



Figure.

Visualization of the Esophagus During Pulmonary Vein Isolation

Atrioesophageal fistula is one of the most serious complications of pulmonary vein (PV) isolation. We describe a technique to monitor esophageal position during this procedure.

A 39-year-old patient with atrial fibrillation underwent pulmonary vein isolation under guidance of the EnSite NavX™ electroanatomic navigation system. To avert unintentional esophageal injury, a tetrapolar electrode for transesophageal stimulation was inserted by nasogastric access, advanced to a retroatrial position, and connected to the NavX™ system. The image shows a cranial view (A) and a posterior view (B), with the tetrapolar electrode (dark blue) within the esophagus between the 2 ablation lines around the right and left pulmonary veins, and at a distance from the roof line (red dots). The electrode used as reference is seen at the level of the interventricular septum.

This technique allows continuous visualization of the esophageal position; hence, the operator can avoid application of radiofrequency in the vicinity of the

esophagus or reduce the potency and duration of application. Esophageal displacement caused by peristaltic movements, respiration, etc, are monitored in real time. Esophageal lesions and atrioesophageal fistula can be easily averted with this approach. The main advantage with respect to other recently reported techniques is that there is no need for a flexible urethral catheter for electrode insertion. This simplifies the procedure and allows free movement of the catheter within the esophagus. A relevant limitation, apart from those inherent to the navigation system (risk of map displacement, what you see is not “real” but only mapped anatomy) is the fact that the true dimensions and anatomic limitations of the esophagus are not visualized.

Jorge Toquero, Ignacio Fernández-Lozano,
and Juan M. Escudier

Unidad de Arritmias, Servicio de Cardiología,
Hospital Puerta de Hierro,
Madrid, Spain