

Eosinophilic Esophagitis Masquerading as Steakhouse Syndrome: A Case Report

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Eosinophilic Esophagitis Masquerading as Steakhouse Syndrome: A Case Report

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Key Clinical Message:

This case report aimed to demonstrate that early and targeted medical treatment can effectively resolve esophageal narrowing in cases of steakhouse syndrome caused by eosinophilic esophagitis, potentially avoiding the need for invasive procedures.

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None.

Consent: The patient in this manuscript has given written informed consent to publication of their case details.

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Introduction

Eosinophilic esophagitis is an underrecognized chronic condition where symptoms of gastroesophageal reflux are accompanied by eosinophilia in the esophagus (1). This disorder is associated with a history of other atopic disorders, particularly food allergies (1). Steakhouse syndrome is a condition in which food gets stuck in the esophagus (2). It is most common in older people and results from several etiologies: esophageal carcinoma, diverticulum, hiatal hernia, eosinophilic esophagitis, achalasia, esophageal spasm, and esophagogastric outflow obstruction (2). We herein present the case of a young male patient who presented with steakhouse syndrome and was found to have eosinophilic esophagitis. In this case, eosinophilic esophagitis was the leading cause of recurrent episodes of food impaction. With the right treatment, the patient's condition resolved on repeat gastroscopy.

Case History/Examination

We present the case of a 27-year-old male patient, previously healthy, who sought medical attention for difficulty swallowing and chest discomfort after consuming a piece of steak. He consulted his gastroenterologist who advised him to present to the emergency room. The patient had previously experienced recurrent episodes of dysphagia, which he described as a temporary "stoppage of food passage." During the medical history interview, the patient disclosed allergies to lactose, nuts, and cabbage.

Methods

Chest and spine x-rays were performed and showed no abnormalities. Laboratory tests were all within normal limits. An urgent gastroscopy was subsequently conducted, revealing a narrowed esophagus at 30 cm from the incisors with linear furrows and rings, above which a piece of meat was lodged (Figure 1). The impacted food was removed in pieces using rat tooth grasping forceps. The endoscopist attempted to pass through the distal esophagus with an adult gastroscope without success, necessitating the use of a pediatric endoscope which could traverse the narrowed esophagus successfully. These findings were indicative of steakhouse syndrome.

Following the gastroscopy, esophageal biopsies were taken and showed more than 15 eosinophils per high-power field, confirming a diagnosis of eosinophilic esophagitis. Subsequently, the patient was prescribed omeprazole 20 mg twice daily and fluticasone 250 mcg 2 puffs orally three times daily 30 minutes before meals. He was also advised to follow a six-food elimination diet.

Conclusion and Results

A follow-up esophagogastroduodenoscopy (EGD) performed after one month showed both endoscopic remission and histologic improvement. Endoscopic remission was characterized by the absence of esophageal rings and furrows, and the esophageal lumen was non-stenotic, allowing successful passage with an adult endoscope through the esophagus and gastroesophageal junction. Histologically, there was a reduction in eosinophil count to less than 15 eosinophils per high-power field, indicating remission.

Discussion:

Eosinophilic esophagitis is a chronic, immune-mediated esophageal disease first described in 1978, characterized by eosinophil-predominant inflammation (3)(4).

It frequently coexists with other atopic disorders such as eczema, asthma, and food allergies (5). Patients usually exhibit dysphagia and food impaction, signs similar to those of gastroesophageal reflux disease (GERD) (6).

Steakhouse syndrome, also termed "Backyard Barbecue Syndrome," refers to the condition in which patients present with acute esophageal food impaction that manifests as obstruction, usually following meat consumption. This syndrome is typically associated with mechanical or functional diseases narrowing the esophagus lumen (7). Various underlying conditions include esophageal carcinoma (primary or metastatic), carcinoma of the gastroesophageal junction, strictures (peptic or post-therapeutic), diverticula, hiatal hernia, and Schatzki rings as mechanical causes (7)(8). Functional causes include achalasia, nutcracker esophagus,

and esophageal spasm (7). Eosinophilic esophagitis has also been recognized as a hidden condition leading to esophageal food impaction (7).

The most recent consensus recommendations (Updated International Consensus Diagnostic Criteria for Eosinophilic Esophagitis: Proceedings of the AGREE Conference) for the diagnosis of eosinophilic esophagitis (EoE) include clinical symptoms such as food impaction and dysphagia, which are indicators of esophageal dysfunction (9). In esophageal biopsies, histologic results must demonstrate a minimum of 15 eosinophils per high power field (eos/hpf). Proton pump inhibitor-responsive esophageal eosinophilia (PPI-REE) is one of the other causes of esophageal eosinophilia that must be ruled out. These recommendations recognize the need for more research on PPI-REE and allow for the coexistence of GERD and EoE (9).

Endoscopy is crucial in the diagnosis of EoE. Esophageal rings (trachealization), white exudates or plaques, linear furrows, narrow diameter esophagus, pallor/decreased vascularity, and the presence of strictures are all significant endoscopic findings (10).

The management of eosinophilic esophagitis (EoE) requires a multifaceted approach integrating dietary and pharmacologic therapies.

Despite its drawbacks, including psychological effects and nutritional deficits, dietary therapy has proven to be consistently beneficial in treating symptoms and histologic abnormalities, especially in children. Although all EoE-diagnosed persons should follow dietary therapy, developing a tolerance to trigger foods requires additional research. Future studies should examine its effects on quality of life, esophageal fibrosis, and the development of reliable methods for identifying trigger foods (11).

In addition to dietary therapy, medication is also essential. Proton pump inhibitors (PPIs) can treat GERD-associated esophageal eosinophilia and help differentiate between GERD and EoE symptoms. Nevertheless, PPIs by themselves are not sufficient for the treatment of EoE (11).

Corticosteroid therapy is also essential and beneficial in both adults and children.

Although systemic corticosteroids can be used in emergency cases, they should not be used for long-term treatment due to potential toxicity. To induce remission, topical corticosteroids such as fluticasone and oral viscous budesonide are frequently used; however, due to the possibility of adverse effects, close monitoring is advised (11).

Early publications on the use of esophageal dilation to treat stricture formation in EoE patients highlighted risks such as perforation and chest pain. However, newer research indicates that the incidence of complications is lower—just 0.8% of people undergoing dilatation suffer from perforation, and 5% experience chest pain. These recent findings point to a safer approach to esophageal dilatation, albeit its appropriate role in EoE therapy is still debated and should be tailored to each individual (11).

Advances in the field of eosinophilic esophagitis (EoE) research have revealed various paths that hold promise for therapeutic intervention. First, research on the involvement of microbiota in the pathogenesis of EoE has shown unique microbial signatures in diseased individuals, pointing to a possible target for therapeutics based on the microbiome to modify the course of the disease (11).

Combination therapy strategies that include topical steroids, diet changes, and proton pump inhibitors (PPIs) have also demonstrated effectiveness, especially in patients who are not responsive to monotherapy (12).

Immunomodulators that work by inhibiting lymphocyte proliferation and thus reducing esophageal inflammation, such as azathioprine and 6-mercaptopurine, are also possible options for treating steroid-dependent EoE which need to be compared to other therapies in clinical trials (12).

Lastly, biologic therapies targeting interleukin-5 (IL-5) and interleukin-13 (IL-13), including mepolizumab and dupilumab, have shown efficacy in reducing disease activity and achieving histological remission. These

agents hold significant promise in altering the disease course, although their broader impact on EoE patients, particularly those with atopic comorbidities, warrants further investigation through robust clinical trials (12).

In medical technology, integrating artificial intelligence (AI) is advancing the diagnosis of complex conditions like eosinophilic esophagitis (EoE).

AI models designed for analyzing histopathologic characteristics associated with esophageal mucosal eosinophilia offer enhanced diagnostic precision and reproducibility compared to conventional methods (13).

Using sophisticated algorithms, these models quantitatively assess microscopic features critical for EoE diagnosis, such as eosinophil density and spatial distribution, alongside other histologic parameters. AI also identifies additional features like basal layer hyperplasia and subepithelial fibrosis. (13).

Recent studies have applied AI to various diagnostic tasks in EoE, including analyzing biopsy histology, diagnostics using biopsy mRNA transcripts, diagnosing EoE via endoscopic photos, and automating the measurement of thickened esophageal tissue layers (14).

AI's ability to process and analyze large datasets quickly and accurately enhances the diagnostic process, making it more efficient and potentially more accurate. The future for AI in EoE diagnosis is promising, with ongoing research aiming to refine these models further, enabling broader recognition of histologic features and adaptability to diverse staining protocols. These advancements hold promise for standardizing reporting practices and improving patient outcomes in EoE and other clinical contexts (13).

In this case, the successful management of eosinophilic esophagitis leading to steakhouse syndrome highlights the pivotal role of medical treatment in achieving resolution without the need for invasive procedures such as esophageal dilation. Medical therapy, consisting of omeprazole for acid suppression and fluticasone for anti-inflammatory effect, played a central role in reducing eosinophilic inflammation in the esophagus. This approach not only alleviated symptoms but also led to significant endoscopic and histologic improvements. While procedures like dilation may be required in some cases, the favorable outcome in this patient exemplifies how targeted medical therapy can be a primary and effective treatment strategy for eosinophilic esophagitis-related complications like steakhouse syndrome.

The presented case of steakhouse syndrome highlights the multifaceted nature of esophageal disorders, underscoring the importance of thorough evaluation and diagnosis. While eosinophilic esophagitis (EoE) was identified as a leading cause of recurrent food impaction episodes, it is crucial to recognize the diverse etiologies contributing to conditions such as steakhouse syndrome. This case serves as a reminder of the complexity inherent in diagnosing and managing esophageal disorders, necessitating a comprehensive approach that considers both common and rare underlying conditions. Moving forward, continued research and clinical vigilance are paramount in enhancing our understanding and treatment of these intricate gastrointestinal disorders, ultimately improving patient care and outcomes.

Authorship List:

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