

Bachmann bundle impairment following linear ablation of left anterior wall: impact on left atrial function

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Abstract

Background: We aimed to evaluate the effect of Bachmann bundle (BB) impairment on electrical and mechanical function of the left atrium (LA), as well as the long-term clinical impact of such impairment. Design: We measured activation time in the five LA walls in 56 patients with atrial fibrillation. LA reservoir, conduit, and contractile function were also evaluated. Patients were divided into two groups based on ablation strategy: the circumferential pulmonary vein isolation (CPVI) group and CPVI with anterior wall linear ablation (LAWA) group. Patients in the CPVI+LAWA group were divided into two sub-groups based on ECG differences following ablation: the BB impairment group and intact BB group. LA activation time and function were then compared between the ablation strategy groups and the CPVI+LAWA subgroups. Results: Patients in the CPVI+LAWA group exhibited longer activation times in the anterior and lateral walls of the LA, poorer LA synchrony, and reduced LA contractile and reservoir function when compared with those in the CPVI group. In the BB impairment subgroup, we observed a discrepancy between electrical/mechanical remodeling. Among five walls, activation time was longest in this region. BB impairment was also associated with reduced LA function. Conclusion: Significant changes in LA function and conductivity were observed in patients with anterior wall ablation, especially those with iatrogenic BB impairment.

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