Catheter Ablation of Peri-Conduit Ventricular Tachycardia in a Patient with Rastelli Procedure for Double Outlet Right Ventricle with Malposition of Great Arteries

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Occurrence of ventricular tachycardia (VT) remains a risk in repaired congenital heart disease (CHD).¹⁻³ We report a case of successful catheter ablation of drug-refractory peri-conduit VT in a patient with Rastelli-type repair using a right ventricle-to-pulmonary artery (RV-PA) conduit. Electroanatomic activation and voltage maps of the RV were created and merged with cardiac CT using the CARTO system v4.3 (Biosense Webster, Diamond Bar, CA, USA) and an open-irrigated tip Thermocool™ catheter (Biosense Webster) (Fig. 1). During electrophysiological study, programmed stimulation induced 2 VTs, including a left bundle branch block morphology with superior and inferior axes (clinical VT, Fig. 2A and Fig. 2B, respectively). Entrainment and/or activation mapping identified the 2 VT circuits sharing a common conduction isthmus localized between the tricuspid annulus (surgical scar) and the RV-PA conduit (Fig. 2). The exit of VT1 was located between the superior tricuspid annulus and RV-PA conduit (Fig. 3A, Supplementary Video 1 in the online-only Data Supplement), while VT2 exited at the anterior RV scar border (Fig. 3B). Radiofrequency energy delivered in a temperature-controlled mode at 35–40 Watts targeting an impedance drop of 10 Ohms at the isthmus, where an isolated late potential was recorded, could not induce VT (Fig. 3C).

Anatomical boundaries and surgical scars contribute to the important substrates for VT arrhythmogenesis in repaired CHD and can be eliminated by ablation. Pre-procedural evaluation of surgical

anatomy and image reconstruction provides pivotal information for identifying potential substrates and selecting ablation strategies.^{4,5}

Supplementary Material

The online-only Data Supplement is available with article at <https://doi.org/10.4070/kcj.2017.0012>.

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Fig. 1.

Fig. 2.

Fig. 3.

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