

IMAGES IN ELECTROPHYSIOLOGY

Posterolateral Line



An Alternative to Cavotricuspid Isthmus Ablation for Treatment of Peritricuspid Re-Entry in Patients With Dextro-Transposition of the Great Arteries and Mustard Operation

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A 45-year-old man with dextro-transposition of the great arteries and previous Mustard operation was referred for catheter ablation of persistent intra-atrial re-entrant tachycardia (IART). After transbaffle puncture, bipolar voltage mapping showed an area of dense scar in the posterolateral pulmonary venous atrium (PVA) (Figure 1A). Electro-anatomical activation and entrainment mapping demonstrated a counterclockwise peritricuspid IART (Figure 1B). Linear ablation with irrigated radiofrequency between the tricuspid annulus and the posterolateral scar interrupted the arrhythmia with further noninducibility. Bidirectional block was easily demonstrated by pacing on both sides of the ablation line (Figure 1C). There was no IART recurrence during a follow-up of 7 months.

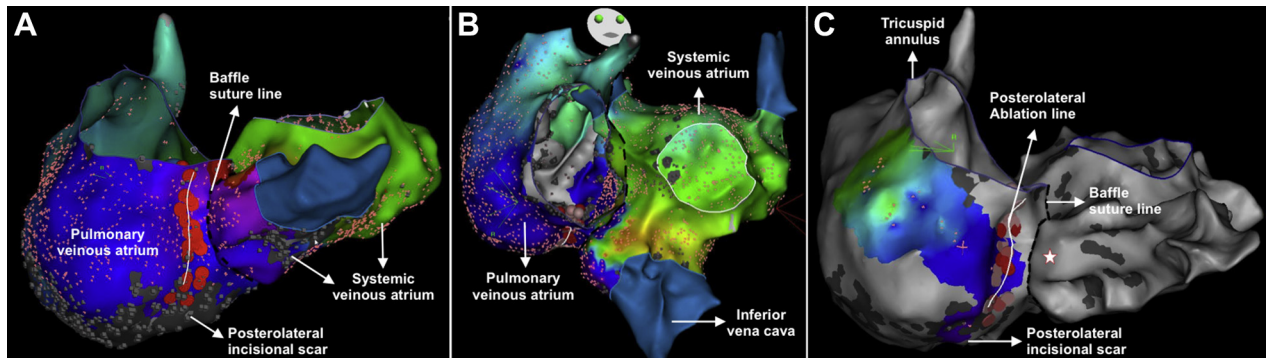
Among IART, the predominant atrial arrhythmias complicating the course of dextro-transposition of

the great arteries several decades after the Senning and Mustard operation, peri-tricuspid re-entry is the most frequent form (1,2). In anatomically normal hearts, peritricuspid re-entry is treated by cavotricuspid isthmus (CTI) linear ablation, as CTI provides 2 anatomical conduction barriers at its extremities, namely the inferior vena cava and the tricuspid annulus. After an atrial switch operation, the CTI is transected by the baffle suture, partitioning the CTI into both sides of the baffle. Therefore CTI ablation is necessarily biatrial, crossing the suture line (3). Whereas high rates of acute procedural success are reported with biatrial CTI ablation, long-term IART recurrences are reported in 30% of patients and are mostly represented by peritricuspid re-entry recurrences and IART involving the incisional scar of the PVA posterolateral wall (4). In this case, we used an alternative to CTI ablation by creating a line of block between tricuspid annulus

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FIGURE 1 Linear Ablation Between the Tricuspid Annulus and the Posterolateral Scar to Address Peritricuspid IART



Linear ablation between the tricuspid annulus and the posterolateral scar to address peritricuspid intra-atrial re-entrant tachycardia (IART) in a 45-year-old patient with D-transposition of the great arteries palliated with the Mustard atrial switch operation. **(A)** A dense incisional scar is found in the posterolateral aspect of the pulmonary venous atrium (anteroposterior view with 60° caudal angulation). **(B)** Biatrial activation mapping showing a peritricuspid (atrioventricular valve of the systemic right ventricle) counterclockwise macro-re-entrant tachyarrhythmia (anteroposterior view with 10° caudal angulation). **(C)** Within the pulmonary venous atrium, a posterolateral ablation line joining the tricuspid annulus and the posterolateral incisional scar (**white line and red dots** indicating the ablation points) is performed afar from the baffle suture line. Following ablation, longer activation delays are recorded closer to the ablation line when pacing in the inferior systemic baffle (**white star**), demonstrating unidirectional block, and bidirectional block is further verified by pacing at the other side of the line.

and the PVA posterolateral scar, which, in our experience, is always found in Mustard recipients. Consequently, the ablation occurred entirely in the PVA. This alternative technique might have the advantage to be performed afar from the suture line and to prevent future IART involving the PVA posterolateral wall.

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