

Anatomical Proximity of the Ganglionated Plexi and Epicardial Adipose Tissue (EAT): Implications for 3D Reconstructed EAT-based Atrial Fibrillation Ablation

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Introduction: Ganglionated Plexi (GPs) modification has been shown to be effective for atrial fibrillation (AF) ablation. Epicardial adipose tissue (EAT) on the left atrium (LA-EAT) contains GPs. The relationship between the exact distribution of GPs and LA-EAT, and whether linear LA ablation guided by 3-dimensional (3D) reconstructed LA-EAT (EAT-based ablation) has favorable effects on the outcome after AF ablation remains unclear.

Methods: In 15 AF patients, 3D CT images of the LA and LA-EAT were reconstructed and merged with the NavX-based LA/pulmonary vein (PV) geometry to investigate the relationship between EATs and GPs locations. Before ablation, high-frequency

stimulation was performed at the five major GP locations. The presence of **GPs** was defined by a positive vagal response.

Results: Eighty-percent of the GP locations overlapped with EAT locations, which were commonly located at sites between the LA appendage and left PV antrum, LA roof, and anterior right PV antrum. The remaining GP sites did not overlap with the EAT locations, but were located near the EAT of the LA floor along the coronary sinus. In 60 persistent AF (PsAF) patients, an EAT-based ablation following the PV isolation was performed, and 78% of those were free from AF during the 16-month median follow-up.

Conclusions: The majority of the GP sites were located adjacent to the EAT. 3D reconstructed EAT-based ablation in addition to PV isolation yields relatively high success rates. These findings suggest that an EAT-based ablation might be an additional PsAF ablation strategy.