

SPOTLIGHT

A rare case of unusual scar in atrial fibrillation ablation: The “Yin-Yang” left atrium

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Left atrium voltage assessment is essential in planning an atrial fibrillation catheter ablation. One of the key tools to validate the scar density is the electroanatomic reconstruction by the ultra-high definition mapping system. The voltage map can define the scar density, setting the

values according to predefined parameters. A 78-year-old male, with history of hypertension and diabetes mellitus type II, with paroxysmal atrial fibrillation and P wave progressive decreasing voltage in sinus rhythm (Figure 1A), underwent a pulmonary vein isolation procedure.

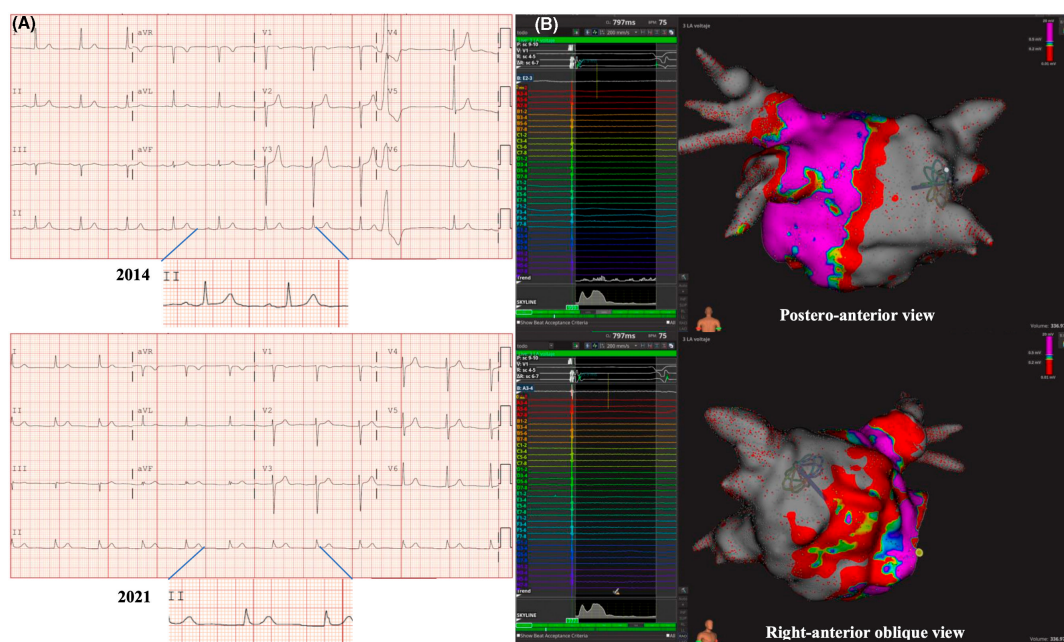
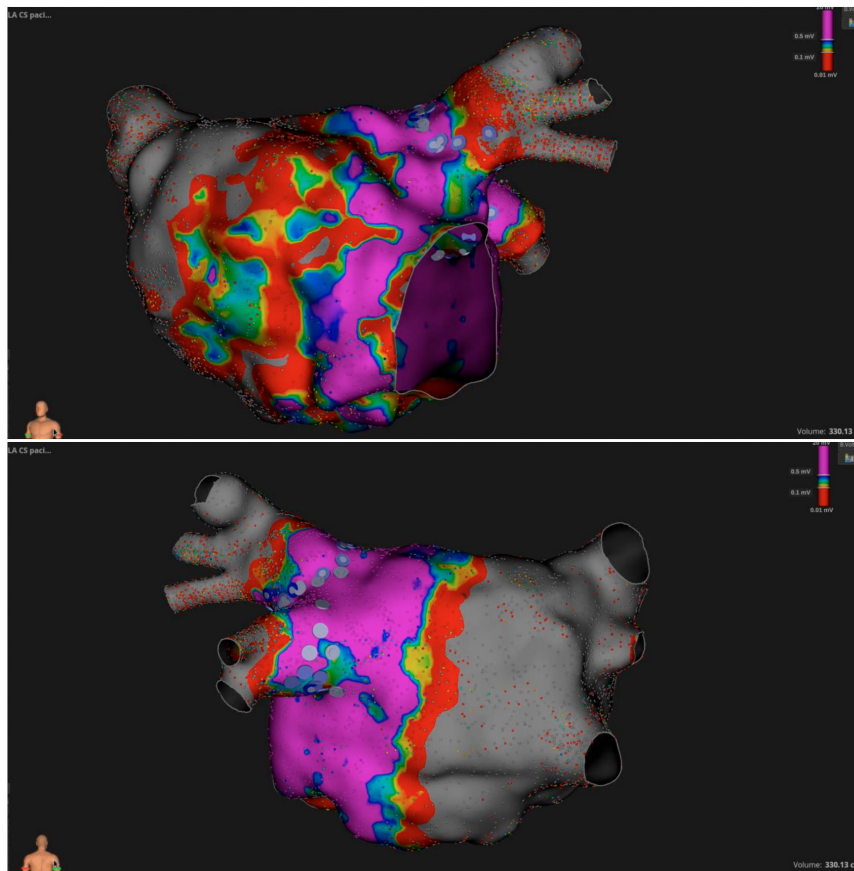


FIGURE 1 (A) Electrocardiograms recorded in 2014 and 2021. Chronological ECG assessment, specifically PR interval and P wave height, could be important as a predictor of atrial myopathy progression and it is related to the worsening of the atrial remodeling. (B) Left atrium electroanatomic 3-D mapping. The voltage map shows a dense scar at the right septal portion of the left atrium. There are not any voltage as it is demonstrated by the diagnostic catheter.

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FIGURE 2 Electroanatomic 3-D voltage map of left atrium and left pulmonary vein isolation. Voltage map showing the dense scar at the right-sided pulmonary veins and the left pulmonary veins ablation.



The voltage map shows the absence of any voltage (dense scar) in the septal half of the left atrium and right-sided pulmonary veins (Figure 1B). Left wide antral circumferential ablation was performed successfully (Figure 2). The transthoracic echocardiogram revealed severe left atrial enlargement (LA diameter: 55mm; Indexed LA volume: 58ml/m²) and LV ejection fraction of 52%. There were not any relevant transthoracic echocardiogram and/or specific findings suggestive of cardiac or systemic amyloidosis respectively. Cardiac-MRI done before the procedure was not evaluable. Cardiac sarcoidosis (CS) may be a possible differential diagnostic; nonetheless, there were not clinical signs of heart failure, ventricular arrhythmias, AV block, and/or significant amount of LGE in the cardiac MRI that could suspect of clinical or subclinical CS. Consequently, fibrosis due to left atrial enlargement may explain the absence of any voltage described. Evaluating LA scar dimension by 3-D electroanatomic mapping could be important at the time of suspect, since some infiltrative diseases that cannot be detected.¹⁻⁵ In conclusion, LA tissue characterization is a useful tool for patients with atrial arrhythmias are referred to ablation procedures.

CONFLICT OF INTEREST

The authors have no conflict to disclose.

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