A Crescent Lesion Set Avoiding Esophageal Contact is not Inferior to Standard WACA for Paroxysmal Afib: A Pilot Study

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**Background**

- Radiofrequency ablation using wide area circumferential ablation (WACA) is the standard approach for paroxysmal atrial fibrillation (pAF).
- Invariably the posterior wall requires RFA to isolate the pulmonary veins (PV). However, excessive heating of the posterior wall can lead to catastrophic esophageal injury.
- It has been reported that pulmonary vein isolation can be achieved without fully encircling the PV antra.
- When WACA is not feasible then a semilunar/crescent lesion set (CL) limiting posterior wall ablation can be considered.

**Methods**

- A non-randomized prospective study comparing highly symptomatic patients with pAF who underwent WACA with a study group who had a CL applied to the posterior wall.
- A multielectrode (pentarray) and irrigated tip ablation (Thermacool SF, Biosense Webster, USA) catheters were used for all cases.
- The criteria for employing a CL was heating > 0.5°C as recorded by luminal esophageal temperature probe or identifying a visually thin posterior wall.
- Both cohorts were followed longitudinally with frequent ambulatory monitoring and clinical evaluations.
- The survival endpoint was a low/mild AF burden as defined as one or less episodes at any time during follow-up.

**Results**

- A total of 33 patients were followed, 19 WACA, 14 CL. All PVs were isolated as determined by entrance and exit block.
- There were no differences in the clinical variables (age, gender, left atrial size and comorbidities) however follow-up was longer in the WACA group (210 vs 58 days, p < 0.00025).
- In addition, the procedure times were less with CL (135 vs 166 minutes, p < 0.025) as expected.
- Overall, both groups exhibited a low AF burden (1 or less clinical episode captured on follow up) [WACA 74% (95% CI 54, 94)]; [CL 79% (95% CI 57, 100)].
- There was no statistical difference in the number of patients maintaining a low AF burden as depicted with the Kaplan-Meier curves (log rank test, p = 0.134).

**Conclusion**

- CL strategy does not appear to be inferior to standard WACA technique when avoiding the esophagus is a concern. Larger studies and longer follow-up data are needed to validate these findings.

**Images and Figures**

- PA view of electroanatomic map of left atrium exhibiting crescent lesion, note no RF done on posterior limb of right WACA
- Red arrows denote esophageal course, posterior to right PV

**References**


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