

# Conservative management of gastroesophageal junction perforation secondary to eosinophilic esophagitis: a case report

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## ABSTRACT

Eosinophilic esophagitis (EoE) is a chronic inflammatory disorder of the esophagus characterized by dysphagia and food impaction. Although uncommon, spontaneous esophageal perforation may occur, most frequently involving the distal esophagus and the gastroesophageal junction. These perforations are typically managed with surgical or endoscopic interventions. Early diagnosis and prompt initiation of treatment within the first 24 hours significantly reduce morbidity and mortality. The aim of this report is to demonstrate that gastroesophageal junction perforation secondary to eosinophilic esophagitis can be successfully managed conservatively, even in delayed presentations, and to contribute to the understanding of treatment strategies for this rare but potentially life-threatening complication. We report the case of a 35-year-old male with a 12-year history of EoE who presented to the emergency department with retrosternal pain, dyspnea, and hematemesis. Five days prior to presentation, he developed a sore throat and cherry-colored diarrhea after consuming grilled chicken and self-administered ibuprofen for symptom relief. Contrast-enhanced imaging and upper endoscopy revealed a perforation at the gastroesophageal junction. Due to the location of the lesion, endoscopic stenting or clipping was considered inappropriate. In the absence of signs of acute abdomen, mediastinitis, or significant fluid collection, a conservative management strategy was adopted. The patient was admitted to the intensive care unit and initially treated with intravenous ceftriaxone (2 g/day) and metronidazole (1.5 g/day), which were later changed to piperacillin-tazobactam (4.5 g every 6 hours) following infectious disease consultation. The patient remained clinically stable, and oral intake was initiated on day 6. Antibiotic therapy was discontinued on day 10, and the patient was discharged without complications. At the three-month follow-up, the patient reported recurrent and progressively worsening dysphagia. Control endoscopy performed at the previously visited center revealed a distal esophageal stricture preventing passage of the gastroscope; therefore, a 12-cm fully covered self-expandable esophageal stent was placed. The stent was removed 20 days later, and the patient remained asymptomatic during the subsequent six-month follow-up period. Spontaneous esophageal perforation secondary to EoE is a rare but potentially life-threatening complication. This case highlights that conservative management may be a viable alternative to surgical or endoscopic intervention not only in early-detected cases but also in carefully selected delayed presentations managed in a multidisciplinary setting. Long-term follow-up remains essential for the early detection and treatment of late complications, such as stricture formation.

**Keywords:** Conservative management; eosinophilic esophagitis; esophageal perforation; stricture.

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## INTRODUCTION

Eosinophilic esophagitis (EoE) is a chronic, immune-mediated esophageal disease characterized by symptoms of esophageal dysfunction and eosinophilic inflammation that persists despite acid suppression. It was first described in 1978, and its pathological features and phenotype were subsequently defined by Attwood et al.<sup>[1]</sup> in 1993 and Straumann et al.<sup>[2]</sup> in 1994.<sup>[1-3]</sup> In recent years, the incidence of EoE has increased markedly, and if left untreated, the disease may lead to significant complications.<sup>[4]</sup> Esophageal perforation (EP) is a life-threatening complication of EoE, occurring in approximately 2% of cases. Perforation most commonly develops as a result of food bolus impaction, esophageal obstruction, or strictures, with an increased risk observed in patients with fibrostenotic disease and prolonged symptom duration.<sup>[5]</sup> EP is associated with high morbidity and mortality rates; therefore, rapid diagnosis and appropriate treatment are of critical importance. Although no standardized management protocol currently exists, conservative approaches may be effective in cases with small and localized perforations.<sup>[6]</sup> In this case report, we present a patient with gastroesophageal junction perforation who was successfully managed using conservative treatment.

## CASE REPORT

This study was conducted in accordance with the Declaration

of Helsinki and was approved by Izmir City Hospital Non-Interventional Ethics Committee (Approval Number: 2025/69, Date: 13.02.2025). Written informed consent was obtained from the patient and his relatives.

A 35-year-old male patient had a 12-year history of dysphagia. An endoscopic biopsy performed previously at another hospital demonstrated eosinophilic infiltration of the esophageal mucosa (>20/hpf) and basal cell hyperplasia, leading to a diagnosis of distal EoE.<sup>[7]</sup> Approximately five days prior to presentation, the patient consumed grilled chicken, after which he developed a sore throat and dark-red, cherry-colored diarrhea. He self-administered ibuprofen for symptom relief. Two days before admission, he began experiencing persistent epigastric burning, which subsequently progressed to retrosternal pain and hematemesis. He presented to the emergency department of an outside hospital, where computed tomography pulmonary angiography raised suspicion of EP. The patient was then transferred to our hospital for further management.

Upon presentation, the patient complained of chest pain and dyspnea. Apart from EoE, he had no known comorbidities, prior abdominal surgery, or history of alcohol or tobacco use. His medical history was notable only for an allergy to house dust. On physical examination, the patient appeared pale and diaphoretic and was in moderate general condition. Vital signs were as follows: pulse rate 102 bpm, body temperature 36.6°C; respiratory rate 36 breaths/min; oxygen satu-

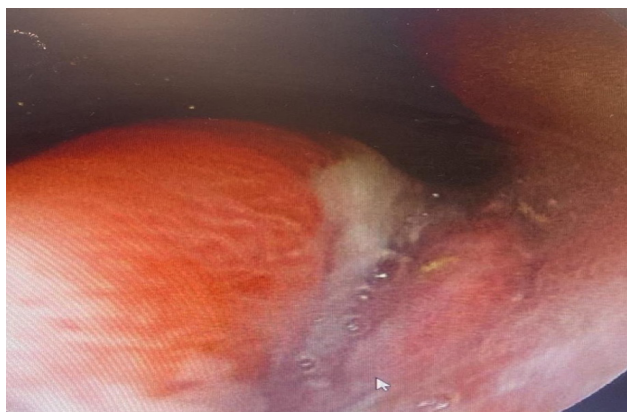


**Figure 1.** Oral contrast-enhanced computed tomography (CT) images obtained at diagnosis demonstrate multiple focal air densities in the right distal paraesophageal region consistent with esophageal rupture (**a, solid arrow**), oral contrast extravasation (**b, dashed arrow**), and focal paraesophageal air densities within the mediastinum (**c, short arrows**).

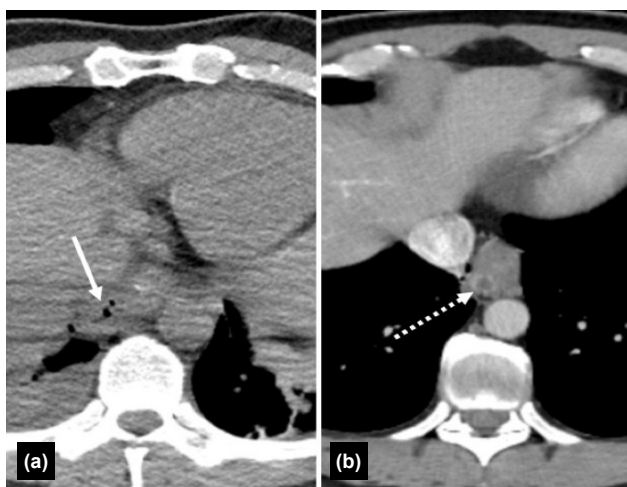
ration 94% on room air, and blood pressure 110/80 mmHg. Abdominal examination revealed mild tenderness in the epigastric region without guarding or rebound tenderness. Laboratory investigations demonstrated marked leukocytosis ( $17,250/\text{mm}^3$ ), thrombocytosis ( $456,000/\text{mm}^3$ ), and elevated C-reactive protein (CRP) levels (320 mg/L; reference range 0–5 mg/L).

Contrast-enhanced thoracoabdominal computed tomography (CT) performed on admission revealed disruption of the wall integrity at the gastroesophageal junction, contrast extravasation, and paraesophageal free air (Fig. 1a-c).

Upper gastrointestinal endoscopy demonstrated an approximately 15–20 mm area of exudation in the distal esophageal mucosa that could not be removed by irrigation (Fig. 2). In



**Figure 2.** Upper gastrointestinal (GI) endoscopy demonstrates an approximately 15–20 mm exudative area in the distal esophageal mucosa that could not be removed by irrigation.



**Figure 3.** Follow-up computed tomography (CT) scan obtained on day 1 shows decreased air density in the distal paraesophageal region (**a**, **solid arrow**) with no evidence of oral contrast leakage. A CT scan performed on day 8 demonstrates complete resolution of air densities in this region and a focal collection in the right paraesophageal area (**b**, **dashed arrow**).

the gastric cardia, just proximal to the Z-line, a linear perforation measuring approximately 10–15 mm was observed. The surrounding mucosa appeared elevated and mildly irregular.

Due to the location of the lesion in the cardia, a stent could not be securely fixed in place and was therefore not suitable for stenting. As the patient showed no signs of acute abdomen, significant intra-abdominal collection or abscess, or mediastinitis, no interventional procedure was performed initially.

The patient and his relatives were informed in detail about the proposed management plan and follow-up strategy. He was admitted to the intensive care unit, and empirical antibiotic therapy with ceftriaxone (2 g/day, administered intravenously in two divided doses) and metronidazole (1.5 g/day, administered intravenously in two divided doses) was initiated. Following consultation with the infectious diseases department, antibiotic therapy was modified to piperacillin-tazobactam (4.5 g intravenously every 6 hours).

During follow-up, the patient remained conscious, alert, and cooperative, with stable vital signs. A control CT scan performed on the first day demonstrated a reduction in the amount of air and no evidence of contrast leakage (Fig. 3a). Oral intake was initiated on day 6 and was well tolerated. A follow-up CT scan performed on day 8 showed complete resolution of air densities and a residual localized collection (Fig. 3b).

Oral intake was resumed on postoperative day 6. After the patient tolerated a liquid diet, oral intake was gradually advanced. CRP levels subsequently decreased markedly to 24 mg/L. Antibiotic therapy was discontinued on day 10, and the patient was discharged without complications on the same day.

At the three-month follow-up, the patient reported recurrent and progressively worsening dysphagia. Control endoscopy performed at the previously visited center revealed a distal esophageal stricture that prevented passage of the gastroscop; therefore, a 12-cm fully covered self-expandable esophageal stent was placed. The stent was removed 20 days later, and the patient has remained asymptomatic during a six-month follow-up period.

## DISCUSSION

Eosinophilic esophagitis is one of the most common causes of esophageal food bolus impaction in both children and adults. It is three times more common in men than in women; however, no sex-related differences in disease severity have been reported.<sup>[8]</sup> Although uncommon, EoE may lead to life-threatening complications such as EP<sup>[5,7]</sup> In the literature, EP associated with EoE has been reported to occur predominantly in the distal esophagus and gastroesophageal junction and is most often managed with surgical or endoscopic interventions.<sup>[9]</sup>

The pathophysiology of EoE is attributed to transmural infiltration of eosinophils into the esophageal wall, leading to inflammation, fibrosis, and tissue remodeling.<sup>[10]</sup> In a study by Maria Fontillón and Lucendo, these inflammatory changes were shown to weaken the mechanical integrity of the esophagus, thereby predisposing it to perforation.<sup>[11]</sup>

The classic symptoms of EP include the Mackler triad—sudden-onset chest pain following vomiting, dyspnea, and subcutaneous emphysema of the neck—although the complete triad is observed infrequently.<sup>[12]</sup> In the study by Gunasekaran et al.,<sup>[13]</sup> the Mackler triad was reported to be rarely present in its entirety in cases of spontaneous EP, with the clinical presentation often being atypical. Similarly, in our case, dyspnea and chest pain were the predominant symptoms, and the Mackler triad was absent.

In terms of diagnosis and imaging, contrast-enhanced CT is considered the most reliable modality for detecting gastrointestinal perforations, as it has high sensitivity for identifying extraluminal air and contrast extravasation.<sup>[14,15]</sup> Although endoscopic evaluation is generally considered contraindicated, it can provide detailed information regarding the location and size of the perforation when performed cautiously. In the systematic review by Sdralis et al.,<sup>[16]</sup> endoscopy was reported to provide valuable information for both the diagnosis and management of perforations and to assist in treatment planning. However, several studies have emphasized that endoscopy during the acute phase may carry potential risks, including enlargement of the perforation, contamination of adjacent tissues, and an increased risk of mediastinitis. Therefore, it should be performed with caution, and the use of carbon dioxide (CO<sub>2</sub>) insufflation is recommended whenever feasible during endoscopic procedures.<sup>[17,18]</sup> In our case, CT imaging was performed initially, followed by endoscopy with CO<sub>2</sub> insufflation.

One of the most critical factors influencing treatment outcomes is the time interval between perforation and initiation of therapy. Our patient presented five days after symptom onset. The literature clearly indicates that treatment initiated within the first 24 hours significantly reduces mortality.<sup>[16,19]</sup> According to the guideline published in 2021, when endoscopic closure of EPs is feasible, through-the-scope clips or over-the-scope clips are recommended for perforations <2 cm in size, whereas endoscopic suturing is advised for perforations >2 cm. In cases where primary closure is not possible, esophageal stenting with self-expanding metal stents is considered an appropriate treatment option.<sup>[18]</sup> However, in our patient, neither clipping nor stenting was considered suitable because of the location of the perforation. Some studies suggest that surgical intervention is a safer option in delayed perforations and recommend that conservative management be reserved for carefully selected patients.<sup>[20]</sup> According to the 2019 World Society of Emergency Surgery (WSES) guidelines, conservative management may be effective in selected cases, particularly in patients diagnosed in the early phase.

<sup>[6]</sup> Nevertheless, in our case, despite a five-day delay from symptom onset, the patient was successfully managed using a conservative approach.

In the long-term management of EoE, dietary elimination, proton pump inhibitors (PPIs), and swallowed topical corticosteroids have been shown to be effective treatment strategies. According to the American College of Gastroenterology Clinical Guideline, these treatment modalities reduce inflammation and help prevent the progression of fibrostenotic complications, and a management algorithm for EoE has been proposed.<sup>[21]</sup> In our patient, PPI therapy was continued during follow-up. At the three-month follow-up, the development of a stricture at the site of the previous perforation necessitated endoscopic stent placement.

## CONCLUSION

In conclusion, EP secondary to EoE is a rare but potentially life-threatening complication. EoE should be considered among the possible etiologies of EP, particularly in young male patients presenting with dysphagia and a history of allergic diseases. This case highlights that conservative management may be a viable alternative to surgical or endoscopic intervention not only in early-detected cases but also in selected delayed presentations when managed carefully in a multidisciplinary setting. Long-term follow-up remains essential for the early detection and treatment of late complications, such as stricture formation.

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## OLGU SUNUMU - ÖZ

### Eozinofilik özofajite bağlı gastroözofageal bileşke perforasyonunun konservatif tedavisi: Olgu sunumu

Eozinofilik özofajit (EoE), kronik inflamatuvar bir hastalık olup disfaji ve gıda impaksiyonu ile karakterizedir. Nadir de olsa spontan özofagus perforasyonu gelişebilmektedir. Bu perforasyonlar çoğunlukla distal özofagus ve gastroözofageal bileşkede ortaya çıkmakta, genellikle cerrahi veya endoskopik yöntemlerle tedavi edilmektedir. Erken tanı ve perforasyon sonrası ilk 24 saat içerisinde tedaviye başlanması mortalite ve morbiditeyi belirgin şekilde azaltmaktadır. Bu yazının amacı, eozinofilik özofajite bağlı gelişen gastroözofageal bileşke perforasyonunun, özellikle gecikmiş olgularda da konservatif yöntemle başarılı şekilde yönetilebileceğini vurgulamak ve bu nadir fakat potansiyel olarak hayatı tehdit eden komplikasyonun tedavi stratejilerine katkı sağlamaktır. Otuz beş yaşında, bilinen EoE tanısı ve 12 yıllık disfaji öyküsü bulunan erkek hasta, retrosternal ağrı, nefes darlığı ve hematemez şikâyetleri ile acil servise başvurdu. Öyküsünden yaklaşık beş gün önce izgara tavuk tüketimi sonrası boğaz ağrısı ve vişne renginde ishal geliştiği, semptomlarını hafifletmek amacıyla ibuprofen kullandığı öğrenildi. Kontrastlı görüntüleme ve endoskopide gastroözofageal bileşkede perforasyon saptandı. Lezyonun lokalizasyonu nedeniyle stentleme veya endoskopik klipsleme uygun bulunmadı. Akut batın, koleksiyon veya mediastinit bulguları olmaması üzerine konservatif tedavi planlandı. Hasta yoğun bakım ünitesinde izleme alındı. Başlangıçta seftriakson (2 g/gün) ve metronidazol (1.5 g/gün) ile başlanan antibiyotik tedavisi, enfeksiyon hastalıkları konsültasyonu sonrası piperasilin-tazobaktam (4.5 g, 6 saatte bir) ile değiştirildi. Klinik seyri stabil olan hastada oral alım 6. günde başlatıldı. Onuncu günde antibiyotik tedavisi sonlandırılarak hasta komplikasyonsuz taburcu edildi. Üçüncü ay takip muayenesinde hasta, tekrarlayan ve progresif olarak kötüleşen disfaji yakınması tarifledi. Önceden değerlendirildiği merkezde yapılan kontrol endoskopisinde, gastroskobun geçişine izin vermeyen distal özofagusta striktür saptanması üzerine 12 cm uzunluğunda, tamamen kaplı, kendi kendine genişleyebilen bir özofagus stenti yerleştirildi. Stent 20 gün sonra çıkarıldı ve hastanın sonraki altı aylık izleminde semptom tekrarı gözlenmedi. EoE bağlı spontan özofagus perforasyonu nadir ancak potansiyel olarak yaşamı tehdit eden bir komplikasyondur. Bu olgu, konservatif tedavinin sadece erken tanı konulan değil, aynı zamanda gecikmiş olgularda da multidisipliner yaklaşımla dikkatle seçilmiş hastalarda cerrahi veya endoskopik girişimlere etkili bir alternatif olabileceğini göstermektedir. Striktür gelişimi gibi geç komplikasyonların erken saptanabilmesi için uzun dönem takip kritik öneme sahiptir.

Anahtar sözcükler: Eozinofilik özofajit; konservatif tedavi; özofagus perforasyonu; striktür.

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