

Continuous nonfluoroscopic localization of the esophagus during radiofrequency catheter ablation

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Esophageal Mapping During Atrial Fibrillation Ablation. Introduction: Atrial-esophageal fistula formation is a dreaded complication of radiofrequency catheter ablation for atrial fibrillation. Esophageal localization is of potential value in avoiding lesion placement where the left atrium is juxtaposed to the esophagus. Methods and Results: Twenty-seven patients underwent 33 pulmonary vein encirclement procedures. All the patients received general anesthesia with inhalational agents and either a fenestrated laryngeal mask airway or an endotracheal tube. A diagnostic electrophysiologic catheter was inserted into the esophagus, and a virtual esophageal tube was created using an electroanatomic mapping system. In all cases, the catheter was placed without difficulty and satisfactory virtual esophageal images were created. The catheter remained in the esophagus until the end of each ablation procedure. Esophageal catheter location during and after the ablation was compared with the initial location. Areas of close proximity between the left atrium and esophagus were easily identified. Change in esophageal location was not observed. Identification of esophageal proximity to the pulmonary veins allowed for identification of high-risk cases. In such cases, the planned procedure was modified to avoid esophageal injury (12 of 27 patients). Conclusions: (1) Real-time localization of esophageal position using a nonfluoroscopic mapping system during atrial fibrillation ablation is safe, practical, and straightforward. (2) Among patients who receive general anesthesia, esophageal position appears to be static, suggesting that one initial virtual image is sufficient for the duration of an ablation procedure.