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Journal of Arrhythmia

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## Short Report

## Reliable temperature probe monitoring - Favorable esophageal motion for consistent probe contact during atrial fibrillation catheter ablation

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## ARTICLE INFO

## Article history:

Received 6 September 2012

Received in revised form

24 November 2012

Accepted 11 December 2012

Available online 23 February 2013

## Keywords:

Atrial fibrillation

Catheter ablation

Left atrial-esophageal fistula

Esophageal temperature probe monitoring

## ABSTRACT

Left atrial-esophageal (LA-Eso) fistula is now a well-recognized and fatal complication of percutaneous catheter ablation performed using radiofrequency energy for atrial fibrillation (AF). We noted an important esophageal motion during temperature monitoring by a multipolar sensing probe, which could resolve several potential concerns of accurate esophageal temperature measurement and could consequently minimize esophageal injuries including LA-Eso fistulas during catheter ablation for AF.

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## 1. Introduction

Left atrial-esophageal (LA-Eso) fistula is currently a well-recognized complication of percutaneous catheter ablation performed using radiofrequency (RF) energy for atrial fibrillation (AF).

Although its estimated incidence is only approximately 0.1%, it is a fatal complication that results in significant morbidity and mortality [1–4]. Some clinical studies have indicated the importance of luminal esophageal temperature (LET) monitoring using deflectable or single- or multi-thermocouple temperature probes to prevent fistula formation [5–7]. However, several potential limitations can impair accurate LET measurement, especially since optimal contact is required between the probe and esophageal wall.

We performed barium esophagography after the transnasal insertion of a multi-thermocouple temperature probe (SensiTherm, St. Jude Medical, Inc., St. Paul, MN, USA) and noted that the temperature probe maintained full contact with the esophageal wall although sufficient space was observed on the pre-registered three-dimensional computed tomography image (Fig. 1).

Because of the consistent esophageal peristalsis that was confirmed on the periprocedural regular esophagography, the temperature probe remained in close contact with the esophageal wall throughout the ablation procedure.

Although further examination is still needed, monitoring using this multi-thermocouple probe could accurately reflect heating of the esophageal wall during RF therapy for AF.

## Conflicts of interest

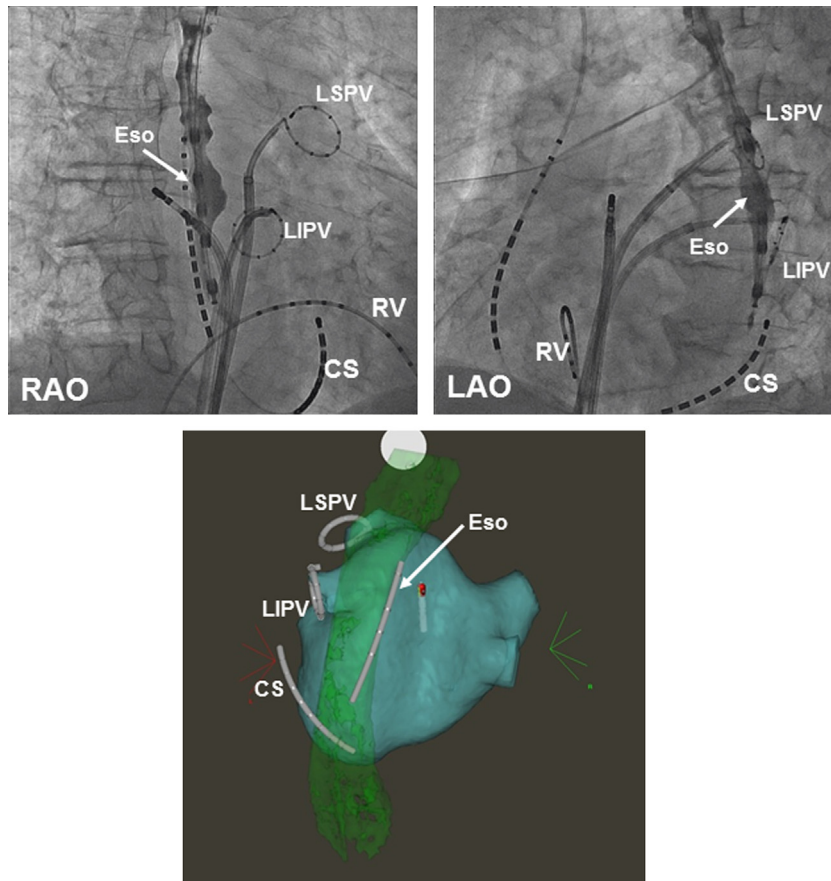
No conflicts of interest disclosed.

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**Fig. 1.** Barium esophagography performed after a temperature probe was inserted. Note the lack of space between the probe and the esophageal wall (white arrow), unlike the three-dimensional computed tomography image (below). A segmented anatomical three-dimensional image of the esophagus exported into the CARTO mapping system depicted in green. Two spiral catheters are visible in the ipsilateral left pulmonary veins. Eso, esophageal temperature probe; CS, coronary sinus; LSPV, left superior pulmonary vein; LIPV, left inferior pulmonary vein; RV, right ventricle.

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