventricular pacing was showed transiently above the upper pacing rate. A ventricular pacing spike was observed 280ms after previous QRS. We checked the device to rule out ventricular undersensing. As a result, mode switch was in operation because of atrial tachycardia. Atrial pacing threshold could not be measured, but atrial wave amplitude was 1.9 mV, ventricle amplitude and pacing threshold did not change either. Therefore, the cause of ventricular pacing above the upper rate was unknown. In this case, remote monitoring had performed and ventricular high rate episodes were captured in the remote monitoring record. Because of atrial tachycardia with 1 to 1 ventricular conduction, ventricular sensing was recognized as a ventricular premature beat. The mode switch was in operation and device mode had changed to DDI. In addition, device counter changed form A-A counter to V-V counter. Because of atrial tachycardia interval and DDI mode, atrial pacing was performed just on the ventricular sensing and ventricular sensing was just in the atrial blanking period and ventricular sensing was ignored. And after paced AV delay interval, ventricular pacing was performed.

Conclusion: We reported a case which the cause of unknown ventricular pacing above the upper rate has been confirmed by referring to remote monitoring records.