

IRE Ablation for Atrial Fibrillation Treatment: Research Status and Prospect

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Abstract

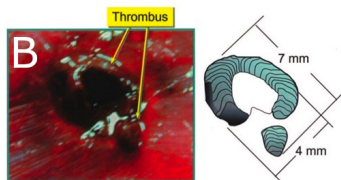
Atrial fibrillation (AFib) is the most common arrhythmia characterized by rapid and irregular beating of the atrial chambers of the heart. Besides medication, thermal ablation of myocardial tissue is currently the “gold standard” of clinical treatment of AFib, which works by destroying local myocardial tissue to isolate faulty electrical signals causing the arrhythmia within the local area. It is usually performed by heating local tissue with radiofrequency (RF) electrical current, creating conduction-blocking lesions that stop AFib. However, problems associated with RF ablation are related to thermal side effect, such as PVI, thrombus formation, cardiac tamponade, phrenic nerve injury, esophageal fistula, and even stroke. The recent developed ablation modality of using IRE, appears to solve all these problems with less procedure time. This paper highlights the significant event of the IRE ablation in the timeline, and also compare IRE and RF ablation in safety and efficacy.

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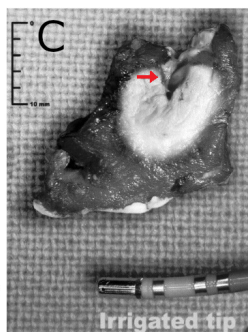
Review of IRE on AFib treatment.pdf available at <https://authorea.com/users/349070/articles/474210-ire-ablation-for-atrial-fibrillation-treatment-research-status-and-prospect>



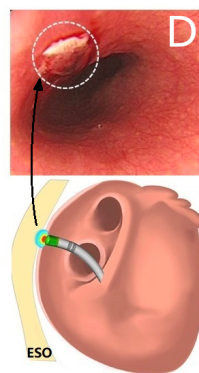
Source: Di Biase et al. JACC 2007



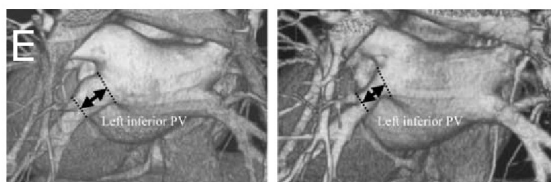
Source: Katsuaki Yokoyama et al, Circulation, 2006



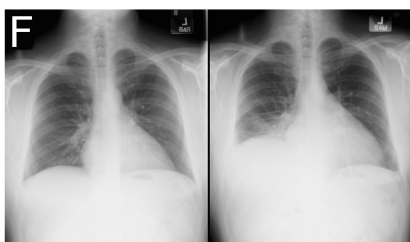
Source: Aravinda Thiagalingam et al, Pacing Clin. Electrophysiol, 2003



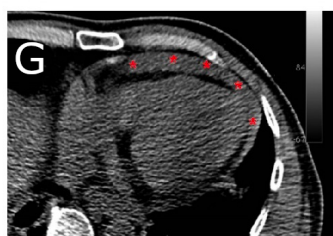
Source: Pei Zhang et al. Scientific Reports 2020



Source: Marehiko Ueda et al. PACE 2005



Source: Jennifer Mears et al. JAFIB 2009



Source: Kok Beng Loh et al. KJR 2012

