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## Endoscopic vacuum therapy: management of upper gastrointestinal anastomotic leaks and esophageal perforations

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**KEYWORDS:** Endoluminal vacuum. Upper gastrointestinal leak. Esophageal anastomotic leak. Gastroenteric anastomosis leak. Esophageal perforation.

**ABBREVIATION:**

GI: gastrointestinal

EVAC: endoluminal vacuum

EA: esophageal anastomotic

GE: gastroenteric

EP: esophageal perforation

mm: millimeters

*Dear Editor,*

Upper gastrointestinal (GI) leaks, such as upper anastomotic leaks or esophageal perforations are associated with severe morbidity (53%) and mortality (0,5% to 10%) . Endoluminal vacuum (EVAC) therapy is a promising approach for repairing effectively these defects. The technology functions by applying continuous negative pressure to the wound and it has been shown to treat anastomotic leaks and esophageal perforations effectively, with better results than stents in limited cohorts. [1,2,3,4,5]

Our study describes the results obtained from a series of cases treated with EVAC for the management of esophageal anastomotic (EA) leak following esophagectomy for cancer, gastroenteric (GE) anastomoses leak after bariatric surgery and esophageal perforation (EP).

We retrospectively analyzed ten patients who had an EA and GE anastomoses leaks and EP treated with EVAC. We described the results of the sample in terms of treatment failure, treatment duration, and number of EVAC replacements.

Five patients underwent esophagectomy with neoadjuvant radio-chemotherapy, one patient underwent gastrojejunal bypass bariatric surgery and there were four EP. The median size of mucosal defects was 6,9 mm. None of patients presented signs of ischemic mucosal. EVAC treatment began at a median of two days after diagnosis. The median

duration of treatment was thirteen days and a median of 3,6 interventions were performed in each patient every three to four days. EVAC therapy was finished when the leak was closed or when the treatment failed (figure 1). The mean duration of admission was twenty-seven and a half days. Treatment success rate was 70%. Treatment failure was 30%: two patients required surgery and in one case an endoluminal prosthesis (table 1).

Our study reflects that vacuum therapy is an appropriate non-surgical treatment for the management of postoperative fistulas in the upper gastrointestinal tract and for esophageal perforation, especially in anastomotic fistulas, where this treatment is considered first-line in several centers. Longer treatments are associated with patients who have undergone neoadjuvant chemoradiotherapy and larger fistulas. However, technical aspects such as materials, vacuum pressure, and replacement intervals are not standardized, and further studies are needed to clarify these aspects [1,2,3,4,5].

#### **DECLARATIONS:**

Not applicable. The authors declare no conflict of interest.

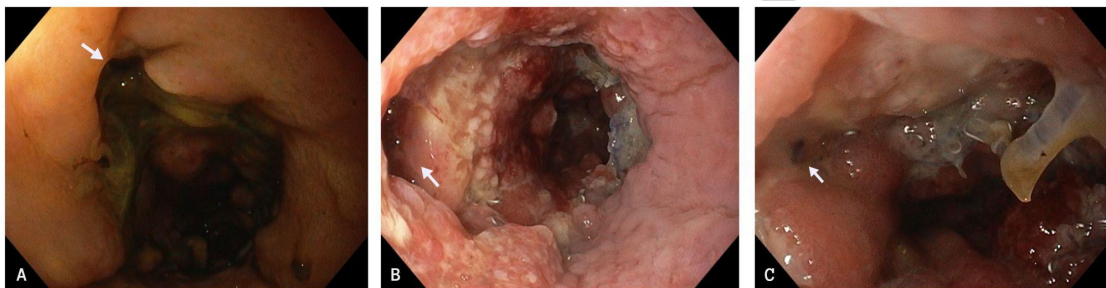
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**Figure 1.** A. Male patient diagnosed with postoperative anastomotic leak after Ivor-Lewis operation for esophageal cancer. The leak size was 5 mm in diameter. B. Second replacement of ESO-sponge®: a decrease in the size of the leak with granulation tissue is evident. C. The anastomotic leak was completely healed twenty-five days after treatment.

\*Color printing\*



**Table 1.** Clinical characteristics

Variables	Median
Patients	10
Male	10
Age, years	63
WBC, $\times 10^3/\mu\text{L}$ 8.59	15002
CRP, mg/dL	25,44
Neoadjuvant treatment	
• No	5
• Yes	5
Operation	
• Ivor-Lewis operation	5
• Roux-in-Y gastrojejunal bypass	1
Esophageal perforation	
• Iatrogenic	2
• Spontaneous	2
Anastomotic leak	
• Time to diagnosis, days	5
• Fistula size, mm	6,9
• Mucosal ischemia on EGD	0
EVAC treatment	
• Time to treatment, days	2
• Duration of EVAC,	13
• Number of interventions 5 (2–12)	3,6
Treatment failure, patients	3



Hospital stay, days	27,5
Mortality	1

WBC: white blood cell, CRP: C-reactive protein, EGD: esophagoduodenoscopy, EVAC: endoscopic vacuum therapy.

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