



Allergic Enteropathy

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Introduction

- Allergic diseases are common in children.
- Clinicians are more familiar with respiratory and skin allergies as they are more obvious and well documented.

Introduction

- .Gastrointestinal allergy though not uncommon,
 - is less readily recognised.
 - gastrointestinal symptoms due to non-allergic conditions can manifest with the same symptoms or signs.

A vertical strip on the left side of the slide shows a microscopic image of tissue. It features a dense infiltration of eosinophils, which appear as bright pink/red granules with reddish-orange nuclei. The surrounding tissue is stained with hematoxylin, showing purple nuclei. The overall appearance is characteristic of eosinophilic gastroenteritis.

Eosinophilic gastroenteritis

- Eosinophilic gastroenteritis characterized by
 - (1) the presence of abnormal GI symptoms
 - (2) eosinophilic infiltration in 1 or more areas of the GI tract, defined as 20 or more eosinophils per high-power field;

A vertical strip on the left side of the slide shows a microscopic image of tissue. It features a dense infiltration of eosinophils, which are characterized by their bright red-orange granules and bilobed nuclei. The surrounding tissue appears somewhat disorganized and inflamed. The background of the slide is a gradient from light orange at the top to white at the bottom.

Eosinophilic gastroenteritis

- (3) the absence of an identified cause of eosinophilia
- (4) the exclusion of eosinophilic involvement in organs other than the gut.



Pathophysiology

- The etiology of EGE is unknown, and the pathogenesis is poorly understood.



Pathophysiology

- EGE is thought to be a disorder of the GI tract, in which various inflammatory stimuli may trigger an eosinophilic infiltration of the GI tract.
- These, in turn, cause tissue damage by degranulation and cytokine release.



Pathophysiology

- Examples of stimuli that have an incriminating role in triggering this inflammation include
 - food allergens
 - immunologic disorders
 - possibly, undiscovered infections.



Immunologic findings

- The mucosal surface of the gastrointestinal tract functions as an organ for nutritional intake as well as for host defenses



Immunologic findings

- The enterocytes are in constant contact with a number of antigenically active proteins. They include
 - naturally occurring food protein antigens
 - food proteins that have been altered in meal preparation or by gastric or intestinal digestive admixture.
 - micro-organisms or swallowed aeroallergens .

A vertical strip on the left side of the slide shows a microscopic view of intestinal mucosa, characterized by a dense, colorful pattern of purple, green, and blue, likely representing various cell types and structures stained for immunological analysis. The background of the slide is a gradient from pink at the top to light orange at the bottom.

Immunologic findings

- The mucous coating
- the network of immunocompetent cells
- inflammatory cells
- nerves
- blood vessels in the lamina propria and submucosa
- constitute the complex defense system of the intestinal mucosa.

A vertical strip on the left side of the slide shows a microscopic image of tissue. The tissue is stained, showing various colors including purple, green, and yellow, which are characteristic of histological staining. The image appears to be a cross-section of mucosal tissue with significant eosinophilic infiltration, indicated by the presence of numerous eosinophils (stained purple) within the tissue layers.

Immunologic findings

- The hypothesis that eosinophilic infiltration of the mucosa is associated with an adverse, immunologic response had been well received



Immunologic findings

- Interleukin 5 (IL-5) is a cytokine secreted from the lymphocytes that attracts eosinophils. It is responsible for tissue eosinophilia.



Immunologic findings

- Once activated, normal human eosinophils themselves are primed to secrete a variety of inflammatory mediators under the influence of IL-3 and IL-5



Immunologic findings

- The eosinophils can also produce
 - the cytokine transforming factors
 - granulocyte-macrophage colony-stimulating factor
 - IL-3 and IL-5.
- The eosinophils itself can therefore contribute to the propagation of the eosinophilic inflammatory process.



Frequency:

- The disease is rare
- and the incidence is difficult to estimate.
- more than 280 cases have been reported in the medical literature.



Race:

- Cases of EGE are reported mostly in Caucasians
 - with some cases occurring in Asians.



Sex:

- A slight male preponderance has been reported .



Classification

- Ureles *et al* were the first to categorize the pattern of clinical presentation
 - Class I diffuse eosinophilic gastroenteritis
 - Class II circumscribed eosinophilic-infiltrated granuloma



Classification

- Class I was further subdivided by the patterns of disease distributed into
 - polyenteric,
 - monoenteric
 - regional forms.
- Involvement of the pyloric region was found in all patients in all groups .



Classification

- Class I Diffuse eosinophilic gastroenteritis Polyenteric type
- Group A : Involved pylorus
- and proceed in antegrade fashion to involve small intestine
Eosinophilic infiltrate involved submucosa, muscle bundles deep submucosa to serosa.
- Mucosa free from involvement
Mono-enteric type



Classification

- - Group B :
 - Same gross and microscopic involvement as in group A but proceeded retrograde from pylorus to involve entire stomach
 - Regional type



Classification

- Group C Limited to pre-pylorus and pylorus

Circumscribed eosinophilic-infiltrated granuloma



Classification

- Class II

Group A : Regional type

Lesions found throughout intestinal tract

Group B : Polypoid type

Lesions confined to pyloric antrum



Clinical Presentation

- Esophageal eosinophilia that persists despite traditional antireflux therapy may represent a sign of allergic esophagitis.



Clinical Presentation

- Allergic eosinophilic esophagitis is characterized by chronic esophagitis, with or without reflux.



Clinical Presentation

- Affected children present with
 - intermittent vomiting,
 - food refusal,
 - abdominal pain
 - failure to respond to conventional reflux medications.
- Occasionally, esophageal strictures develop.



Clinical Presentation

- Eosinophilic gastritis that is responsive to elimination diets occasionally has been reported.



Clinical Presentation

- Symptoms and signs are those usual for gastritis of different etiologies, such as
 - postprandial vomiting
 - abdominal pain
 - anorexia
 - early satiety
 - and failure to thrive



Clinical Presentation

- Approximately half of these patients have atopic features.



Allergic eosinophilic esophagitis

- Total serum IgE is normal or slightly elevated.
- Peripheral eosinophilia is uncommon.
- Skin test and RAST are frequently negative.
- Results of pH testing can be pathological or normal.
- Esophageal biopsy reveals infiltration of the mucosa and submucosa with eosinophils.



Allergic eosinophilic gastritis

- The IgE level is elevated in approximately half of patients.
- Peripheral eosinophilia is present in approximately half of patients.
- Gastric biopsy reveals marked infiltration of the mucosa and submucosa with eosinophils (especially in the gastric antrum).

A vertical strip on the left side of the slide shows a microscopic image of tissue. It features a dense infiltration of eosinophils, which appear as bright pink/red cells with characteristic bilobed nuclei. The surrounding tissue is stained with hematoxylin, showing purple nuclei and various cellular structures. The overall appearance is consistent with allergic eosinophilic gastroenteritis.

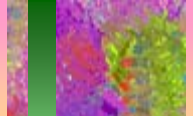
Allergic eosinophilic gastroenteritis

- Peripheral eosinophilia is commonly found, but it is not reliable as a diagnostic criterion.
- Diagnosis requires a biopsy specimen showing an eosinophilic infiltration of the mucosa and submucosa



Upper endoscopy

- In cases with eosinophilic esophagitis, various degrees of hyperemia are seen macroscopically
- . Microscopically, eosinophils are seen infiltrating the esophageal wall.
- However, no pathognomonic histologic characteristics are associated with eosinophilic esophagitis.





Biopsy

- In allergic eosinophilic esophagitis, esophageal biopsy reveals infiltration of the mucosa and submucosa with eosinophils

A vertical strip on the left side of the slide shows a microscopic view of gastric tissue. The tissue is stained, likely with hematoxylin and eosin (H&E), showing various cellular structures and a dense infiltration of eosinophils, which appear as bright pink/red cells. The background of the slide is a gradient from light pink at the top to light orange at the bottom.

Biopsy

- In allergic eosinophilic gastritis, gastric biopsy reveals marked infiltration of the mucosa and submucosa with eosinophils (especially in the gastric antrum).



Biopsy

- Patients with mucosal layer involvement may benefit from anti-inflammatory medications
 - (oral glucocorticoids, oral cromolyn)
 - diet elimination therapy, particularly if they report a history of food intolerance or allergy.
- Reports exist of successful treatment with elemental diets (eg, Vivonex).



Treatment

- Patients with mucosal layer involvement may benefit from anti-inflammatory medications
 - (eg, oral glucocorticoids, oral cromolyn)
 - diet elimination therapy, particularly if they report a history of food intolerance or allergy.
- Reports exist of successful treatment with elemental diets (eg, Vivonex).

References

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