

Thermal Esophageal Lesions After Radiofrequency Catheter Ablation of Left Atrial Arrhythmias

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Abstract

OBJECTIVES:

Radiofrequency catheter ablation in patients with left atrial arrhythmias may cause esophageal damage because of the close proximity between the posterior wall of the left atrium and the esophagus. The aim of this prospective study was to determine the incidence, endoscopic characterization, and endoluminal temperature dependency of esophageal thermal lesions after catheter ablation.

METHODS:

In all, 185 consecutive patients with symptomatic atrial fibrillation or left atrial macro-re-entrant tachycardia who underwent left atrial radiofrequency catheter ablation were scheduled for upper gastrointestinal endoscopy. During the ablation procedure, a non-fluoroscopic three-dimensional system for catheter orientation, computed tomography (CT) image integration, and activation mapping was used. The esophagus was intubated with a temperature probe for visualization within the three-dimensional image and for real-time intraluminal temperature monitoring.

RESULTS:

A total of 27 (14.6%) asymptomatic ulcer-like or hemorrhagic esophageal thermal lesions with a diameter of 2–16 mm were observed. Esophageal lesions did not occur below an intraluminal esophageal temperature of 41 °C. The maximal temperature in the esophagus was significantly higher in patients with thermal lesions than in patients without lesions (42.6±1.7 °C vs. 41.4±1.7 °C, P=0.003). For every 1 °C increase in endoluminal temperature, the odds of an esophageal lesion increased by a factor of 1.36 (95% confidence interval (CI) 1.07–1.74, P=0.012). No progression of the lesions was observed during follow-up endoscopies.

CONCLUSIONS:

Localized esophageal ulcer-like lesion is a frequent event after left atrial catheter ablation and can be found in patients whose intraluminal temperature has reached at least 41 °C.