Eosinophilic Esophagitis in Children
Eosinophilic Esophagitis in the Primary Care Office

Eosinophilic Esophagitis (EoE) is an allergic, immune-mediated condition that causes inflammation of the esophagus and accumulation of white blood cells, called eosinophils, in the esophageal tissue. It is increasingly being recognized in children and is often caused by allergies, although its symptoms may mimic medically refractory gastroesophageal reflux (GER).

The condition was not recognized as a distinct clinical entity until the 1990s, with an ICD-9 code not established until 2008. It affects at least four children per 10,000 in the United States and is increasingly being identified in adults as well.

Identifying Eosinophilic Esophagitis

In young children, symptoms often include vomiting, feeding difficulty and failure to thrive, while older children and adults are more likely to present with refractory GER symptoms, abdominal pain, dysphagia, recurrent vomiting and esophageal food impactions. The condition is more common among males, but females are increasingly being diagnosed as well. Children can be diagnosed at any age.

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Associated Diagnoses or Symptoms</th>
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<tbody>
<tr>
<td>• Dysphagia</td>
<td>• Food or enviromental allergies</td>
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<tr>
<td>• Epigastric pain</td>
<td>• Allergic rhinitis</td>
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<tr>
<td>• Recurrent emesis</td>
<td>• Asthma</td>
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<tr>
<td>• Food impactions</td>
<td>• Eczema</td>
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<td>• Feeding difficulty, failure to thrive,</td>
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<td>vomiting (young children)</td>
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EoE often leads to thickening of the basal layer of the esophageal epithelium, abnormal whitish plaques from eosinophilic microabscesses, linear furrowing of the esophagus and loss of vascular markings. Mucosal changes can cause some of the above symptoms. Concentric ring formation and even esophageal strictures can be seen in some severe, long-term cases. As many as one-third of EoE sufferers may have an esophagus with a normal appearance, however, so diagnosis via endoscopy and biopsy is essential.

Making a Referral for Testing and Diagnosis

If a patient presents with persistent GER and treatment with acid blockade is ineffective at relieving symptoms, or if the patient is having the above described symptoms despite treatment, a referral to a pediatric gastroenterologist is appropriate. After evaluating the patient, endoscopy and esophageal biopsies are required for EoE diagnosis. Following a positive EoE diagnosis by a pediatric gastroenterologist, patients may be referred to an EoE specialist and an allergy/immunology specialist for further evaluation and to help guide further treatment.
Eosinophilic Esophagitis Treatment and Management

EoE is often a chronic or recurrent disease. The duration of treatment may differ according to the patient’s symptom severity and specific allergies. Some medications may be able to be discontinued following relief of symptoms, while other treatments, such as specific food avoidance, may be lifelong requirements for EoE management. Follow-up endoscopies may be recommended to determine whether treatments have been effective. Current treatment includes three strategies: medications, specific dietary avoidance or a complete elimination diet.

**Medications:** The specialist who diagnoses your patient will develop a treatment strategy that may include the use of topical steroids, proton-pump inhibitors or other medications. Currently, there are no medications specifically approved by the FDA for EoE treatment; several drugs that decrease eosinophil production or cause immunosuppression are currently being studied but are not yet recommended for EoE treatment. The steroid medications used most frequently include the fluticasone inhaler and budesonide respules. However, instead of inhaling the medicine, patients are instructed not to use a spacer and to swallow the doses.

**Specific Dietary Avoidance:** If food allergen testing reveals specific allergies or sensitivities, elimination of that specific food or foods from the diet is often recommended as first-line therapy. Empiric elimination of specific foods is sometimes recommended even if allergy tests are negative. Common food allergens include cow’s milk, eggs and wheat.

**Complete Elimination Diet:** If EoE symptoms are severe or not responsive to medications or specific dietary avoidance, an elemental (hypoallergenic) diet may be recommended. The patient is put on an amino acid-based formula (all-liquid diet). After a period of about six to eight weeks, gradual reintroduction of food groups is attempted until the problem food(s) is (are) identified.

**Ongoing Care**

Once a patient has an official EoE diagnosis, it is likely to be a chronic condition. Limited diets can be very difficult to follow, so working with patient families to identify long-term, manageable dietary restrictions that still fulfill nutritional needs can be a crucial role of the pediatrician or a dietitian. In addition, pediatricians can monitor the symptoms of patients through regular check-ups.

If your patient experiences any of the following symptoms after being diagnosed with EoE, tell them to follow up with a specialist:

- Lack of improvement
- Worsening of symptoms
- Thrush (can be caused by orally administered steroid medication use)
- Continued food avoidance behaviors
- Difficulty with special diet
- Decreased growth or slowed weight gain

For a food impaction, your patient should contact a gastroenterologist and seek care emergently.
Diagnosis and Management of EoE

Advanced Focus in Eosinophilic Esophagitis

Nationwide Children’s is taking a closer look at causes and therapies of allergic inflammatory conditions of the esophagus. Elizabeth Erwin, MD, researches and practices in the areas of infectious diseases and allergy and immunology with a focus on understanding tolerance to allergens. She is the principal investigator on an NIH K-23 grant studying changes in allergen exposure and reversibility of the tolerant immune response. Dr. Erwin has published on the topic of eosinophilic esophagitis and brings her expertise, along with that of pediatric gastroenterologist John Russo, MD, to services provided within the Division of Gastroenterology, Hepatology and Nutrition.

The EoE Clinic coordinates care for children and adolescents by pediatric specialists within Gastroenterology and Allergy/Immunology. In addition, patients can participate in ongoing research studies to improve evaluation and treatment of EoE.

Referrals and Consultations

Online: NationwideChildrens.org/GI
Phone: (614) 722-6200 or (877) 722-6220 | Fax: (614) 722-4000
Physician Direct Connect Line for 24-hour urgent physician consultations: (614) 355-0221 or (877) 355-0221.