FEASIBILITY OF ADJUNCTIVE PERCUTANEOUS EPICARDIAL MAPPING AND ABLATION OF ATRIAL FIBRILLATION: COMPREHENSIVE VALIDATION OF LESION TRANSMURALITY

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Background: Recurrences of atrial fibrillation after ablation have been attributed to gaps and non-transmural ablation lesions.

Methods: Percutaneous access to the pericardial space was obtained by posterior subxiphoid puncture in patients with recurrence that had incomplete pulmonary vein isolation due to the proximity of the esophagus for potential balloon displacement. Epicardial mapping was performed via the oblique sinus after endocardial ablation was performed to verify transmural ablation effects of the lesion set.

Results: 5 patients underwent combined epicardial-endocardial mapping of atrial fibrillation. Complete mapping of the posterior wall was achieved in all patients, with mapping limited by to the superior and right and left recesses. Pulmonary vein isolation was the common endpoint for all procedures and a balloon was placed in 2 patients to displace the esophagus due to temperature rises during ablation. In 2 patients, epicardial capture loss was observed despite endocardial capture loss and bidirectional block. In 1 patient, isolation of the posterior wall was verified on the epicardium after an endocardial box lesion set was performed. No bleeding (>5 cc) was seen in all patients, obviating the need for pericardial drain placement.

Conclusion: Epicardial mapping and ablation of atrial fibrillation via a percutaneous approach is safe and feasible. Transmural block and capture loss around the pulmonary veins and posterior wall can be assessed and verified.