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Is the Thomas Ring an Effective Approach to Prevent Recurrence of Persistent Atrial Fibrillation with Advanced Atrial Fibrosis?

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Is the Thomas Ring an Effective Approach to Prevent Recurrence of Persistent Atrial Fibrillation with Advanced Atrial Fibrosis?

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Introduction

Pulmonary vein isolation (PVI) with the Thomas ring (TR, single ring posterior wall isolation) has been shown to reduce recurrence of primarily paroxysmal atrial fibrillation (AF). Atrial fibrosis, as an important pathophysiological contributor, is directly linked to AF recurrence and resistance to therapy. More studies suggest that the posterior left atrium plays an important role in the genesis and maintenance of AF. The effect of TR ablation on outcomes of persistent AF (PeAF) with advanced atrial fibrosis has not been adequately studied. We hypothesized that TR would result in lower AF recurrence.

Methods

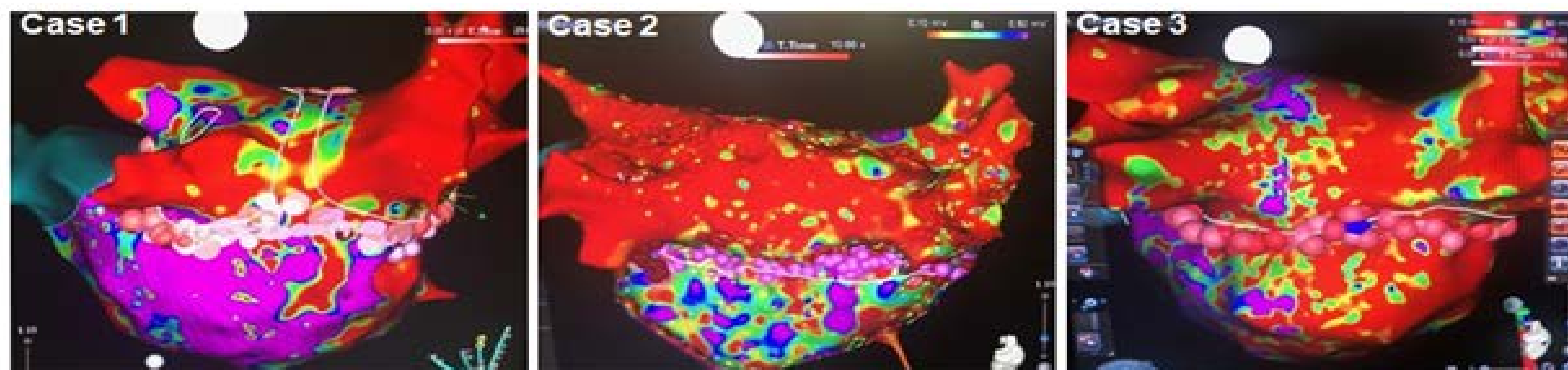
Observational series of three PeAF patients who underwent TR. The degree of atrial fibrosis was determined by electroanatomic bipolar voltage mapping (CARTO, Diamond Bar, CA, USA). The reduced voltage areas reflected the degree and location of fibrotic substrate in the left atrium.

Results

Table 1. Case Characteristics

Case no.	Age (years)	Gender	Pre-op Afib duration (months)	LA Size (mm)	Procedure time (mins)	Fluoro time	Prior ablations	Follow-up time (days)	Follow-up rhythm	CHA DS-VASc
1	82	Female	6	46	108	3.5	0	199	S	4
2	78	Female	60	46	123	2.8	1	143	S	4
3	78	Female	72	43	156	7.2	0	49	AF	4

Figure 1. Left Atrial Voltage Mapping



Left atrial voltage mapping in three cases of PeAF showing the severity and localization of left atrial fibrosis. Voltage scale: 0.1 mV – 0.5 mV

Conclusion

Diffuse and very low voltage areas, indicating severe fibrotic atrial myopathy, were found in all three patients, with a preponderance for the posterior wall. After ablation, two of three patients remained in sinus rhythm (S). One case of AF recurrence was observed during short-term follow-up. TR may be effective in preventing PeAF recurrence with late stage atrial fibrosis. However, more data and longer follow-up are needed.

References

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