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Title: Left Atrial- Esophageal Fistula After Atrial Fibrillation Radiofrequency Ablation

Introduction: The development of a left atrial- esophageal fistula (LA-EF) after atrial fibrillation (Afib) radiofrequency ablation (RFA) is a rare but potentially catastrophic complication. A high index of suspicion along with early diagnostic and therapeutic intervention is required if disaster is to be avoided. We present the anesthetic management of LA-EF that presented as a case of severe odynophagia following Afib RFA.

Case Presentation: A 74 yo female with chronic Afib presented to the electrophysiology (EP) lab for RFA. She underwent a successful RFA with bilateral pulmonary vein isolation (PVI) under general anesthesia that included periods of apnea (to achieve a "quiet" operative field). The highest esophageal temperature recorded was 35.5°C. The patient was extubated and discharged the next day. Over the next two weeks the patient complained of severe heartburn, chest discomfort and worsening odynophagia unrelieved by proton pump inhibitors. Escalating symptomatology along with a fever of 102°F led the patient to seek emergency medical care at an outside hospital. A chest CT (CCT) with i.v. and oral contrast (fig 1) revealed air and extravasated contrast in the mediastinum. The patient was immediately air-lifted to our institution where she underwent emergent left thoracotomy with repair of a LA-EF. Except for the recurrence of Afib the patient had an uneventful postoperative period and was discharged 9 days later neurologically intact.

Discussion: The occurrence of LA-EF post-RFA is rare, approximately 0.04%. Despite the rare incidence, mortality from this complication is high, 93% in one series. These patients can present with a variety of symptoms ranging from gastrointestinal (dyspepsia, dysphagia, odynophagia) to more ominous neurologic symptoms (seizures, strokes, recalcitrant agitation), septic shock and death. A high index of suspicion remains the cornerstone to successful intervention.

Many strategies have been employed to decrease the occurrence LA-EF and other complications of RFA. Monitoring the RFA power output and decreasing it when ablation is occurring near the area of esophageal contact is one strategy. Also, esophageal temperature monitoring assessing for a temperature rise > 2°C above baseline; or mechanical displacement of the esophagus with a TEE probe, for example are other strategies.

Another area of interest that must be explored is how different ventilation strategies (jet, apnea, low tidal volume, regular) can affect the incidence of this and other complications of RFA. At this point there is no definitive best practice.

Finally, the surgical approach: thoracotomy [right vs. left], sternotomy, with or without CPB is wrought with numerous pros and cons. These dilemmas warrant collaborative efforts amongst multiple subspecialties.

1. J Card Surg 2011;26:555-8

2. Ann Thorac Surg 2012;94:91-3

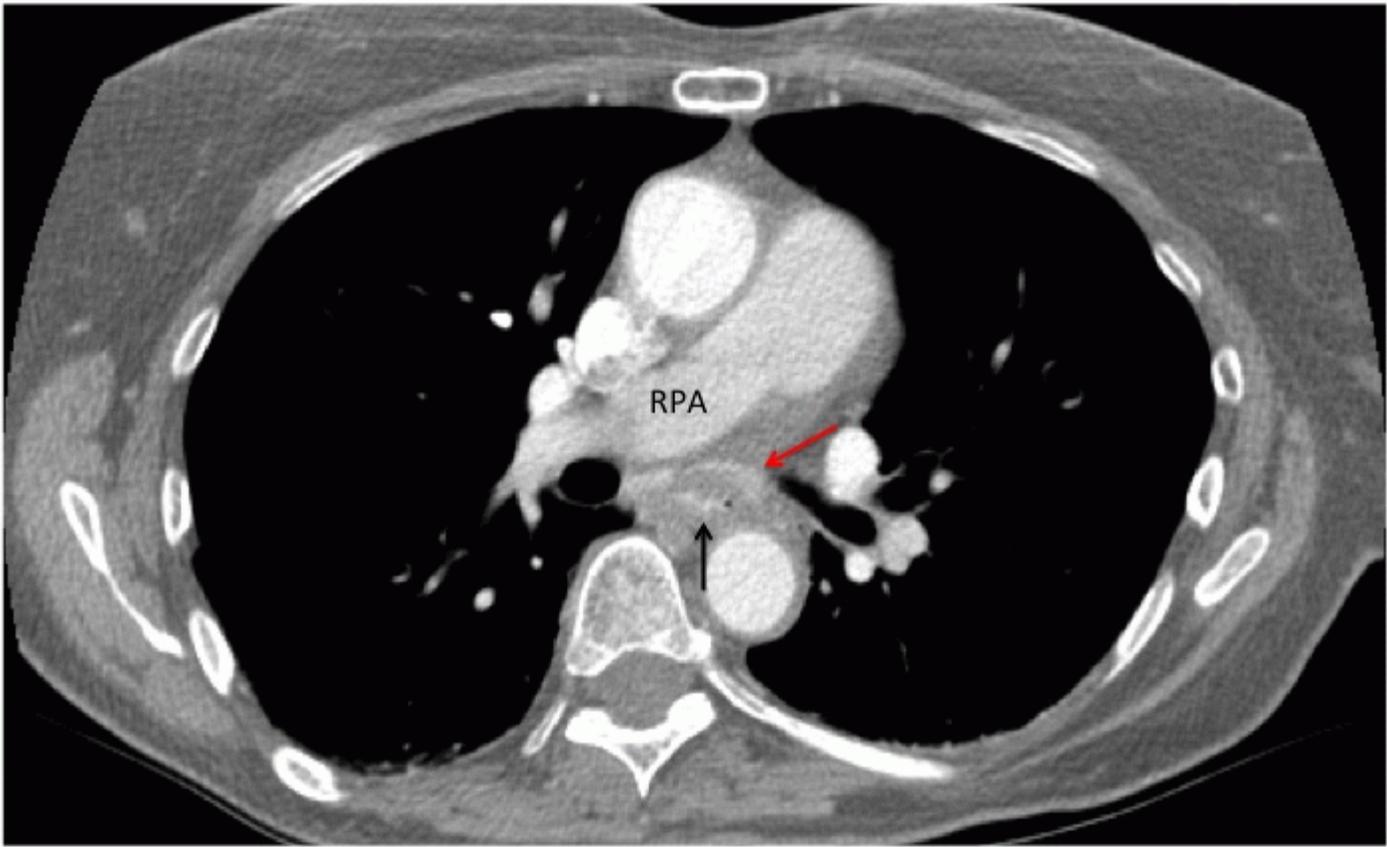


Fig 1- Axial Chest CT with iv and oral contrast. Extravasated contrast is demonstrated in mediastinum (red arrow) between esophagus (posterior, black arrow) and right pulmonary artery (anterior, labeled). Abbreviation RPA- right pulmonary artery .
