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

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A Crescent Lesion Set Avoiding Esophageal Contact is Not Inferior to Standard WACA For Paroxysmal A-fib: A Pilot Study

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Background

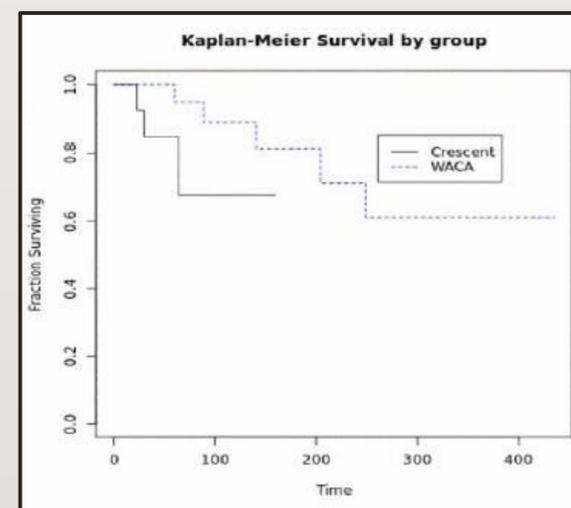
- Radiofrequency ablation using wide area circumferential ablation (WACA) is the standard approach for paroxysmal atrial fibrillation (pAF).
- Invariably the posterior wall requires RFA to isolate the pulmonary veins (PV). However, excessive heating of the posterior wall can lead to catastrophic esophageal 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 > 0.5C 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

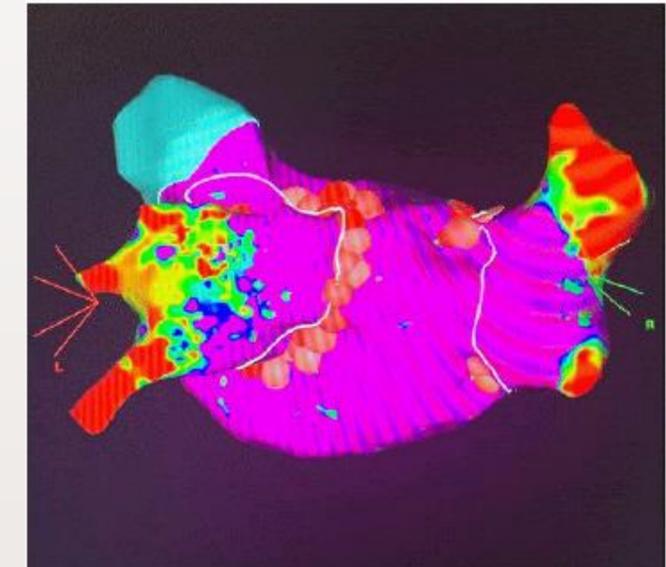
- A total of 33 patients were followed, 19 WACA, 14 CL. All PVs were isolated as determined by entrance and exit block.
- There were no differences in the clinical variables (age, gender, left atrial size and comorbidities) however follow-up was longer in the WACA group (210 vs 58 days, $p < 0.00025$).
- 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, $p = 0.134$).



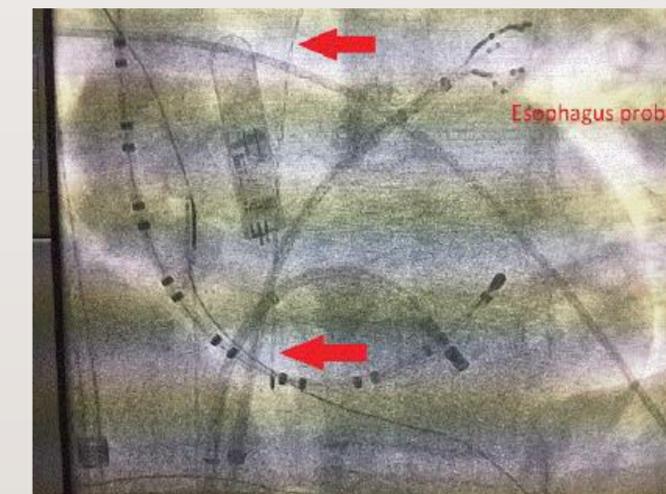
Conclusion

- 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

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