

Eosinophilic Esophagitis: A Newly Recognized Clinical Entity

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ABSTRACT

Eosinophilic esophagitis (EoE) is a newly recognized disease state with evolving criteria for diagnosis. While EoE is not fully understood, eosinophils suggests an immune-mediated pathophysiology. Children present with failure to thrive, gurgling, and other gastrointestinal symptoms. There are no treatments approved by the Food and Drug Administration at this time, although studies have been conducted.

Keywords: allergies, anti-IgE monoclonal antibodies, corticosteroids, dietary restrictions, eosinophilic esophagitis, eosinophils, food allergies, leukotriene D4 receptor antagonists, mast cell stabilizers, milk allergy, monoclonal antibodies

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CASE STUDY

A mother brought her 15-month-old child to the clinic with concerns of “gurgling sounds” coming from the child’s throat.

The gurgling noises began at 12 months when breastfeeding was stopped and the child was started on formula. The noises lasted off and on throughout the day with no relation to food intake or activity.

This CE learning activity is designed to augment the knowledge, skills, and attitudes of nurse practitioners and assist in their understanding of the new clinical entity eosinophilic esophagitis (EoE).

At the conclusion of this activity, the participant will be able to:

- Explain the definitive criteria for diagnosing EoE
- Differentiate EoE from eosinophilic GERD
- Demonstrate knowledge of the correct administration of fluticasone in tx EoE

The authors, reviewers, editors, nurse planners, and pilot testers all report no financial relationships that would pose a conflict of interest. The authors do not present any off-label or non-FDA-approved recommendations for treatment.

This activity has been awarded 1.0 contact hours for nurses and advanced practice nurses and 1.0 contact hours of pharmacology credit. The activity is valid for CE credit until April 1, 2015.

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Physical exam revealed a pleasant child at the appropriate level of growth and development. His height and weight was at the 90th percentile. Gurgling sounds were absent during the visit.

The child was started on a proton pump inhibitor (PPI) and a barium swallow was ordered to rule out a structural abnormality. Results of the barium swallow were normal. At the 1-month follow-up visit, the child was still gurgling and had begun to tug at his throat. When the mother asked the child if his throat hurt, he shook his head no. Since his initial symptoms remained with the addition of tugging at his throat, an endoscopy with biopsies was performed. Biopsy results were consistent with diagnostic criteria for eosinophilic esophagitis (EoE).

HISTORY AND DEFINITION OF EoE

Eosinophils are a type of white blood cells that play a role in allergies and are associated with an inflammatory response.¹ An immune globulin, IgE, is likely involved with the eosinophilic response, and receptors for IgE are present on the surface of the eosinophil cell.¹ The esophagus is normally free of eosinophils. The presence of eosinophils in esophageal tissue is a non-specific finding. Esophageal eosinophilia occurs with many esophageal disease states, including gastroesophageal reflux disease (GERD).² EoE is the recommended abbreviation for eosinophilic esophagitis to differentiate it from the abbreviation for erosive esophagitis (EE).

Although 1 of the earliest published articles regarding eosinophils in the esophagus was in 1949,³ EoE is a relatively newly defined disease for which little is known. The first definition of EoE, "...a primary clinicopathologic disorder of the esophagus characterized by esophageal and/or upper gastrointestinal (GI) tract symptoms in association with esophageal mucosa biopsy specimens containing ≥ 15 intraepithelial eosinophils per High Powered Field (eos/HPF) in 1 or more biopsy specimens and absence of pathologic GERD as evidenced by a normal pH monitoring study...",⁴ was based on the symptoms and histological findings.

As knowledge and clinical experiences grew, the definition of EoE was revised as "... a chronic, immune/antigen-mediated esophageal disease

characterized clinically by symptoms related to esophageal dysfunction and histologically by eosinophil-predominant inflammation."⁵ This definition defines EoE as esophageal inflammation brought on by a high number of eosinophils. It also supports the belief that EoE involves the immune system and the body's response to allergens. EoE is a chronic immune-mediated disease characterized by esophageal dysfunction clinically and inflammation histologically,⁶ despite normal pH monitoring of the distal esophagus or lack of response to high-dose treatment with PPI medications.⁷

PREVALENCE

EoE is found worldwide.^{8,9} It is estimated that the prevalence of EoE is 52/100,000 in the US, with the Mid-Atlantic and New England states having the highest prevalence.¹⁰ EoE affects males more than females and is prevalent across all ages.^{4,5,11,12}

EoE usually presents during childhood; the peak age of diagnosis is within the first 3 years¹³ or at 30-40 years old.⁵ The incidence of EoE appears to be increasing, but there is controversy regarding this claim. The increase could mean an increase in the disease, but it can also mean health care providers are becoming more aware of the disease and therefore performing more esophageal biopsies.^{9,11}

PATHOPHYSIOLOGY

The exact pathophysiology of EoE is a mystery. Eosinophils infiltrate the esophagus and cause damage that can lead to development of strictures, narrowed esophagus, and food impaction. It is uncertain how and why the eosinophils accumulate in the esophagus. Two areas that predominate the investigations of EoE are allergies and genetics.

Allergies

The role of allergies in EoE is perplexing. Individuals with EoE do not develop anaphylactic shock when eating a food. But withholding the causal food or replacing food with a specific elemental formula diet eliminates the eosinophils in the esophagus and reverses the inflammation of the esophagus in most cases.^{5,9,14} Additional support for allergies as the fundamental cause is supported by the results of treating EoE with swallowed inhaled steroids.

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