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Isolated left atrial posterior wall tachycardia

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Abstract

A case of macroreentry tachycardia of the isolated posterior left atrium is presented after surgical and subsequent catheter ablation.

3-dimensional systems

A 64-year-old woman was admitted for atrial flutter. She underwent mitral valve replacement for mitral stenosis and surgical ablation for atrial fibrillation 5 years ago. However, no surgical record was available. Since the operation, she had one cardioversion for flutter and one for atrial fibrillation. During electrophysiology study a cavotricuspid isthmus (CTI) dependent flutter was diagnosed, which converted to a left atrial (LA) tachycardia during CTI ablation. After transseptal puncture the pulmonary veins (PV) were mapped first considering the previous surgical ablation, likely involving PV isolation. The left upper (LUPV) and right lower (RLPV) veins showed PV signals, the rest of the PVs were silent. Activation mapping showed mid-diastolic, long, fractionated signals on the posterior wall. Left PVs isolation was attempted first by encircling ablation. During radiofrequency (RF) delivery on the left anterior PV ridge sinus rhythm ensued. However, a dissociated tachycardia continued in the posterior LA, including the LUPV and RLPV. When the circular mapping catheter was moved on the posterior wall, rotational activation during isolated tachycardia was revealed (Figure A and B). A single RF application at the site with long, fractionated electrogram terminated the tachycardia (Figure C). Posterior LA wall isolation persisted throughout the waiting period. Based on the findings box

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isolation of the posterior LA was likely the attempted surgical lesion set, with a conduction gap at the left anterior PV ridge.

This case demonstrates that a macroreentry circuit can persist after isolation of the LA posterior wall dissociated from the rest of the atria.

Figure

A. CARTO electroanatomical map obtained from the LA during tachycardia. Ablation tags can be seen encircling the left PVs. A circular mapping catheter (CMC) is positioned on the posterior wall. B. Surface ECG leads I, II, V₁ and V₆, together with intracardiac electrograms from the CMC and coronary sinus catheter (CS) during isolated LA posterior wall tachycardia. Continuous, circular activation is revealed by the CMC. C. The tachycardia is terminated by radiofrequency application close to CMC pole no. 6.

