Successful radiofrequency catheter ablation for atrial tachycardia guided by Ripple Mapping in postcardiotomy patient

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Introduction: Ripple Mapping is a technique that displays electrogram time-voltage data simultaneously as a bar moving on the surface, resulting in overcoming limitations of traditional 3D mapping technique. Here, we report the case of catheter ablation for atrial tachycardia guided by Ripple Mapping in postcardiotomy patient.

Methods: n/a

Result: A 57-year-old female patient was admitted for ablation of atrial tachycardia. She received surgical repair of atrial septal defect at 17-year-old and had a history of admission for tachycardia induced cardiomyopathy 6 months ago. She was treated by beta blocker for rate control, but heart rate control was poor. Hence, we performed electrophysiological study and catheter ablation for atrial tachycardia. During tachycardia, the activation sequence was evaluated using a PentaRay catheter. Entrainment study was performed from several right atrial sites such as septum, posterior wall, and carvotricuspid isthmus (CTI) and showed that postpacing interval (PPI) were equal to cycle length (CL) at all sites. Ripple Mapping showed reentrant circuit including slow conduction at lower crista terminalis. We performed line ablation from crista terminalis to inferior vena cava, but CL was not changed. Entrainment study showed that PPI was not equal to CL at posterior wall. We performed additionally line ablation from crista terminalis to superior vena cava (SVC) and CTI, but tachycardia sustained without change in CL. Remapping revealed fragmented potential at crista terminalis and Ripple Mapping also showed wavefront exiting from slow conduction at the same site. Radiofrequency ablation at the critical isthmus in crista terminalis terminated the tachycardia.

Conclusion: In the case of complex atrial tachycardia, Ripple Mapping was useful for identification of a critical isthmus and optimal ablation site.