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Commentary: Postablation atrial-esophageal fistula—the way to a man's heart?

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Fistula formation between the left atrium and the esophagus resulting from catheter ablation for atrial fibrillation is a devastating complication, with a mortality as high as 80%.¹ The Cleveland Clinic reported 9 cases over 10 years with a 100% mortality, showing the lethality even in very experienced surgery centers.² This is made worse by the fact that the original catheter ablation for atrial fibrillation is usually not for a disease with high mortality and often done in young patients. A nationwide survey of electrophysiologists revealed an incidence of 0.03% for this complication.³ The initial presentation of this complication can be subtle and nonspecific, such as fever and malaise or devastating such as stroke from air embolism. Findings on imaging can be diagnostic, with an air–fluid level in the left atrium, or very subtle, such as a small collection of air between the esophagus and left atrium. The goal is to detect this complication and close the fistula before stroke occurs and to prevent sepsis. The rarity and lethality of this complication, however, has made it difficult for surgeons to develop a uniform and successful approach.

In this issue of the *Journal*, Guenthart and colleagues⁴ present a 35-year-old male patient who underwent pulmonary vein isolation and catheter ablation for atrial fibrillation. He presented 3 weeks postablation with pleuritic chest pain, shortness of breath, and blurry vision. A computed tomography scan with oral contrast showed contrast in the left atrium. A presumptive diagnosis of esophageal left atrial fistula was made, and the patient was



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CENTRAL MESSAGE

Esophageal left atrial fistula is a rare but potentially lethal complication of left atrial ablation. Early recognition, appropriate planning, and surgery are imperative for survival.

transferred to the authors' institution. Surgical repair started with a median sternotomy, bicaval atria inflow cannulation, crossclamping, and cardioplegic arrest to allow minimal opportunity for further air embolism. The authors specifically point out that endoscopy before surgery should be avoided to minimize the risk of air embolism, and we fully support with this approach. The left atrial defect was exposed through the interatrial groove and repaired by exclusion using a bovine pericardial patch. Once this is completed, both the risk of air embolism and the risk of excessive bleeding during the esophageal exposure and repair are minimized. The patient was weaned from bypass, the chest closed, and the patient positioned for right thoracotomy. The esophagus was mobilized, the fistula divided with a surgical stapler, and the esophageal defect identified and closed in layers. Finally, the defect was covered with a vascularized intercostal muscle flap. A localized leak developed but was treated easily with an esophageal stent. Cultures grew *Lactobacillus*, and prolonged antibiotic treatment was initiated. The patient made a full recovery with stent removal at day 40 and resumption of a normal diet.

The treatment of postablation left atrial esophageal fistula has varied greatly. Cervical esophageal ligation and decompression,⁵ esophageal stenting without direct fistula closure,⁶ and extracardiac repair without bypass⁷ have all been described but generally have poor outcomes. We agree with the authors that minimal manipulation of the esophagus should be done before fistula closure to reduce the risk of air embolism. Avoidance of esophageal manipulation includes (1) no preoperative diagnostic endoscopy,

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(2) no positive pressure mask ventilation on induction of anesthesia, (3) no pre-repair insertion of a nasogastric tube, and (4) no pre-repair transesophageal echocardiogram. Intracardiac left atrial fistula closure with crossclamp and cardioplegic arrest are a necessary first step in our opinion also to optimize the changes of successful outcome. At our institution, this is done by our cardiac surgery team. Subsequent to this, the patient has immediate esophageal repair by our thoracic surgery partners. Closure of esophageal injuries is best done in our opinion by surgeons who operate on the esophagus frequently. Identifying both the limits of both the mucosal injury as well as the muscular defect is imperative to allow successful closure to reduce the incidence of esophageal leak. Once the esophagus is repaired, we believe covering the repair with vascularized tissue is important and have used both intercostal muscle flaps as well as an omental pedicle. A reinforced primary repair using a meticulous watertight suture technique to secure the intercostal muscle pedicle over the esophageal repair provides an additional “belt and suspenders” layer to reduce the risk of postoperative uncontained esophageal leak.⁸ Cultures should be obtained at the time of surgery and plans for extended antibiotics should be made. Before reintroducing oral feeding, esophageal imaging with contrast should be performed to certain the esophageal repair is intact. In patients presenting with sepsis, the rate of postoperative esophageal leak is increased.⁸ Deployment of a temporary esophageal stent can assist in the management of a postoperative esophageal leak.

We fully agree with the authors that the successful treatment of this deadly complication relies on early recognition, diagnosis, and the appropriate approach to surgical correction. We congratulate them on this successful outcome in difficult circumstances and thank them for providing the surgical community with a well thought out and illustrated plan for dealing with left atrial esophageal fistula. The way to a man’s heart may be through his stomach—but it definitely is not through the esophagus.

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