

## Left Atrial–Esophageal Fistula After Pulmonary Vein Isolation A Cautionary Tale

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A 56-year-old man presented with a 3-day history of progressive epigastric burning, dysphagia, and tactile fever. These symptoms started approximately 4 weeks after an uncomplicated pulmonary vein isolation procedure for atrial fibrillation had been performed at an outside facility. At the time of presentation, the patient was found to be febrile, and blood cultures were positive for *Streptococcus viridans* growth. Appropriate antibiotic therapy was started at that time. Chest x-ray did not reveal any abnormal findings. Because endocarditis was suspected, transthoracic and transesophageal echocardiograms were performed, but no valvular abnormalities were found. Subsequently, he developed right arm and right leg weakness and a naming deficit associated with anomia, acalculia, and agraphia. He was then transferred to our hospital for further evaluation.

At the time of transfer, the patient was still febrile, with a temperature of 39°C. Cardiac examination did not reveal any noteworthy abnormalities, but the patient was noted to have left–right confusion, right-sided neglect, and dense aphasia and anomia. Motor examination revealed weakness in the right arm and right leg. These changes were considered to be consistent with stroke affecting the left hemisphere, including the left parietal, perisylvian, and frontal regions. Brain magnetic resonance imaging revealed multiple subacute embolic events (Figure, C). Given his recent history of a pulmonary vein ablation procedure, a cardiac source for these embolization events was considered likely. A chest computed tomography scan revealed air interposed between the left superior pulmonary vein, within the left atrial appendage (Figure, A), and in the left ventricle (Figure, B). The presence of air in the atrium and the growth of oral flora in blood cultures both suggested the presence of a left atrial–esophageal fistula. The patient was taken to the operating room for repair of the presumed fistula. During surgery, the esophagus was noted to be densely adherent to the parietal

pericardium and the left pulmonary vein (Figure, D). The atrial lesion was closed with a single mattress suture and pericardial pledgets, the atrium was punctured with a needle, and 3 mL of air was aspirated. The esophageal lesion was buttressed with an intercostal muscle flap. Intraoperative ultrasound showed no air in the atrium. The patient's neurological defects were significantly improved after surgery, and the patient was discharged.

Left atrial–esophageal fistula is not a common complication of pulmonary vein isolation, but it is fatal in most reported cases.<sup>1</sup> Fistula formation is the result of thermal injury of esophageal tissues from application of radiofrequency energy to the immediately adjacent left atrium.<sup>2</sup> It is noteworthy that in this patient, the pulmonary vein isolation procedure was standard according to currently accepted criteria: a cooling catheter was used during the ablation procedure, which involved ablation of a right atrial flutter circuit and pulmonary vein isolation in the left atrium.

Symptoms related to left atrial–esophageal fistula typically emerge 1 to 5 weeks after treatment. Fever, malaise, dysphagia, and neurological symptoms in patients with recent catheter ablation of atrial fibrillation should raise suspicion for fistula formation. Endoscopy and transesophageal echocardiography should not be performed, because further embolism or catastrophic bleeding may be caused by the attendant elevation in esophageal pressure. A computed tomography scan of the chest may reveal mediastinal or intravascular air and should be the preferred diagnostic test. The general practitioner should be aware of this complication because it is life threatening, and the early presenting symptoms are frequently nonspecific. Immediate surgical repair is indicated because spontaneous resolution of a left atrial–esophageal fistula has not been reported.

### Disclosures

None.

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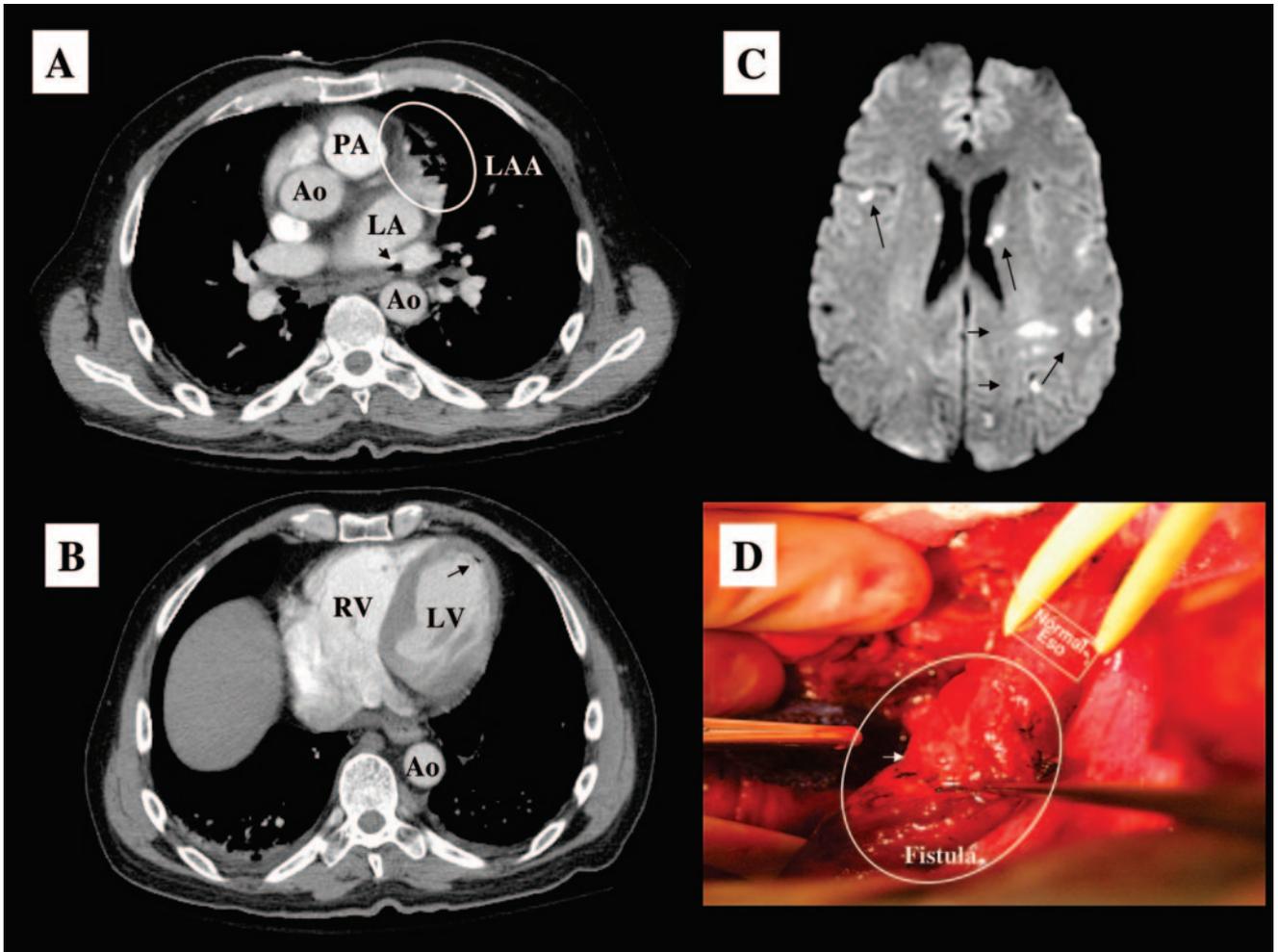
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A, Transverse section of chest computed tomography scan, revealing air in left atrial appendage and left superior pulmonary artery. B, Transverse section of chest computed tomography scan, revealing air in the left ventricle. C, Brain magnetic resonance imaging, revealing embolic events throughout both hemispheres. D, Intraoperative photograph, revealing affected area of esophagus, including abscess (arrow).

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