659

Left atrial wall thickness evaluation during atrial fibrillation redo procedures

Teres C.; Soto D.; Jauregui B.; Penela D.; Ordonez A.; Chauca A.; Ramirez C.; Oller G.; Jornet A.; Palet J.; Santana D.; Panaro A.; Maldonado G.; Carballo J.; Berruezo A.

Teknon Medical Centre, Barcelona, Spain

Funding Acknowledgements: Dr Teres was funded by Swiss Heartrhythm Foundation

Introduction: pulmonary vein (PV) reconnections due to gaps on circumferential ablation lines are responsible for atrial fibrillation recurrences after catheter ablation. We sought to analyze the local left atrial wall thickness (LAWT) of PV line gaps at AF redo ablation during real-time catheter positioning. LAWT was measured on the MDCT 3D reconstruction and fused with the LA anatomy using CARTO-merge.

Objective: To analyze the relationship between local reconnection gaps and the LAWT during AF redo procedures.

Methods: Single-Center cohort study that included 41 consecutive patients referred for AF redo procedure. All patients had a MDCT prior to the ablation procedure. LAWT maps were semi-automatically computed from the MDCT as the local distance between the LA endo and epicardium. Each PV line was subdivided into 8 segments and mean LAWT was computed. During the procedure, the local gap was defined as the earliest activation site at the reconnected segment of the circumferential PV line (Figure 1A & 1B).

Results: 41 patients [31 (75.6%) male, age 60 ± 10 years] were included. Mean LAWT was 1.36 ± 0.20 mm. Mean PV circumferential line WT was higher in left PVs than in the right PVs 1.68 ± 0.57 vs. 1.31 ± 0.39 mm $p < 0.001$ respectively. Mean WT of the reconnected points was 44% higher than the mean WT of the segment where the reconnection was located. Mean reconnection point WT was at the 87th percentile of the circumferential line in the LPVs and at the 76th percentile in the RPVs. The reconnected point WT was higher in the LPVs than RPVs 2.13 ± 1.14 vs. 1.47 ± 0.48 mm $p < 0.001$ respectively. The most frequent location for reconnections was the left anterior carina (71%), with a mean WT of 2.24 ± 0.91mm; and the right anterior carina (56%) with a mean WT of 1.57 ± 0.62mm (Figure 2A & 2B).

Conclusions: Reconnection points were more frequently present in the thicker segments of the PV circumferential line. The most frequently reconnected segment was the anterior carina in both right and left PVs. Atrial wall thickness maps derived from MDCT are useful to guide AF redo procedures.

Abstract Figure. 1) Activation & WT map; 2) Segment WT