Eosinophilic Disorders of the Gastrointestinal Tract

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KEYWORDS

- Eosinophilic gastrointestinal disorder (EGID) • Eosinophilic esophagitis
- Eosinophilic gastroenteritis • Eosinophilic colitis

KEY POINTS

- Eosinophilic gastrointestinal (GI) disorders are a spectrum of disorders marked by eosinophilic infiltration of mucosa without any known cause for eosinophilia.
- Eosinophilic GI disorders can present with variety of symptoms, ranging from anemia, diarrhea, and malabsorption to obstruction and perforation.
- Incidence of eosinophilic esophagitis (EoE) has been increasing over past the 2 decades and is marked by a chronic relapsing course.
- Eosinophilic colitis (EC) can present as infantile or adult form, managed by dietary and pharmacologic therapy, with infantile form running a more benign course.

EOSINOPHILIC GASTROINTESTINAL DISORDERS

GI eosinophilia can be seen in variety of disorders. When there is no established cause of GI eosinophilia, the disorder is termed a primary eosinophilic GI disorder (EGID). The entire GI tract from esophagus to colon can be affected. This group of disorders includes EoE, gastroenteritis, and less frequently colitis.[1] Causes of GI eosinophilia are summarized in **Box 1**.[2,3]

EOSINOPHILIC ESOPHAGITIS

Introduction

EoE is described as a constellation of esophageal dysfunction, notably dysphagia, with an eosinophil-predominant infiltrate seen on histology. Other causes of esophageal eosinophilia have to be ruled out.[4]

EoE became increasingly recognized as an entity in the 1990s, although first described in 1978.[5] Given recent interest and possibly increasing incidence, much research has been done over the past 2 decades. Diagnostic controversy exists

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Box 1
Causes of gastrointestinal eosinophilia

Inflammatory bowel disease

Parasites
- Hookworms (*Ancylostoma caninum*, *Necator americanus*)
- Pinworms (*Enterobius vermicularis*)
- *Eustoma rotundatum*
- *Ascaris lumbricoides*
- *Trichuris trichiura*

Medications
- Nonsteroidal anti-inflammatory drugs
- Enalapril
- Clozapine
- Carbamazepine
- Rifampin
- Gold salts

Malignancy
- Leukemia
- Hodgkin disease
- Graft-versus-host disease

Autoimmune
- Churg-Strauss syndrome
- Hyper-IgE syndrome
- Hypereosinophilic syndrome
- Polyarteritis nodosa

Data from Hurrell JM, Genta RM, Melton SD. Histopathologic diagnosis of eosinophilic conditions in the gastrointestinal tract. Adv Anat Pathol 2011;18(5):335–48; and Liacouras CA. Eosinophilic gastrointestinal disorders. Practical Gastroenterol 2007;31:53–66.

over the determination of the thresholds for eosinophilia and is compounded by the overall varying symptomatology of EoE. Not all esophageal eosinophilia is classified as EoE. A distinction must be made with the entity proton-pump inhibitor (PPI) responsive esophageal eosinophilia (PPI-REE) and gastroesophageal reflux disease (GERD), in which acid exposure may induce an eosinophilic infiltrate. This usually resolves by prescribing high dose proton pump inhibitors for 8 weeks.[4,6]

EoE has a bimodal distribution. It affects children and is also manifested during the third and fourth decades of life. It predominantly affects boys and men (3:1 male-to-female ratio), and frequently affects non-Hispanic whites. The incidence seems to be increasing. It is frequently a chronic condition with high rates of relapse seen on discontinuing treatment.

The first consensus guidelines were formulated in 2007, with updates from the International Gastrointestinal Eosinophil Researchers (TIGERS) Summary of 2011.[6] The most recent practice guidelines are from the American College of Gastroenterology from 2015.[4]

Basic Pathophysiology

The pathogenesis of EoE involves a complex interplay of genetic, dietary, and environmental factors, causing an eosinophilic infiltrate in the esophageal mucosa, which is normally devoid of eosinophils.[7,8] The exact immune-mediated mechanisms for the esophageal infiltrate are not known and could be immunoglobulin E (IgE) mediated and also delayed type 2 helper T cell (T_H2) responses. Certain interleukins (ILs), notably IL-5, IL-13, and IL-15 expression, are associated with EoE. Dietary allergens are known to play a role in this antigen/immune condition. A positive family history