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Inflammatory synergy: a rare encounter of eosinophilic esophagitis and acute gastritis

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Abstract

Eosinophilic Esophagitis (EoE) is a chronic, antigen-mediated esophageal disease characterized by eosinophil-predominant inflammation, typically identified in younger individuals, particularly white males between 30 and 40 years of age. However, this case report discusses an unusual presentation of EoE in a 65-year-old female with a history of allergic rhinitis. The patient presented with symptoms of heartburn, epigastric pain, dysphagia, nausea, vomiting, and abdominal bloating, which had been occurring intermittently over the past two years. Investigations revealed significant eosinophilia, with 20% eosinophils in the differential count and a high erythrocyte sedimentation rate (ESR) of 34 mm/hr. Endoscopy demonstrated feline esophagus with unhealthy mucosa in the lower esophagus and an inflamed, edematous antrum. Biopsies confirmed the diagnosis of EoE with 18 eosinophils per high-power field. This case highlights the importance of considering EoE in elderly patients presenting with gastrointestinal symptoms, particularly in those with a history of atopic conditions. Early diagnosis and treatment are crucial in managing symptoms and preventing complications.

Keywords: eosinophilic esophagitis, acute gastritis, eosinophilia, gastroesophageal reflux disease

INTRODUCTION

Eosinophilic Esophagitis (EoE) is an emerging, chronic immune-mediated esophageal disease now widely recognized in the medical field. It mainly affects the esophagus and is characterized by significant inflammation dominated by eosinophils [1]. Immune or antigenic responses that are typically triggered by environmental and dietary factors cause this condition. EoE was first described among Western populations in the early 1990s and has rapidly gained clinical attention due to its escalating incidence [2]. The increasing prevalence and the complex pathophysiology behind it have made it a major topic of research in gastroenterology over the past few decades.

Histologically, EoE diagnosis is based on eosinophils seen in biopsies of esophageal tissue with a threshold of >15 eosinophils per high power field [3]. Unlike normal esophagus, which does not contain this distinct infiltration of eosinophils into it, this marker is important for identification of the disease. In children and young adults, EoE most commonly occurs; however, there is a higher incidence among white males aged 30-40 years. The condition's prevalence ranges from 4 to5 per 10,000 people in general population although this may be an underestimate since diagnostic criteria are evolving as well as awareness.

The etiology of EoE involves genetic predisposition combined with environment interactions and is complicated [7]. This ultimately leads to chronic inflammation and remodeling of tissues hence causing abnormal immune response at esophageal level. Often times, there are comorbidities like other atopic diseases i.e., food allergy, eczema (atopic dermatitis), asthma or allergic rhinitis associated with EoE [4].

Clinically, signs can vary significantly depending on patient age group. In adults main symptoms include dysphagia which usually starts with solids including tab-

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lets. Episodes of food impaction, difficulty swallowing with solid foods or pills, Chest pain and pyrosis are the most common clinical features in adults [5]. Unfortunately these symptoms often lead to misdiagnosis since they can be confused with those of GERD. However, standard treatment for patients suffering from EoE does not involve proton pump inhibitors (PPIs) as in case of GERD which highlights the need to differentiate between these two diseases especially while designing treatment plan [6].

Children may present differently with more common symptoms such as abdominal pain, failure to thrive or feeding refusal. This is why one should think about eosinophilic esophagitis among the differential diagnoses for unexplained gastrointestinal signs in all age groups.

This case report elucidates an unusual presentation of EoE in a 65-year-old woman that contradicts the typical demographic description associated with this disease. The patient's presentation challenges conventional notions that younger persons are mainly affected by EoE implying that it should also be included in the differentials for elderly patients presenting with GI complaints particularly those having past history atopy. This case demonstrates why clinicians should suspect a diagnosis of EoE even amongst diverse populations as a means to achieve correct identification and therapy.

CASE PRESENTATION

A 65-year-old woman had a chronic history of allergic rhinitis. However, over the two years, she has been tormented by occasional gastrointestinal symptoms, which have persisted throughout. She noted frequent heartburn episodes with constant abdominal bloating and recurrent epigastric pain associated with dysphagia, nausea, and vomiting. Although these symptoms were persistent yet non-frequent in occurrence, she never consulted any doctor until they became more frequent and started to inhibit her lifestyle.

At the time of admission, the patient's blood pressure was stable as well as other vital signs. Her abdomen was soft when examined physically but at the same time there was tenderness upon palpation in the epigastric region. On physical examination there were no signs of organomegaly.

The systemic examination also revealed that other parts of her body such as the respiratory system including cardiovascular systems and neurological systems were normal. The fact that no additional abnormalities were found suggests that during assessment these symptoms mainly affected the patient's gastrointestinal system without obvious involvement from other organs anywhere else on her body at this particular time.

The hematological assessment in the lab showed stable blood counts with hemoglobin level variations

TABLE 1. *Laboratory investigations*

Hemoglobin (g/dL)	RBC (million cells/µL)	TLC (cells/µL)
14.1	5.13	9000
14.4	5.15	7900
13.7	4.25	7800

from 14.1 to 14.4 g/dL which were within the normal range, indicating no anemia condition. The red blood cell (RBC) counts ranged between 4.25 and 5.15 million cells/µL and all readings were within the expected ranges apart from a slight decrease on the third reading which could be as a result of normal biological variation or mild reaction to an underlying factor. The total leukocyte count (TLC) ranged between 7,800-9,000 cells/µL which was also within the normal limits showing that there wasn't any significant infection or acute inflammation taking place at this moment. These findings suggest relatively constant hematologic function with minor fluctuations that are not clinically significant.

Other investigations included performing an erythrocyte sedimentation rate (ESR) test where it returned high value of 34 mm/hr. This is an indication that there was inflammation ongoing in the body system. Another test sought antinuclear antibodies (ANA), by use of immunofluorescence method because most autoimmune diseases have these autoantibodies present in serum samples of affected patients. The results came back positive confirming ANA with speckled pattern at intensity three plus, which implied a probability of an underlying autoimmune disorder contributing to the patient's current clinical situation.

During upper gastrointestinal endoscopy numerous abnormalities were noted including feline appearance characterized by concentric rings and unhealthy mucosa especially distal third part of esophagus Besides these features are typical for eosinophilic esophagitis (EoE). Also there was edematous and inflamed gastric antrum raising concerns about concurrent gastritis.

Histological examination of biopsies taken during endoscopy from the esophagus disclosed presence of eighteen eosinophils per high power field (HPF). This finding supports the diagnosis of EoE since it requires greater than fifteen eosinophils per HPF.

Therefore, the patient's condition was diagnosed as Eosinophilic Esophagitis (EoE), and acute gastritis could also be a concurrent diagnosis as can be seen from the inflammation in the gastric antrum. To control her condition, she was started on empiric treatment.

Albendazole 400 mg was given to the patient which is ordinarily used for possible parasitic infections that may worsen gastrointestinal symptoms although its use in this case may have been precautionary. Proton pump inhibitors (PPIs) were initiated to relieve acid reflux

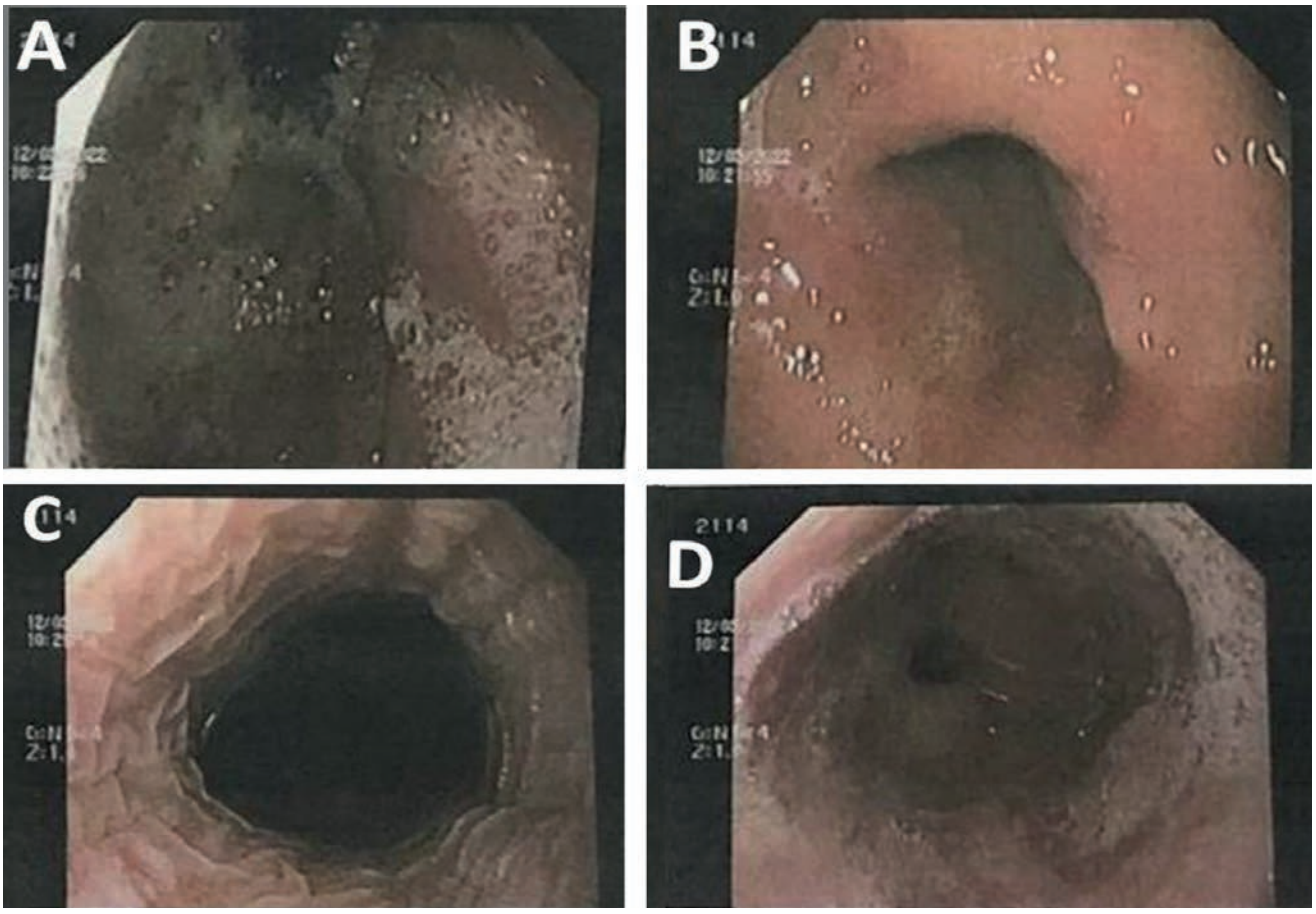

FIGURE 1. *Endoscopic Images Depicting Severe Esophageal Injury and Stricture Formation. (A) Severe esophageal damage with blackish discoloration, likely necrotic, suggesting advanced injury, possibly from caustic ingestion or severe GERD; (B) Irregular esophageal narrowing and ulceration, consistent with a severe stricture, possibly due to chronic inflammation, caustic injury; (C) Normal-appearing esophageal segment with healthy mucosa, indicating sparing from more severe injury; (D) Severe esophageal stricture or obstruction with dark discoloration, suggesting further necrosis or advanced damage*

symptoms, suppress acid secretion that might help manage esophageal irritation and heartburn common in EoE.

The inflammation that comes with EoE was ameliorated through low-dose corticosteroids apart from PPIs. This took both systemic and topical forms. Prednisolone and other systemic steroids provide broad anti-inflammatory effects throughout the body whereas fluticasone propionate and oral viscous budesonide are local eosinophilic inflammation reducers specifically targeting the esophagus upon administration.

Also included in the treatment regimen is montelukast, which is a leukotriene receptor antagonist. Montelukast is commonly prescribed for allergic conditions and asthma though most likely it had been prescribed to help control the allergic component of EoE because of past history of allergic rhinitis in this patient and suspected atopic nature of her condition. This holistic approach aimed to deal with many different issues presented by our patient starting from relieving eosinophilic inflammation up to addressing possible allergy or GERD-mediated components.

DISCUSSION

This case, however, represents a rare and untypical Eosinophilic Esophagitis (EoE) case that happened in an elderly female patient, as opposed to the predominant demographic profile of the disease which mostly affects younger white males. Nevertheless, it is worth noting that this patient had a history of allergic rhinitis, another atopic condition confirming the known association between EoE and other forms of allergy. From these observations, one can conclude that it may be accurate to include EoE in a wider group of atopic disorders implying that they share a common pathogenesis mechanism [7].

The diagnosis of EoE was made based on persistent eosinophilia both peripheral and within esophageal tissues as seen through biopsy. The endoscopic findings are also typical for EoE with concentric rings looking like “cat’s esophagus” being among them. Identification of edematous and inflamed gastric antrum suggests possible coexisting gastritis making this case complexer than before. This finding supports reports in literature suggesting that other gastrointestinal inflammatory

conditions might accompany EoE cases resulting into more complicated clinical presentations and management [8].

However, additional complexity was added when speaking about a positive speckled pattern antinuclear antibody (ANA) test due to its presence. Additionally, ANA is indicative of underlying autoimmune mechanisms although its exact interpretation regarding Eosinophilic Esophagitis remains unclear. Although there have been speculations about autoimmunity connected with EoE [connection not precisely defined], these claims need more research to back them up subsequently debunking their positions or affirming them further. The significance of ANA positivity among patients suffering from esophageal eosinophilia has not been well established; thus it requires additional investigations whether or not such patients suffer from autoimmune diseases contributing towards the onset or exacerbation of this pathological condition [9].

However being non-specific ESR is, its increased levels as in this patient are suggestive of ongoing inflammatory process. Moreover, elevated ESR is one of the indicators of an ongoing inflammation; it does not give a clue distinguishing EoE from other causes of esophageal and gastrointestinal inflammation.

The management strategies for EoE usually include dietary adjustments, use of drugs and sometimes endoscopic treatments. Remarkably, albendazole was administered to this patient though the role it plays in treating EoE is still unclear. The choice to use albendazole might have been influenced by the suspicion that he also had a parasite infection that mimics or exacerbates symptoms seen in eosinophilic esophagitis (EoE). Nevertheless, it should be noted that patients with EoE are commonly treated using proton pump inhibitors (PPIs) and corticosteroids so as to diminish eosinophilic inflammation and alleviate clinical manifestations [11].

Particularly when dealing with GERD-like symptoms which frequently coincide with EoE, PPIs remain the mainstay in managing of patients suffering from EoEs. It was justifiable to administer PPIs especially since they can relieve acid related symptoms and reduce eosinophils infiltration into some patients' tissues having Esophagitis. Therefore, effectivity of PPIs' administration for treatment purposes represents importance given to GERD during differential diagnosis providing a basis for histological confirmation through biopsy thereby distinguishing precisely between these two conditions [10].

This case brings out several important points. For starters, considering that the patient has a history of atopic conditions, age alone should not rule out EoE from the differential diagnosis. This case shows that even in old people, EoE can be present and doctors need to have a high suspicion index in assessing gastro intestinal symptoms among them. Secondly, distinguishing between EoE and GERD might be difficult due to overlapping features hence confirming presence of eosinophilic infiltration through histological examination of esophageal biopsies is crucial. Finally, the role of autoimmune factors in EoE as seen from ANA positivity in this patient is an area that requires more research. Better understanding on how autoimmunity mechanisms interact with EoE might lead to more specific therapeutic interventions as well as improve outcomes for patients with such disease.

CONCLUSION

This case illustrates an uncommon presentation of Eosinophilic Esophagitis in an elderly female patient, emphasizing the need for awareness among clinicians regarding the diverse age range in which EoE can present. The relationship between EoE and atopic conditions like hay fever necessitates its consideration among patients who present with unexplained gastrointestinal symptoms. In addition, a positive ANA and elevated ESR suggest a possible autoimmune component, although the clinical relevance of these findings in EoE is still uncertain. Early diagnosis and intervention are crucial for symptom management as well as prevention of complications such as esophageal fibrosis and strictures which could result from prolonged untreated EoE. Thus, more research on pathophysiology and treatment of EoE in unusual groups should be conducted to improve prognosis.

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