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Repeat ventricular tachycardia ablations using different technologies: the importance of extended nursing competencies in the electrophysiology laboratory: a case report

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Introduction: Treatment of recurrent ventricular tachycardia (VT) in patients with structural heart disease may require repeat ablation procedures, different mapping systems, multiple energy sources, and techniques traditionally associated with interventional cardiology. Such procedures place increasing demands on electrophysiology (EP) nurses and technicians, ranging from proficiency with different platforms to preparation and handling of specialized interventional equipment.

Case report: We present a 68-year-old patient with ischemic cardiomyopathy, severely reduced left ventricular systolic function, a CRT-D, and recurrent monomorphic VT. Three complex ablation procedures were performed because of recurrent arrhythmia. The first procedure incorporated CT/inHEART reconstruction and the CARTO system with radiofrequency (RF) modification of the inferior and inferoseptal scar substrate. During repeat ablation, intracardiac echocardiography, the VIVO system for non-invasive VT localization, and a Sphere-9 dual-energy catheter were used, combining RF and pulsed-field (PF) energy. Following further recurrences, a third procedure was performed using three-dimensional mapping integrated with preprocedural CT. After combined RF/PF substrate modification, slower VT remained inducible and the strategy was extended to the coronary venous system. Following venography, the middle cardiac vein was cannulated, and a coronary guidewire, microcatheter, and over-the-wire balloon were introduced. After venous occlusion, 96% ethanol was administered, resulting in progressive slowing and termination of VT. Non-sustained monomorphic VT was subsequently inducible. The complexity of these procedures required EP nurses to rapidly adapt between mapping and ablation platforms, understand RF and PFA technologies, and safely prepare and handle interventional equipment. An important advantage of our centre is that EP nurses are also trained in interventional cardiology procedures, enabling efficient preparation and an immediate transition to coronary guidewires, microcatheters, balloons, and other interventional materials when an electrophysiological procedure evolves into a hybrid intervention.[1-3]

Conclusion: Contemporary complex VT ablation increasingly crosses the boundaries of individual platforms, energy sources, and the traditional separation between electrophysiology and interventional cardiology. Broad technical competencies of EP nurses, including familiarity with interventional equipment, may substantially contribute to procedural safety, continuity, and efficiency.

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