

# **Three-dimensional esophagus reconstruction and monitoring during ablation of atrial fibrillation: Combination of two imaging techniques.**

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## **Source**

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## **Abstract**

### **OBJECTIVE:**

The purpose of the study was to determine the accuracy of a novel three-dimensional (3D) imaging integration technique of the esophagus combining multislice computed tomography (CT) scan of the esophagus into the three-dimensional (3D) electroanatomic map just before pulmonary vein (PV) isolation.

### **METHODS:**

We included 94 consecutive patients with symptomatic atrial fibrillation (AF) who underwent ablation. All patients had a CT performed prior procedure that was integrated to the 3D reconstruction electromechanical map of the atrium and the esophagus (Verismo(TM), EnSite® NavX version 7.0J, St. Jude Medical Inc.). During the procedure, a quadripolar electrophysiology catheter placed in the esophagus was used for mapping and to monitor esophagus position. Integrated (fusion) images were used to determinate the esophagus position compared to the left atrium posterior wall and its relationship with PV ostiums. We compared esophagus position by CT and fusion images.

### **RESULTS:**

Procedural success was 97.9% with no fatal complications. Esophagus locations were as follows: left 57%, right 7%, oblique course 11% and central 25%. Agreements in esophageal position between CT and fusion imaging techniques were 83.3% and 64% for patients with a recent ( $\leq 48$ h) and non-recent CT assessment ( $> 48$ h), respectively. Throughout the procedure, esophagus stability was 88.8% (lateral displacement  $< 15$ mm). Ablative strategy was modified in 51% of the cases due to awareness of esophagus location.

### **CONCLUSION:**

Guidance of AF ablation with 3D fusion images was safe and effective. CT images of the esophagus, especially if acquired within 48h before ablation, ensure appropriate intraprocedural localization of the esophagus.

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