Case Report: Management of a Pericardioesophageal Fistula with Endoluminal Wound Vacuum Therapy

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Background

Esophageal perforation is a morbid complication of esophageal instrumentation, trauma, or vomiting. Management of esophageal perforation is dependent upon the defect size, acuity, physiologic status of the patient, and local expertise and can involve surgical, endoscopic, or observational strategies.

More recently, endoluminal wound vacuum therapy has been used in cases of esophageal anastomotic leak, esophageal perforation, and penetrating esophageal trauma. Perforation may result in the formation of a fistula with any of the surrounding thoracic structures.

Pericardioesophageal fistulas (PEF) have been reported as a rare sequelae of radiofrequency cardioablation or as a complication of late-stage esophageal cancer.

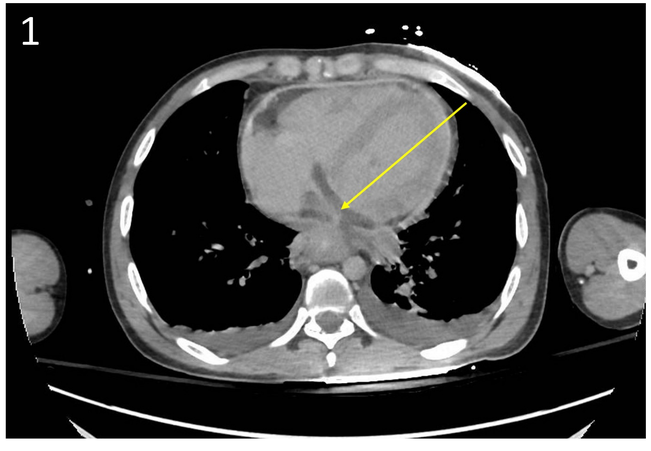
Herein, we present a unique case of a PEF secondary to esophageal ulceration which was definitively managed with endoluminal wound vacuum therapy.

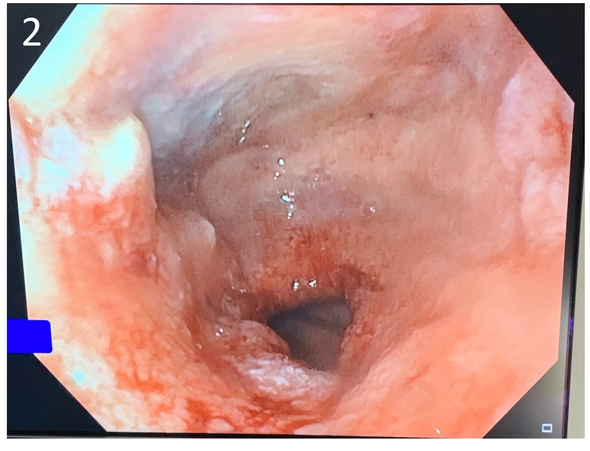
Case Report: Introduction

- 36-year-old male with history of gastroesophageal reflux esophagitis presented with worsening chronic chest pain, nausea and vomiting, and hemodynamic instability.
- Electrocardiogram was initially suggestive of myocardial infarction.
- Bedside ultrasound showed a large pericardial effusion and he was diagnosed with cardiac tamponade.

Case Report: Clinical Course

- The patient developed cardiac arrest requiring cardiopulmonary resuscitation and pericardiocentesis, leading to return of spontaneous circulation within four minutes. The pericardiocentesis returned air and bile-stained fluid.
- Computed tomography of the chest with enteric contrast demonstrated a PEF with communication between the distal esophagus and pericardium, and esophageal contents seen tracking along the mediastinum (**Figure 1**).
- In the operating room, a subxiphoid pericardial drain was placed with immediate improvement in hemodynamics. Esophagogastroduodenoscopy (EGD) showed a large ulcer in the distal esophagus. A percutaneous gastrostomy with jejunal port tube was placed for enteral feeding, followed by an endoluminal wound vacuum placed over the ulcer and suctioned via nasogastric tube.
- The patient was started on intravenous proton pump inhibitor therapy, antibiotics, and renal replacement therapy.
- The patient underwent EGD and sponge exchanges every few days (**Figure 2**). Following three sponge changes there was healthy granulation tissue without extravasation of contrast on fluoroscopy. The sponge was removed on hospital day 10.
- Resolution of the PEF was confirmed by echocardiogram and esophagram. Unfortunately, the patient remained critically ill and succumbed to multiple organ failure present on admission.





EVAC Placement

Endoluminal wound vacuum assisted closure (EVAC) therapy has gained popularity as a novel management tool for gastrointestinal leaks. Under endoscopic guidance, a sponge attached to a nasogastric tube is placed over the defect and connected to continuous negative pressure; the sponge is replaced every 3 to 5 days. Closure of esophageal perforation with EVAC has a reported clinical success rate of 89%. In addition to wound closure, EVAC provides source control, promotes tissue reperfusion, and debrides necrotic tissue.

Conclusions

In this case, twice-weekly sponge changes facilitates assessment of healing progress and resulted in ultimate resolution of the defect. This case suggests that endoluminal wound vacuum therapy may be an effective treatment modality for PEF.

Figure 1: CT esophagram demonstrating PEF (yellow arrow)
Figure 2: endoscopic healing after 2 days of EVAC therapy