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Case Report

Eosinophilic Esophagitis with Long-standing Dysphagia

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Abstract

Eosinophilic esophagitis (EoE) is a chronic, immune-mediated inflammatory condition that primarily affects the esophagus, characterized by the infiltration of eosinophils into the esophageal mucosa. This condition leads to symptoms of esophageal dysfunction, including dysphagia (difficulty swallowing), food impaction, and substernal pain. EoE is commonly associated with other atopic diseases such as asthma, allergic rhinitis, and eczema, and it predominantly affects young men with a history of atopy. Although it can occur in both children and adults, EoE is often underdiagnosed due to its subtle or nonspecific symptoms and its overlap with other gastrointestinal disorders. Rarely, EoE can present with severe complications, such as spontaneous esophageal perforation, known as Boerhaave's syndrome, which is a life-threatening emergency. A typical diagnostic approach for EoE includes esophageal biopsies, which reveal significant eosinophilic infiltration, and endoscopic findings that may show structural changes such as strictures or rings in the esophagus. In some cases, the strictures can be severe, leading to difficulty swallowing and even food impaction. We present the case of a 36-year-old man from Addis Ababa, Ethiopia, who had been experiencing persistent substernal pain and dysphagia for eight years. His symptoms gradually worsened over time, prompting further investigation. Endoscopic examination revealed a severe lower esophageal stricture located approximately 35 cm from the incisors, and esophageal biopsies confirmed the presence of significant eosinophilic infiltration, consistent with a diagnosis of EoE. This case highlights the importance of considering EoE in patients with chronic dysphagia and substernal pain, especially those with a history of atopic conditions, and emphasizes the need for timely diagnosis and management to prevent complications.

Keywords

Eosinophilic Infiltration, Esophageal Dilation, Chronic Dysphagia

1. Background

Isolated eosinophilic infiltration in the esophageal mucosa is a defining feature of eosinophilic esophagitis (EoE). It rarely happened to adults and was mostly diagnosed in children. However, EoE has been rising quickly in adults lately, with a 3:1 male-to-female ratio with the majority of cases occurring in males [1]. For patients and healthcare systems, the rising incidence of eosinophilic esophagitis (EoE) poses a significant burden [11].

The cause of EoE is not well understood. However, there is proof that EoE and other atopic illnesses are associated. Other atopic conditions include food allergies, atopic dermatitis, allergic rhinitis, and asthma affect up to 60% of people with EoE. Since there is substantial evidence of a family history of atopic disorders, there may be a genetic component in addi-

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tion to the relationship with these conditions [2].

Age has a significant impact on the variety of clinical manifestations of EoE. Nonspecific symptoms in young children include vomiting, stomach pain, and feeding issues such as prolonged mealtimes and underdevelopment. Food impaction and dysphagia are common in adults and adolescents [3, 12].

In order to diagnose EoE, a clinicopathological diagnosis, esophageal symptoms such as dysphagia with endoscopic rings, furrows, stricture, crepe paper mucosa, concurrent atopic conditions, and eosinophils on histology with more than 15 eosinophils/high-power field must be present. Additionally, non-EoE disorders, such as Crohn's disease, hypereosinophilic syndrome, gastroesophageal reflux disease, connective tissue disease, infection, drug hypersensitivity, or Crohn's disease, must be evaluated [4].

Even though some individuals have seen spontaneous remission, EoE is most likely a chronic illness that requires treatment to avoid consequences [2].

Esophageal stricture, food impaction, perforation, and malnourishment are among the complications that can arise from eosinophilic esophagitis, although cancer is not one of them. Patients with esophageal eosinophilia have been linked to a variety of concomitant disorders, such as Crohn's disease, celiac disease, and connective tissue diseases [5].

2. Case Presentation

2.1. History and Physical Examination

A 36-year-old man from Addis Ababa, Ethiopia, came to the gastrointestinal clinic after experiencing substernal pain and dysphagia for eight years. He had no prior history of allergies or atopic disorder in his family. There were no skin lesions found, and the physical examination was uneventful. The results of the CBC, liver function test, renal function test, and ultrasound were all unremarkable.

2.2. Diagnostic Workup

Esophagogastroduodenoscopy (EGD) revealed a normal oropharynx, and the upper esophageal sphincter (UES) was intubated without difficulty. Examination of the esophagus showed feline esophagus features, including multiple ring-like lesions, mucosal hyperemia, furrowing, and patchy whitish areas suggestive of eosinophilic abscesses. A tight esophageal stricture was identified in the lower esophagus, approximately 35 cm from the incisors. Although the scope initially required manipulation to pass through, further dilation was performed using a 15 mm bougie, resulting in a clear mucosal tear. Following dilation, the scope advanced easily into the stomach. The gastric mucosa, including the fundus, body, antrum, and cardia, appeared normal, with no evidence of masses, ulcers, or erosions. We took specimens at the lower and mid esophagus, respectively, under suspecting EoE.

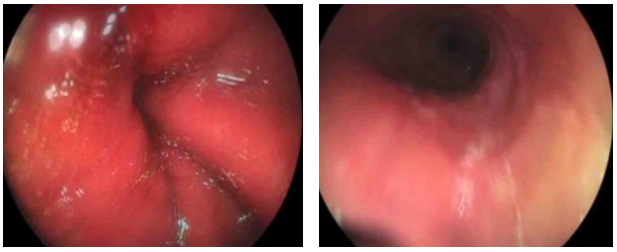

Figure 1. *Shows multiple rings in the proximal to mid esophagus, giving it the appearance of a trachea. Small whitish papules are also visible, representing eosinophilic abscesses.*

Based on the clinical, endoscopic and histological findings, the patient was diagnosed as EoE. And we confirmed the result by biopsies.

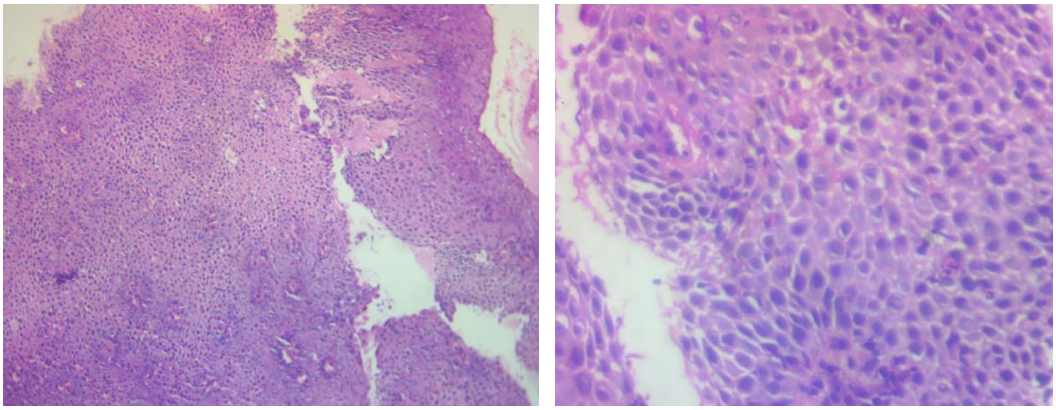

Figure 2. *Stratified squamous epithelium with mild edema. Multiple intra epithelial eosinophilic are seen.*

2.3. Treatment and Follow up

The patient underwent two sessions of endoscopic dilation, which resulted in a gradual improvement in his dysphagia and overall symptoms. Following the procedure, he was prescribed Fluticasone propionate as part of his ongoing management. A follow-up appointment was scheduled for one month to assess his progress and response to treatment.

3. Discussion

Eosinophilic esophagitis (EoE) is a long-term inflammatory disease that can lead to fibrotic remodeling and esophageal dysfunction [13]. Due to its fast increasing incidence and prevalence, EoE has been a major source of esophageal morbidity within the last 20 years [6].

Since EoE was first identified as a distinct disease entity only 20 years ago, its incidence and prevalence have significantly increased. When EoE was initially identified in the 1990s, the disease incidence was only thought to be 0.4 instances per 100,000 year. Although there are currently differing estimates of disease incidence and prevalence, they are commonly stated as being approximately 10 cases per 100,000 year and 50-100 cases per 100,000 [7].

It is unclear whether this represents heightened awareness and increased testing or a true escalation in incidence [8].

Most studies on eosinophilic esophagitis (EoE) in Africa are limited to case reports, resulting in a lack of comprehensive data on its overall prevalence across the continent but it still considered rare in Africa. Limited access to endoscopy and low awareness of EoE contribute to the likelihood that many cases remain undiagnosed [3].

EoE affects all age groups and is more common in adult males compared with adult females. Symptoms may be present for up to 4.5 years prior to the diagnosis [9].

The exact pathophysiology of EoE is unknown. It is an allergy condition that is triggered by environmental and food allergens via both IgE- and non-IgE-mediated pathways. Age has a significant impact on the variety of clinical symptoms of EoE [3].

For our patients, the most prevalent symptom is dysphagia to solid meals. Up to 50% of individuals with EoE had a history of acute esophageal food impaction. EoE patients learn to adjust for dysphagia symptoms by chewing repeatedly, avoiding particular foods, eating slowly, and imbibing (drinking liquids with meals) [9].

Clinical symptoms such as vomiting, abdominal pain, dysphagia, food impactions, odynophagia, and chest pain [14], endoscopic findings such as stacked circular rings, linear furrows, white specks (eosinophil microabscesses), and strictures, as well as histology demonstrating eosinophilic infiltration at the esophageal mucosa (≥ 15 eosinophilis per high power field), nonresponsiveness to high-dose proton pump inhibitors, and ruling out other causes of dysphagia, are used to diagnose EoE [9, 10].

Our patient experienced dysphagia and substernal discomfort for eight years. An upper endoscopy revealed the presence of circular rings along the esophageal mucosa, accompanied by white specks, both characteristic endoscopic findings of eosinophilic esophagitis (EoE). To confirm the diagnosis, a biopsy was performed, which reveals squamous epithelium exhibiting basal cell hyperplasia and intercellular edema. Notably, there is an infiltration of intraepithelial eosinophils, with a density of approximately 20 eosinophils per high-power field (HPF). No evidence of ulceration is observed, and there are no histological features suggestive of dysplasia. These findings are consistent with eosinophilic esophagitis and support the clinical diagnosis.

Based on these clinical, endoscopic, and histopathological findings, the patient was diagnosed with EoE.

EoE is treated with medication (such as corticosteroids) and nutrition. EoE recurs in over 90% of patients once therapy is finished, despite the fact that systemic or topical steroids successfully reduce clinical symptoms [11].

In therapies of EoE, there can be a discrepancy between a patient's symptoms and their histopathological findings, necessitating repeated evaluations to monitor disease activity accurately. Consequently, short-term treatment aims to relieve symptoms, reduce inflammation and restore normal esophageal function. These goals can be achieved through three main therapeutic approaches: dietary modifications, pharmacologic treatment, and esophageal dilation. Whenever feasible, a multidisciplinary team including a gastroenterologist, allergist, and nutritionist should be involved in managing the condition to ensure comprehensive care [5].

To our patient to address his symptoms he underwent two endoscopic dilation procedures which resulted in a gradual improvement in his dysphagia and overall symptoms. In addition to the endoscopic treatment, the patient was prescribed Fluticasone propionate as part of his ongoing management.

The patient has been scheduled for a follow-up appointment in one month to monitor his progress and ensure that the symptoms do not recur. This follow-up is crucial to assess the long-term effectiveness of the treatment and to determine if any additional interventions, such as further dilations or adjustments to medication, are necessary.

A widely recognized treatment for eosinophilic esophagitis, especially in older teens and adults, is esophageal dilatation to relieve esophageal constriction. A analysis of multiple large series has revealed perforation rates of less than 1% (3 of 992 dilations), despite previous studies indicating a high risk of dilation-related problems in patients with eosinophilic esophagitis. It is anticipated that 75% of patients with eosinophilic esophagitis would experience chest pain following the surgery, hence dilatation should be done gradually over several sessions. Dilation does not cure the underlying inflammatory condition, but it effectively

treats the luminal narrowing that might exacerbate eosinophilic esophagitis [5].

Improvement in symptoms following treatment for eosinophilic esophagitis is not reliably indicator of histologic remission, as patient-reported symptoms often do not correlate with underlying histologic activity. Therefore, to confirm histologic remission, a follow-up endoscopy with biopsy should be performed at least 6 to 16 weeks after starting treatment [3].

4. Conclusion

EoE is often misdiagnosed as GERD due to symptom overlap; however, it is primarily an immune-mediated disorder that requires distinct management. EoE should be considered in patients with unexplained dysphagia and esophageal strictures and requires a multidisciplinary approach, incorporating allergists, gastroenterologists, and dietitians to tailor therapy based on disease severity. Timely recognition and appropriate management can significantly improve outcomes and quality of life. Future research should focus on optimizing therapeutic strategies and improving patient outcomes through earlier recognition and intervention.

Abbreviations

EGD	Esophagogastroduodenoscopy
EoE	Eosinophilic Oesophagitis
GERD	Gastroesophageal Reflux Disease
UES	Upper Esophageal Sphincter

Author Contributions

Yohannes Birhanu: Conceptualization, Validation.
Yonas Bekuretsion: Investigation.
Henok Seife: Supervision, Validation.
Bethelhem Zerfu Tefera: Writing original draft, Writing review & editing.

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Availability of Data and Materials

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

Ethical Clearance

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

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Conflicts of Interest

The authors declare no conflicts of interest.

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