

A Retrospective Examination of Eosinophilic Esophagitis among Individuals with Intractable Gastroesophageal Reflux Disorder

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Abstract:

Background: Eosinophilic Esophagitis (EoE) is a rare immune-related condition characterized by eosinophilic infiltration of the esophagus, leading to symptoms like dysphagia, heartburn, and food impaction. Its coexistence with Gastroesophageal Reflux Disease (GERD) and the clinical implications remain subjects of interest. This retrospective analysis aimed to explore the prevalence of EoE in patients with refractory GERD and provide insights into its clinical manifestations.

Methodology: A retrospective descriptive analysis was conducted at a tertiary care institute in India. Endoscopy and esophageal biopsy records of 200 patients with refractory GERD were reviewed. Inclusion criteria encompassed patients of all ages and genders with diverse gastrointestinal symptoms, while exclusion criteria excluded individuals with specific conditions. EoE diagnosis required the presence of ≥ 15 eosinophils/HPF in ≥ 1 HPF.

Results: Among the 200 patients with refractory GERD, 20 (10%) were diagnosed with EoE. This subgroup predominantly consisted of females (5:3 gender ratio) with a median age of 58 years. Nearly all male EoE cases had a history of atopy. Dysphagia, heartburn, and food impaction were the primary complaints, with a median symptom duration of 46.5 months. Additionally, 45% of EoE cases exhibited erosive esophagitis.

Recommendations: Consider EoE in persistent, PPI-unresponsive reflux symptoms. Early diagnosis is essential; screen older GERD patients with prolonged symptoms and atopy history through EGD and biopsy.

Conclusion: EoE is common in refractory GERD patients in India, especially among older females with dysphagia, heartburn, food impaction. Erosive esophagitis is common, strictures suggest severe disease. Timely diagnosis and management are vital to relieve symptoms and improve life quality.

Keywords: Eosinophilic Esophagitis (EoE), Refractory GERD, Retrospective Analysis, Esophagogastroduodenoscopy (EGD)

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Introduction

Eosinophilic infiltration (15/high-power field, HPF) of the oesophagus is the hallmark of eosinophilic esophagitis (EoE), an immune-related disease that causes symptoms of esophageal dysfunction like heartburn, trouble swallowing, food impaction, and chest pain. At 5–10 cases per 100,000 persons and 0.5–1 cases per 1000 in the general population, it is a rather uncommon condition. Centric rings, longitudinal furrows, white exudates or plaques, and, in more severe cases, esophageal constriction or strictures, are among the endoscopic findings associated with endoesophageal reflux disease [1, 2].

EoE has been reported in adults more recently after first being identified in children. Its occurrence has been steadily rising, maybe as a result of improved detection techniques, shifting genetic and environmental factors, or both. As many as 12% of patients with symptoms similar to dysphagia have

EoE, and 48% of patients with food impaction had similar symptoms [3]. EoE and GERD are two independent illnesses with different underlying processes, albeit about 30% of EoE patients may be related to GERD. Proton pump inhibitors (PPIs) are effective in treating GERD, but topical steroids are more effective in treating EoE, even though the two conditions might have combined symptoms [4].

This research aims to determine whether patients with GERD who did not react to PPIs or H2 receptor antagonists (H2RA) would have EoE. The prevalence of EoE in GERD patients who were not responding was evaluated.

Methodology

Study Design: This study was a retrospective descriptive analysis.

Study Setting: This study was conducted by reviewing the endoscopy and biopsy records of the Gastroenterology Department in a tertiary care institute in INDIA were searched for esophagogastroduodenoscopy (EGD) with esophageal biopsy from Netaji Subhash Medical College and Hospital, Amhara, Bihta, Patna, Bihar in April 2021 to September 2022.

Participants: Participants with esophageal biopsies done in known cases of refractory GERD (non-responsive to proton pump inhibitors for more than a month) were reviewed.

Inclusion and Exclusion Criteria: Inclusion criteria encompassed patients of all ages and genders with diverse gastrointestinal symptoms, while exclusion criteria comprised individuals with neoplasia, peptic ulcers, prior gastrointestinal surgery, inflammatory bowel disease, Behcet's disease, fungal esophagitis, eosinophilic gastroenteritis, and those lacking esophageal eosinophil count records.

Study Size: After fulfilling the inclusion criteria, Individuals with refractory GERD, 200 esophageal biopsies were carried out. Out of the patients, 20 had an EoE diagnosis (eosinophils ≥ 15 /HPF).

Data Collection and Analysis: Data was collected by reviewing esophageal biopsy records at medical center. They included biopsies from GERD patients who didn't respond to proton pump inhibitors for over a month. Patient data encompassed age, gender, clinical details, endoscopic findings, and eosinophil count. Patients with specific conditions were excluded. Ethical approval was obtained. EoE was diagnosed if patients had ≥ 15 eosinophils/HPF in ≥ 1 HPF.

Bias: To minimize bias, the goal of the research was not disclosed to the participants or healthcare providers during data collection. Additionally, data analysts were blinded to the identity of the participants.

Statistical Analysis: Microsoft Excel 2013 was used for data entry and analysis.

Ethical Considerations: The study was carried out in accordance with ethical guidelines, which included getting each participant's informed consent. The ethics committee examined and approved the study protocol.

Results

Table 1: Esophageal Biopsies in Refractory GERD Patients

Parameter	Details
Total Esophageal Biopsies	200
Patients with EoE	20 (10%)
Gender Distribution	Females: 5, Males: 3
Median Age	58 years (Range: 41-63 years)
Atopy History	All except one male had atopy history
Primary Complaints	Dysphagia, Food Impaction, Heartburn
Median Symptom Duration	46.5 months (Range: 22-65 months)
Erosive Esophagitis (among EoE cases)	9/20 (45%)

On patients with refractory GERD, 200 esophageal biopsies were performed. Age, gender, eosinophil count, endoscopic results, and clinical characteristics were among the patient data. Patients with particular conditions were excluded. The ethical clearance was acquired. If a patient had ≥ 15 eosinophils/HPF in ≥ 1 HPF, EoE was diagnosed. Data analysis was done using Microsoft Excel 2013.

EoE (eosinophils ≥ 15 /HPF) was identified in 20 patients (10%) of the total. With a median age of 58 years (range: 41-63 years), there were more females than males (5:3). Every single male has a history of atopy. The main complaints were dysphagia, heartburn, and food impaction. The length of symptoms was 46.5 months on average (range: 22-65 months). Nineteen out of twenty-five patients (45%) had erosive esophagitis.

Discussion

In our study of 200 refractory GERD patients, esophageal biopsies assessed age, gender, eosinophil count, endoscopic findings, and clinical traits. Exclusions applied for specific conditions with ethical clearance. EoE (eosinophils ≥ 15 /HPF) occurred in 10%, mainly females (5:3 ratio), median age 58 years. All male cases had atopy history. Complaints: dysphagia, heartburn, food impaction; symptom duration averaged 46.5 months. Erosive esophagitis found in 45%.

Chronic exposure to acid in the setting of gastroesophageal reflux disease (GERD) can cause severe damage to the mucosa lining the oesophagus and, in certain instances, a modest elevation of eosinophilic white blood cells in the esophageal tissue (a condition known as eosinophilia). It makes sense to think that the coexistence of Eosinophilic Esophagitis (EoE) and GERD could be the result of pure coincidence, with both illnesses developing independently, given the high prevalence of GERD

in the general population. The complex association between these two illnesses has been clarified by study, nevertheless. pH tests have demonstrated that people with eosinophilic esophagitis (EoE) frequently display signs of prolonged acid exposure in their oesophagus. This finding supports the hypothesis that chronic GERD could eventually lead to the development of EoE. [5].

On the other hand, an interesting theory proposes that EoE may have a direct role in the development of GERD. The discovery that eosinophils have the ability to compromise the protective mucosal barrier and modify the function of the esophageal smooth muscles when they are found in the esophageal tissue serves as the foundation for this theory. The lower esophageal sphincter, which is essential in preventing acid reflux, may relax as a result of these alterations, which could then lead to structural remodelling of the oesophagus. This would hinder the removal of acid from the oesophagus and result in the classic symptoms of GERD, including regurgitation and heartburn [6].

Numerous research that looked into the coexistence of GERD and EoE found that people with GERD had varying incidence rates of EoE. For example, a Mexican study found that 4% of patients with refractory GERD had coexisting EoE. The study also found that patients with coexisting EoE tended to be younger and had more pronounced symptoms, such as dysphagia. Atopy, or an inclination to allergies, and certain endoscopic abnormalities, such as esophageal rings and strictures, were also frequently observed in them [4].

8.8% of patients with refractory GERD in an Iranian study had an EoE diagnosis, and all of these patients had a history of atopy. White plaques, rings, and erosive esophagitis were frequently found during their endoscopic exams [7]. EoE was discovered in 6% of GERD patients in Japan and in 9.7% of GERD patients who were resistant to proton pump inhibitors. Endoscopic findings among EoE cases were inconsistent, despite the fact that dysphagia and heartburn were common symptoms [8]. However, in a Brazilian investigation, the incidence was significantly lower: only 1 out of 103 patients (0.97%) with PPI-refractory GERD had an EoE diagnosis. Endoscopy on this patient, who had a history of atopy, showed distinctive corrugations in the oesophagus mucosa. [9].

6.6% of patients with a variety of esophageal or upper gastrointestinal symptoms in a Korean investigation had an EoE diagnosis. Interestingly, GERD, allergic rhinitis, and atopic dermatitis were common histories among people with EOE. Typically, endoscopic findings comprised white papules, rings, and linear furrows. Moreover, it's important to remember that esophageal strictures, a

certain sign of advanced disease progression, might occur in certain EoE patients [10].

Although it is not very prevalent in clinical practice, the co-existence of GERD and EoE is something to be taken into account, especially when patients come with reflux symptoms that do not improve with gastric acid inhibitors, like proton pump inhibitors (PPIs). Early diagnosis is critical because topical corticosteroids, which efficiently control inflammation and reduce associated symptoms, are often beneficial for people with EoE.

Conclusion

EoE is a common finding in older people in India, especially in women, especially in those who have symptoms such as dysphagia, heartburn, and food impaction. The most frequent endoscopic observations in these instances are usually friability, white plaques, and erosive esophagitis. Surprisingly, limitations can also develop in specific circumstances, signifying a more advanced stage of the illness. Therefore, in order to ensure an accurate diagnosis and the initiation of appropriate management strategies, it is highly recommended that older patients with a history of atopy, persistent GERD, and a lack of response to gastric acid inhibitors be screened for EoE through esophagogastroduodenoscopy (EGD) and esophageal biopsy.

Limitations: The limitations of this study include a small sample population who were included in this study. The findings of this study cannot be generalized for a larger sample population. Furthermore, the lack of comparison group also poses a limitation for this study's findings.

Recommendation: Consider EoE in persistent, PPI-unresponsive reflux symptoms. Early diagnosis is essential; screen older GERD patients with prolonged symptoms and atopy history through EGD and biopsy.

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List of abbreviations:

1. EoE - Eosinophilic Esophagitis
2. GERD - Gastroesophageal Reflux Disease
3. HPF - High-Power Field
4. PPIs - Proton Pump Inhibitors
5. H2RA - H2 Receptor Antagonists
6. EGD - Esophagogastroduodenoscopy

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