

# The muscle bundle approach for catheter ablation of the cavotricuspid isthmus: a propensity score-matched cohort study

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## Abstract

Introduction Pathological studies have demonstrated that the cavotricuspid isthmus (CTI) is often composed of discrete muscle bundles that correlate with high-voltage local electrograms. The main objective was to demonstrate that ablation of high-voltage muscle bundles in the cavotricuspid isthmus (CTI), identified using an intracardiac mapping system, reduces radiofrequency (RF) time compared to the conventional technique. Methods A retrospective analysis of patients who had undergone CTI ablation guided by a mapping system. The patients were divided into two groups according to operator experience and selected by propensity score-matched analysis: group A, RF delivery in high-voltage bundles and group B, RF delivery producing a contiguous line of ablation lesions along the entire CTI length. Results Thirty-eight patients [92.1% male, 64 yrs (57-70)] were selected, 19 in each group. There were no differences in baseline characteristics or clinical results: success (A: 94.7% vs B: 94.7%), complications (A: 5.3% vs B: 0%) and recurrence (A: 10.5% vs B: 5.3%). In the procedures in group A, fewer RF applications were delivered [14 (9–19) vs 20 (2–25);  $P < 0.05$ ] with greater contact force [14.5 g (13–16.2) vs 12 g (9–14);  $P < 0.01$ ] and greater lesion size index (LSI) [5.3 (4.9–6) vs 4.5 (4.1–4.7);  $P < 0.001$ ]. The RF time was less ( $P < 0.001$ ) in group A [310 s (211–479) vs 577 s (312–858)]. Conclusions Application of RF in CTI muscle bundles reduces RF time, compared to conventional linear ablation, with similar clinical results.

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