This case highlights the efficacy of Endoluminal Vacuum Therapy (EVT) as a minimally invasive method for treating esophageal wall defects.

EVT offers rapid and targeted perforation closure, which could lead to improved patient outcomes, and reduced patient morbidity.

Rarity in Spontaneity: A Case Report of Spontaneous Esophageal Perforation Managed by Both Non-Minimally Invasive and Minimally Invasive Techniques

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BACKGROUND

- Spontaneous Esophageal Perforation is a life-threatening condition that is traditionally managed with challenging open surgical procedures, associated with high morbidity and mortality rates.
- Minimally invasive endoscopic techniques have emerged as promising alternatives.
- This case report, adhering to SCARE guidelines, details the management of such a perforation using both open surgery and minimally invasive methods, in a tertiary government hospital.

CASE PRESENTATION

A 25-year-old Filipino male, ECOG 0, normal BMI, presented with a 2-month history of cough, accompanied with intermittent epigastric pain, dyspnea, fever (Tmax 38C), and retrosternal chest pain. Patient denied a history of vomiting, alcoholism, or potential iatrogenic causes.

FINDINGS & INVESTIGATIONS

Diagnostic workup revealed a pleural effusion of the right thorax, requiring drainage via chest tube thoracostomy (CTT). Purulent output prompted medical management for empyema thoracis. Despite one week of CTT, output persisted.

Figure 1A

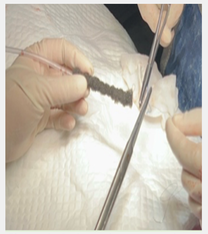


Figure 1B

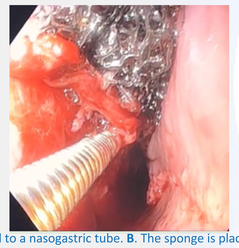


Figure 1C



Figure 1D



Figure 1. A. A surgical sponge is connected to a nasogastric tube. **B**. The sponge is placed intraluminally through an Endoscopic procedure. **C**. Sponge covering the area of perforation. **D**. Fluoroscopic view without extravasation of contrast. (A paper clip is used as a market for the perforation area.)

Figure 2A

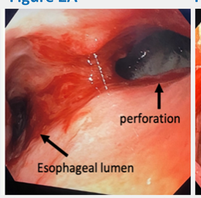


Figure 2B

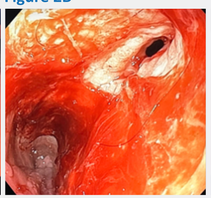


Figure 2C

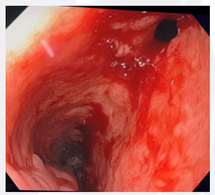


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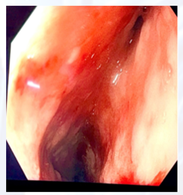


Figure 2E

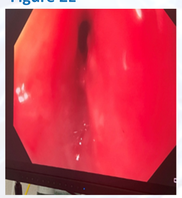
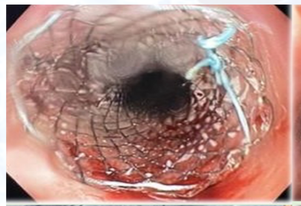


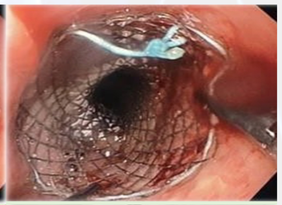
Figure 2. A. Day 0 - Initial Endoscopic view of esophageal perforation **B**. Day 5 - First endoscopic sponge exchange **C**. Day 8 - Second endoscopic sponge exchange **D**. day 13 - Third endoscopic sponge exchange. **E**. Day 20 - Fourth Endoscopic Sponge Exchange. Stagnant size with ~90% closure of perforation.

INTERVENTIONS AND OUTCOME

- Patient underwent video-assisted thoracoscopic surgery (VATS), which revealed food contents leakage and prompted a posterolateral thoracotomy with multiple pleural drains.
  - Esophagoscopy (EGD) and fluoroscopy revealed a mid-thoracic esophageal perforation (approximately 2 cm).
  - The patient received a tube jejunostomy for enteral feeding, and underwent minimally invasive Endoscopic Vacuum Assisted Closure (EVAC) or Endoluminal Vacuum Therapy (EVT).
  - A sponge connected to a nasogastric tube was endoscopically placed using a piggyback method with an overtube.
  - The sponge was advanced to cover the perforated esophageal lumen.
  - Negative pressure was then applied through the sponge using an external suction pump with a constant pressure of 120-125 mmHg.
- The patient remained stable postoperatively, and underwent four endoscopic sponge exchanges, each spaced 3 to 5 days apart over the course of 20 days. Closure of the esophageal defect exceeded 50% during the first exchange and reached 90% by the fourth.
- A Self Expanding Metal Stent (SEMS) was then endoscopically inserted into the lumen, and secured by endoscopic clips. The patient's diet was advanced to an oral diet after one day. He was discharged on post SEMS insertion day 3, for a total admission of two and a half months.
- Follow-up two weeks later revealed cough cessation, decreased leukocytosis, a healthy weight gain of 4kg, and complete closure of the esophageal defect. The pleural drain and jejunostomy tube were subsequently removed.

A





B



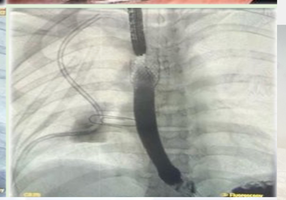


Figure 3. Placement of Fully covered SElf Expanding metal Stent (SEMS) A. Endoluminal view. **B**. Fluoroscopic view (no extravasation of contrast)



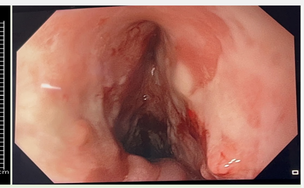


Figure 4. A. normal Chest X Ray on follow up . **B**. complete closure of perforation







Figure 5. A. 2 weeks post discharge. **B**. 3 weeks from post discharge. **C**. 3 months post-discharge (home visit)

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