

# Endoscopic Intraluminal Drainage: An Alternative Treatment for Phlegmonous Esophagitis

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Phlegmonous esophagitis must be treated aggressively; therefore, appropriate antibiotic therapy and drainage are critical. Although a conventional surgical approach has been used previously, internal drainage could be another treatment option in light of advances in endoscopic techniques. We report 2 cases in which patients suffering from phlegmonous esophagitis were successfully treated with endoscopic intraluminal drainage and antibiotics.

**Key words:** 1. Phlegmonous esophagitis  
2. Endoscopic drainage  
3. Esophagitis  
4. Endoscopy

## Case report

### 1) Case 1

A 65-year-old man was transferred to Pusan National University Hospital for an uncontrolled esophageal perforation with an abscess. He had undergone a tracheostomy due to aggravated pneumonia caused by chronic obstructive pulmonary disease and uncontrolled diabetes mellitus (DM) at another hospital. Although his initial vital signs were stable, elevated levels of C-reactive protein (CRP), procalcitonin, and glycated hemoglobin (18.33 ng/dL, 1.06 ng/mL, and 9.2%, respectively) were revealed on initial laboratory tests. A chest computed tomography (CT) scan revealed diffuse esophageal wall thickening with an abscess in the esophageal wall (Fig. 1). Although phlegmonous esophagitis with empyema in the left pleura was suspected, surgical drainage was

not an option considering his poor general condition. Thus, an esophagogastroduodenoscopy (EGD) was performed and a large volume of pus was successfully drained intraluminally. Intravenous antibiotics and parenteral nutrition via a central catheter were maintained beginning on hospital day (HD) 1.

After 20 days, a follow-up EGD study showed a thickened submucosal layer, which contained 2 separate lumens with remnant pus (Fig. 2). We decided to dissect the submucosal layer for better drainage and made a separate hole to form 1 lumen.

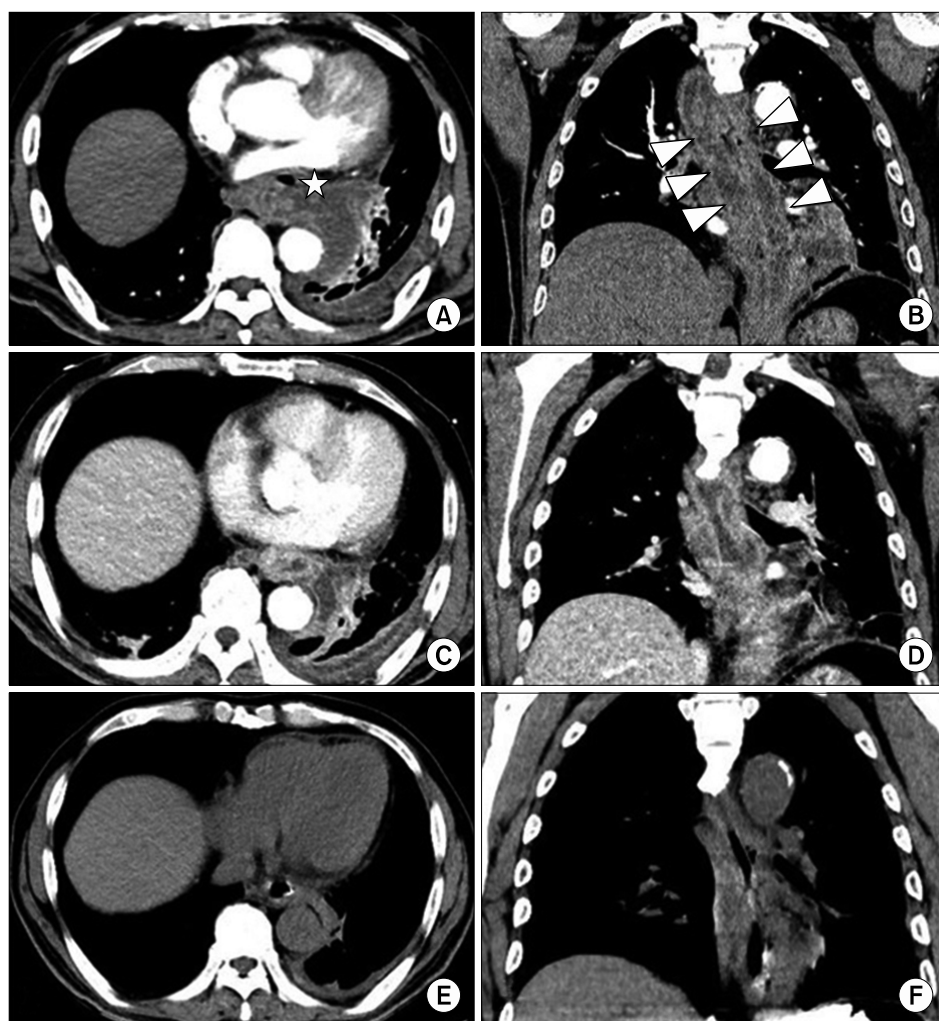
On day 36 after the first EGD study, another EGD study revealed a successfully healed lumen and no pus. A CT scan showed resolution of the esophageal abscess and empyema, and the inflammatory markers had stabilized; oral feeding was slowly initiated after a swallowing test. Antibiotic treatment to manage descending mediastinitis was continued for 6 weeks.

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**Fig. 1.** CT findings before and after treatment of phlegmonous esophagitis. (A) Edematous esophagus with air-bubble formation (asterisk) on the CT axial view. (B) Diffuse esophageal wall thickening and dilatation (white arrowheads) on the CT coronal view before treatment. (C, D) Five days after the first procedure. (E, F) Four days after the second procedure. CT, computed tomography.

After removing the tracheostomy tube, the patient was discharged on day 52 without any other complications.

Written informed consent was obtained from patients.

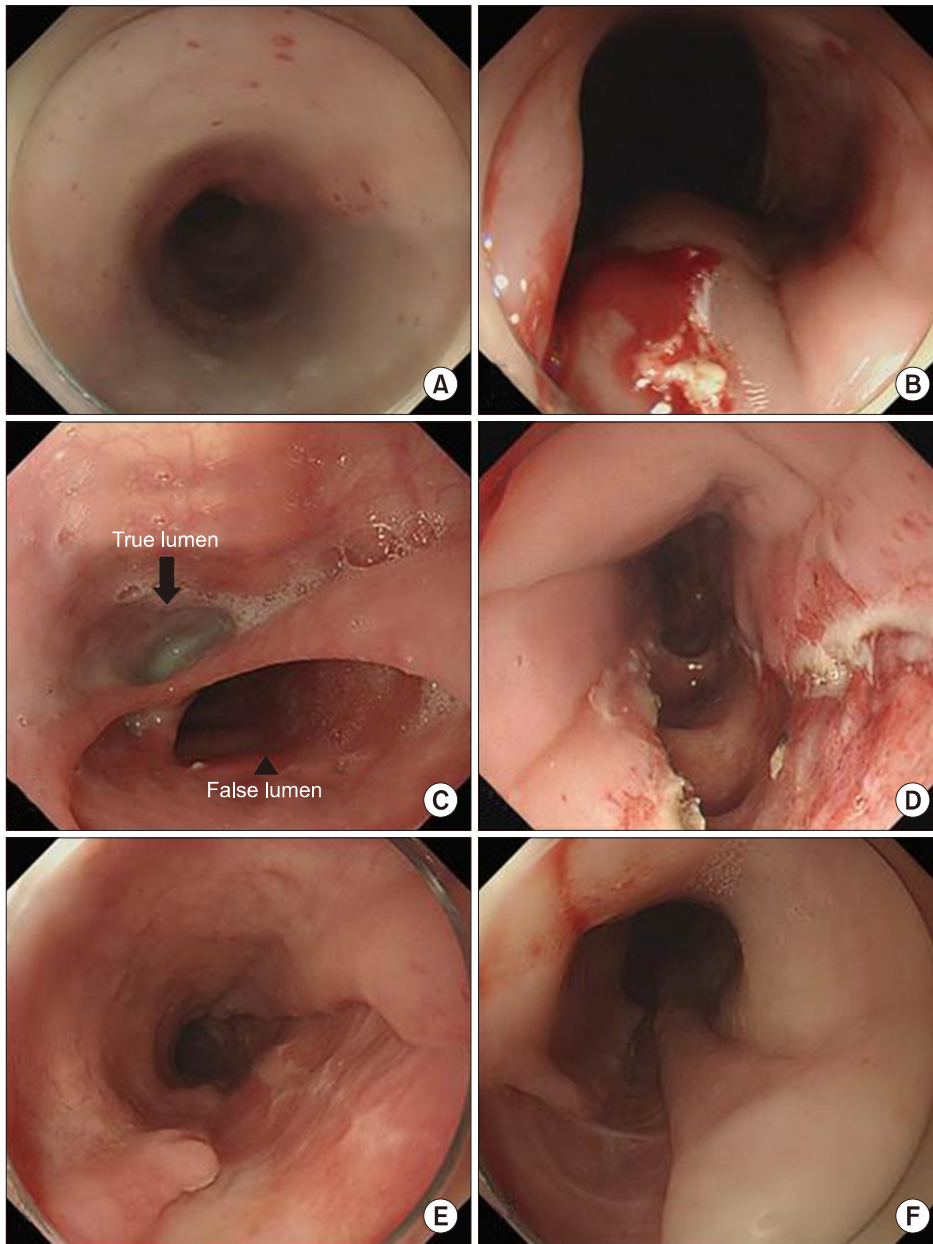
## 2) Case 2

A 57-year-old woman with hematemesis and nausea after EGD at another hospital was transferred to Pusan National University Hospital. A CT scan showed mediastinitis and an abscess around the esophageal wall (Fig. 3). Her vital signs were stable; however, a mild fever of 37.3°C was noted. The laboratory tests showed a white blood cell count of 14,120/ $\mu$ L and a CRP level of 18.02 ng/dL.

Parenteral nutrition support (*nil per os*) and intravenous antibiotics were provided. Intraluminal drain-

age was planned for the air bubbles around the esophageal wall and the abscess in the submucosa. The EGD showed diffuse esophageal wall swelling with a mucosal opening in the upper and lower (15 cm from the upper incisor teeth) parts of the esophagus with multiple fish bones around the upper esophagus and left pyriform sinus. No other endoscopic procedure was necessary due to effective pus drainage through 2 natural openings; however, a rigid laryngoscopic exploration was undertaken to remove the fish bones.

A follow-up EGD study 1 week later revealed no more pus drainage and a healed submucosal opening. A CT scan showed resolution of the esophageal abscess and mediastinitis. After oral feeding was initiated, the patient was discharged on HD 17 without any other complications, including esophageal stric-



**Fig. 2.** Endoscopic findings before and after treatment of phlegmonous esophagitis. (A) Edematous and inflammatory mucosal layer and a scattered pus-like lesion under the mucosal layer. (B) Pus drainage into the lumen after endoscopic mucosal dissection. (C, D) True (black arrow) and false (black arrowhead) lumens 21 days after the first endoscopic dissection and the second endoscopic dissection performed to create 1 lumen. (E, F) Follow-up esophagogastroduodenoscopy study before discharge.

ture, on a follow-up EGD study.

Written informed consent was obtained from patients.

### Discussion

Medical treatment and surgical intervention have been used to treat phlegmonous esophagitis. Medical treatment should be considered in cases without an abscess or with effective pus drainage. Otherwise, a surgical intervention needs to be performed for effec-

tive infection control [1,2].

However, some studies have suggested the possibility and feasibility of endoscopic drainage in limited cases of phlegmonous esophagitis [3]. Endoscopic technology has advanced, permitting less invasive procedures without general anesthesia. Therefore, endoscopy reduces postoperative complications that could possibly develop from general anesthesia, particularly in patients with uncontrolled DM, infection, poor lung function, or an immunocompromised state [1,4].

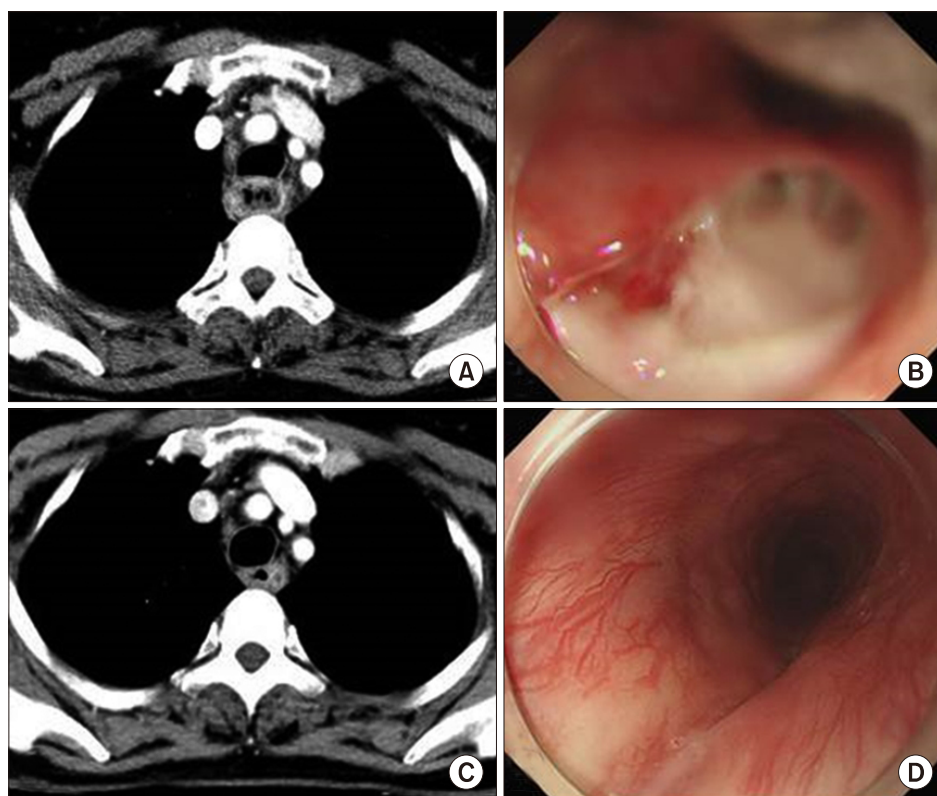


Fig. 3. Computed tomography scan and endoscopic findings before (A, B) and after (C, D) treatment of phlegmonous esophagitis.

We thought that the patient in our first case would not withstand surgical stress well, potentially resulting in postoperative complications. As a result, endoscopic intraluminal drainage was successfully performed, and the patient was discharged without complications. The second case was fairly stable and her disease extent was limited to the cervical esophageal area. We planned an endoscopic intervention rather than surgery. Fortunately, endoscopy showed a mucosal opening resulting from tracks through which fish bones had already passed, which effectively drained the pus, so we observed her for 2 weeks without any additional procedures. A chest CT scan showed well-healed mucosa and resolution of the periesophageal abscess.

Recently, Woo et al. [5] reported that phlegmonous esophagitis was treated using the endoscopic modality. However, in contrast with their article, our case study focuses on not only the diagnostic application of the endoscopic approach, but also presents endoscopy as a treatment tool that could be used for endoscopic dissection by an electrocautery device.

Therefore, an endoscopic evaluation should be performed to decide whether to drain a periesophageal

abscess. In cases where drainage is necessary, endoscopic intraluminal drainage could be a useful modality for patients in whom general anesthesia is high-risk or who are hesitant to undergo surgery.

### Conflict of interest

No potential conflict of interest relevant to this article was reported.

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### References

1. Kim HS, Hwang JH, Hong SS, et al. *Acute diffuse phlegmonous esophagogastritis: a case report*. J Korean Med Sci 2010;25:1532-5.

2. Hu DC, McGrath KM, Jowell PS, Killenberg PG. *Phlegmonous gastritis: successful treatment with antibiotics and resolution documented by EUS*. *Gastrointest Endosc* 2000;52:793-5.
3. Tonouchi A, Kuwabara S, Furukawa K, Matsuzawa N, Kobayashi K. *Phlegmonous esophagitis treated by endoscopic drainage*. *Esophagus* 2017;14:183-7.
4. Chang PC, Wang WL, Hwang TZ, Cheng YJ. *Intramural dissection with mucosal rupture alleviating phlegmonous esophagitis*. *Eur J Cardiothorac Surg* 2012;41:442-4.
5. Woo WG, Do YW, Lee GD, Lee SS. *Phlegmonous esophagitis treated with internal drainage and feeding jejunostomy*. *Korean J Thorac Cardiovasc Surg* 2017;50:453-5.