



Eosinophilic Esophagitis

Dr. Mustafa Ben-Hkouma

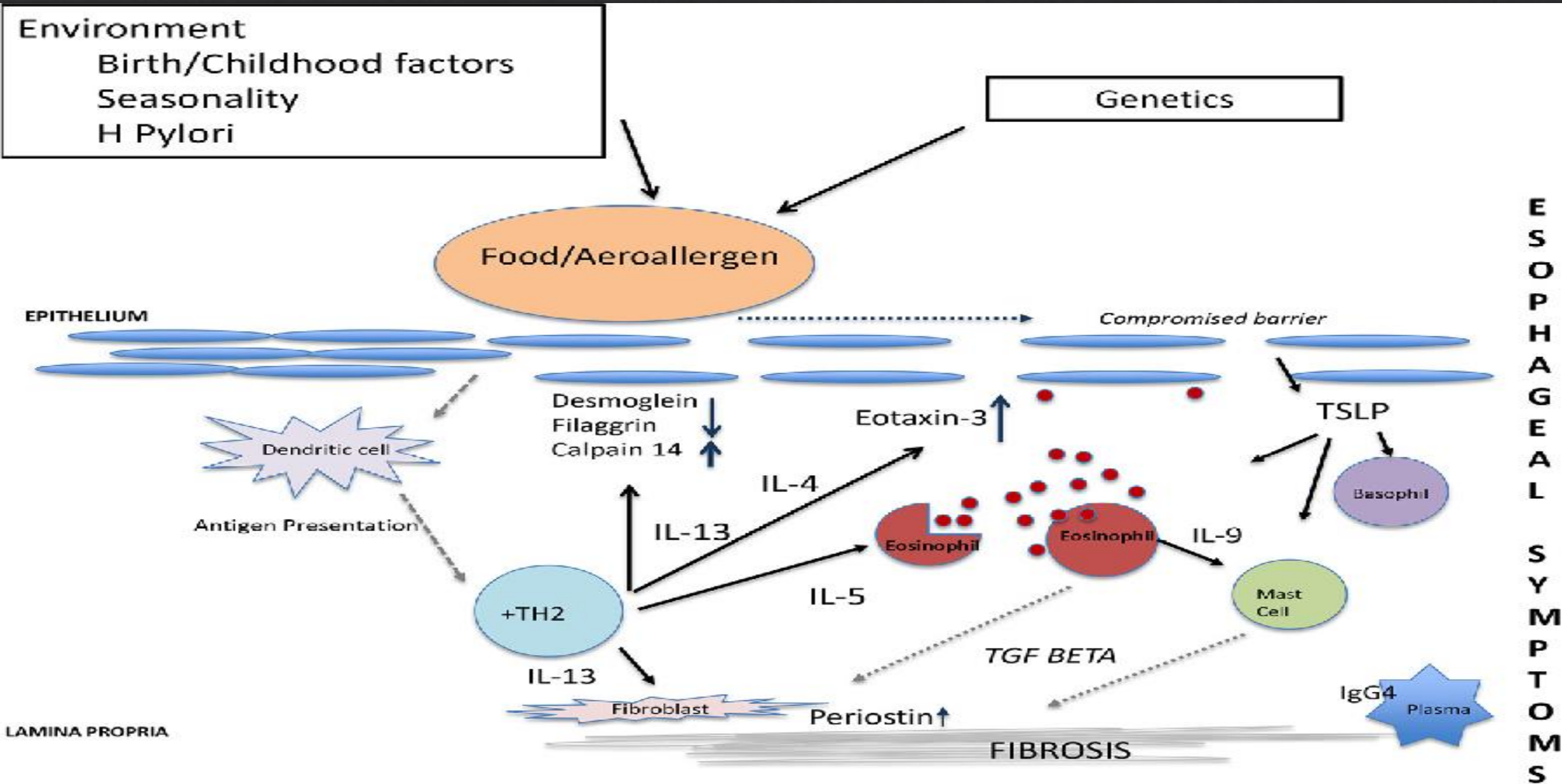
Definition

- ◇ chronic immune/antigen-mediated esophageal disease characterized clinically by symptoms related to esophageal dysfunction and histologically by eosinophil-predominant inflammation with following criteria:
 - ◇ Symptoms related to esophageal dysfunction
 - ◇ Maximum eosinophil count of ≥ 15 eos/hpf.
 - ◇ Eosinophilia limited to the esophagus
 - ◇ Exclusion of other possible causes of esophageal eosinophilia

Epidemiology

- ◇ More common in men
- ◇ Common in white population
- ◇ Common in children
- ◇ Can be present in third and fourth decades

Pathogenesis



Diagnosis

- ◇ At least five biopsies must be obtained
- ◇ Preferably from both the proximal and distal esophagus
- ◇ To account for the heterogeneous nature of the tissue eosinophilia.
- ◇ To diagnose EOE should include :
 - ◇ Symptoms, Endoscopic features and histological features.

Clinical Symptoms

Dysphagia

Food impaction

Nausea and vomiting

Heartburn

Abdominal pain

Chest pain

Rhinitis

Asthma

Atopic dermatitis

Endoscopic features

- ◇ Diminished vascular pattern
- ◇ Mucosal furrows
- ◇ Thick mucosa
- ◇ Exudate
- ◇ Stricture
- ◇ Rings



a: Normal-caliber esophagus with a normal appearance mucosal surface; b: Fragile-looking mucosa, with irregular surface and whitish exudates; c: Reduced-caliber, trachealized esophagus with regular mucosal surface, which allows the passage of the endoscope; d: Longitudinal linear furrows and irregular mucosa; e: The esophageal mucosal surface may be covered in cotton-like exudates mimicking candidiasis, but biopsy finds them to be multiple eosinophil-containing micro-abscesses; f: Ringed esophagus with stenosis blocking the passage of the endoscope

Histological Features

- ◇ Thick epithelium with eosinophilia
- ◇ Abnormally long papillae
- ◇ Fibrotic lamina propria
- ◇ Microabscesses
- ◇ Extracellular eosinophilic granules
- ◇ Increase extracellular major basic protein (MBP)

Inside of esophagus

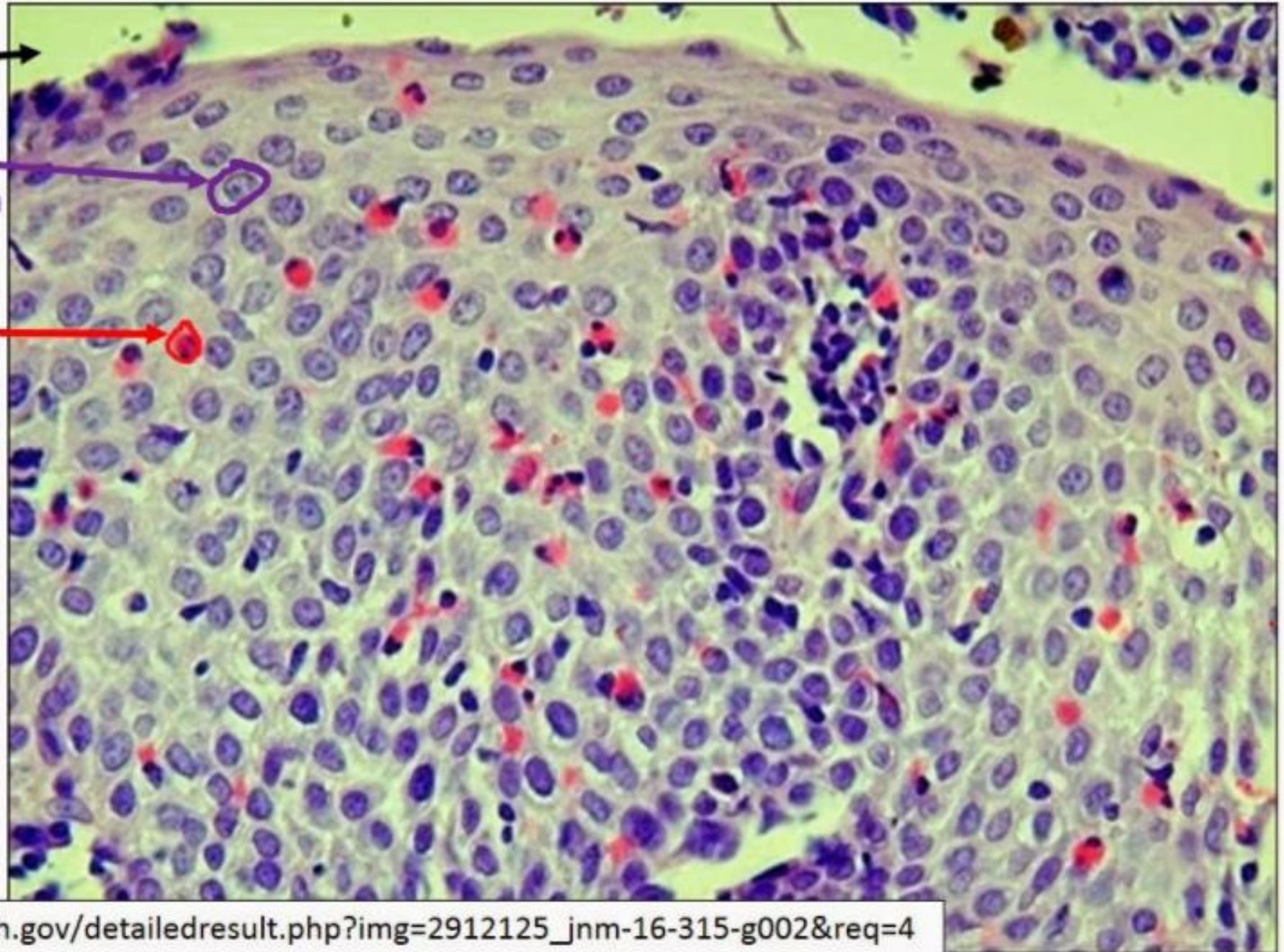
The tube = "lumen"

A single epithelial cell

- The cells that line the lumen
- Purple-colored cells

A single eosinophil

- Immune cell
- Not normally present in large numbers
- Red-colored cells



Diagnostic Challenges

◇ *PPI- Responsive esophageal eosinophilia and GERD:*

- ◇ Esophageal symptoms and histological finding of esophageal eosinophilia.
- ◇ Symptomatic and histological response to PPI.

◇ *To exclude PPI-REE:*

- ◇ Two months course of PPI followed by endoscopy and biopsies.
- ◇ Clinical, endoscopic and/or histological response to a PPI doesn't establish GERD as the cause of esophageal eosinophilia.
 - ◇ Additional evaluation for GERD as per standard clinical practice is recommended

Treatment

- ◇ Pharmacological therapy
- ◇ Dietary therapy
- ◇ Endoscopic therapy

Pharmacological Therapy

Topical Steroid

- ◇ Mainstay of EoE treatment and first line agents.
- ◇ Fluticasone and budesonide:
- ◇ Improved patient symptoms
- ◇ Decreased esophageal eosinophilia
- ◇ Generally well-tolerated

Systemic steroid

- ◇ Such as corticosteroid
- ◇ Second line of treatment
- ◇ Effective, limited usage due to side effects and recurrence after withdrawal.
- ◇ Used where topical steroids are not effective.

Leukotriene antagonists and mast cell stabilizers

◇ *Leukotriene antagonists:*

◇ Montelukast: is not routinely recommended

◇ *mast cell stabilizers:*

◇ cromolyn sodium: : is not routinely recommended

Immunomodulators

- ◇ azathioprine or 6MP: excellent response in esophageal eosinophilia
- ◇ Relapsed after the treatment discontinued
- ◇ Not recommended in EoE.

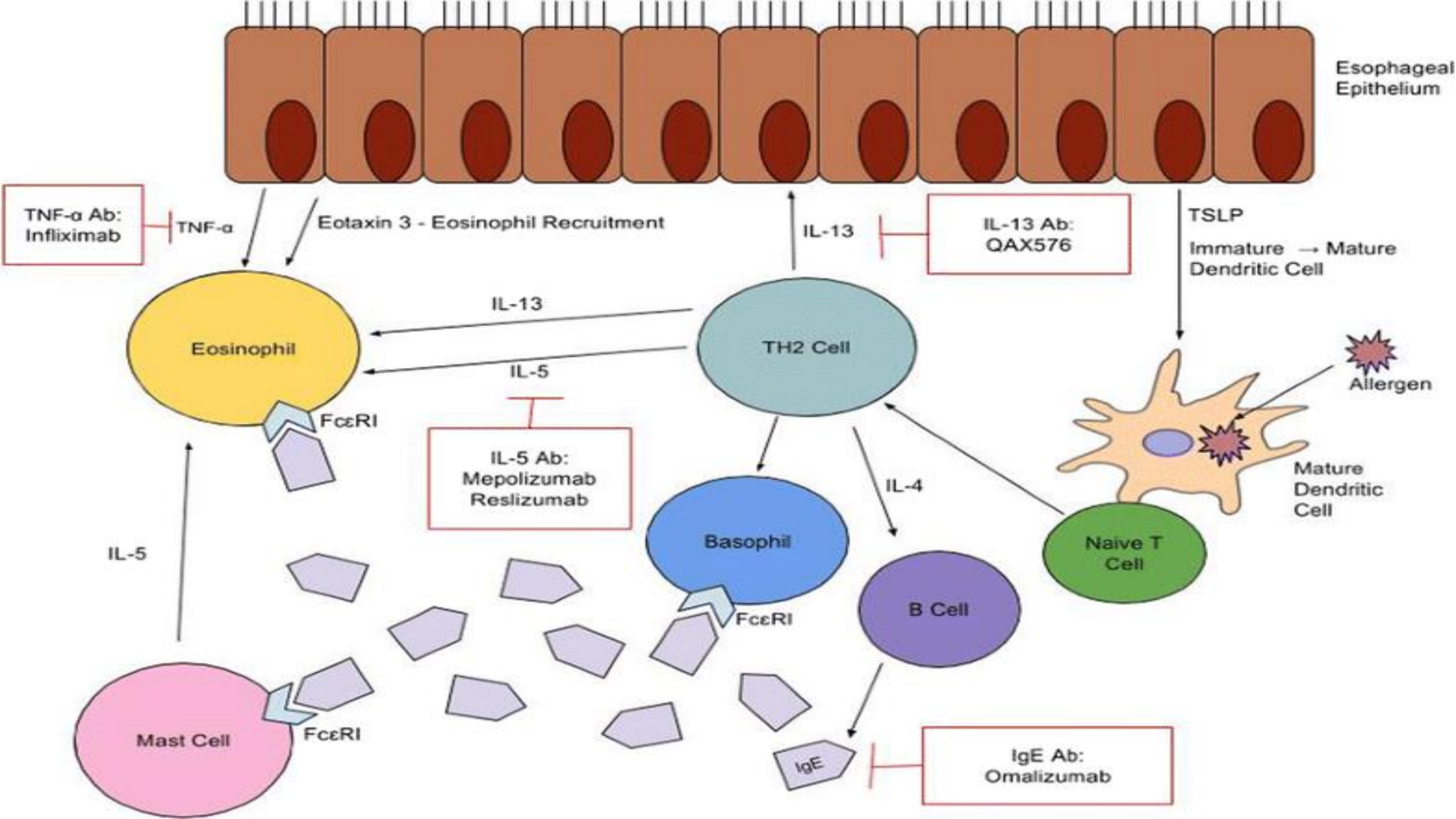
Biologics

- ◇ *Mepolizumab / Reslizumab*: anti-IL-5
 - ◇ Improve symptoms
 - ◇ Reducing levels of esophageal eosinophilia
 - ◇ Not yet commercially available
 - ◇ Not recommend for routine use in EoE.

- ◇ *Omalizumab*: an antibody to IgE
 - ◇ Not effective in EoE
 - ◇ Not recommended for use in EoE

Biologics

- ◇ anti-IL-13 and anti-eotaxin-3 are under development.
- ◇ Chemoattractant receptor-homologous molecule expressed on Th2 cells (CRTH2) antagonist:
 - ◇ Has a mild improvement in esophageal eosinophilia
 - ◇ Further studies will be needed to assess its clinical utility



Dietary therapy

- ◇ There are three general strategies for dietary elimination in EoE:
 - ◇ Elemental diet
 - ◇ Six-food elimination diet
 - ◇ Targeted elimination diet

Dietary therapy

- ◇ The specific approach depends on:
 - ◇ Local allergy and nutritional expertise and support
 - ◇ Patient and family preferences
 - ◇ Resources, and motivation.
- ◇ If a patient decides to embark on dietary therapy:
 - ◇ Referral to an allergist may be considered
 - ◇ To determine whether specific testing for food allergies is needed

Elemental diet

- ◇ **can be difficult:**

- ◇ formulas are expensive

- ◇ Unpalatable

- ◇ May need to be administered via an enteral feeding tube

- ◇ extremely restrictive

- ◇ can adversely impact quality of life

Six-food elimination diet

- ◇ eliminates 6 of the most common food allergens:
 - ◇ milk, eggs, wheat, soy, seafood, and nuts
 - ◇ More palatable than the elemental diet.
 - ◇ After a food reintroduction protocol, wheat and milk were the most identified allergens.

Targeted elimination diet

- ◇ Food allergens identified on allergy testing are eliminated.
- ◇ Using skin prick and atopy patch testing.
- ◇ The response rates have been closer to the 55–75% range in children and potentially lower in adults.

Endoscopic therapy

◇ *Indications:*

- ◇ first consensus guidelines for EoE recommended a very cautious approach to dilation only after institution medical or dietary therapy.
 - ◇ Esophageal strictures or narrow caliber esophagus
 - ◇ Symptoms of dysphagia
-
- ◇ Wire-guided bougie dilation or through-the-scope (TTS) balloon dilation are commonly used in practice.

Complications:

◆ *Complications of EoE:*

- ◆ Acute food impactions
- ◆ Long and short segment narrowing
- ◆ Stenosis

◆ *Complications of therapeutic interventions:*

- ◆ Mucosal rents/tears
- ◆ Perforation
- ◆ Infections-due to chronic use of steroids
- ◆ Nutritional deficiencies

Take home message

- ◆ Diagnosis should include symptoms, endoscopic and histological features of EoE.
- ◆ Biopsies should be obtained from both proximal and distal esophagus
- ◆ Topical Steroid is the first line treatment
- ◆ Dietary elimination can be considered as an initial therapy in treatment of EoE
- ◆ Endoscopic dilatation considered with very cautious in EoE with strictures not respond to medical therapy.

References

- ◇ Diagnosis and management of eosinophilic esophagitis Evan S. Dellon, MD MPH^{1,2} ¹Center for Esophageal Diseases and Swallowing, Division of Gastroenterology and Hepatology, Department of Medicine, University of North Carolina School of Medicine, Chapel Hill, NC ²Center for Gastrointestinal Biology and Disease, Division of Gastroenterology and Hepatology, Department of Medicine, University of North Carolina School of Medicine, Chapel Hill, NC. Clin Gastroenterol Hepatol. 2012 October ; 10(10): 1066–1078. doi:10.1016/j.cgh.2012.06.003.
- ◇ ACG Clinical Guideline: Evidenced Based Approach to the Diagnosis and Management of Esophageal Eosinophilia and Eosinophilic Esophagitis (EoE) Evan S. Dellon , MD, MPH ^{1,6} , Nirmala Gonsalves , MD ^{2,6} , Ikuo Hirano , MD, FACP ^{2,6} , Glenn T. Furuta , MD ³ , Chris A. Liacouras , MD ⁴ and David A. Katzka , MD, FACP ⁵. Am J Gastroenterol 2013; 108:679–692; doi: 10.1038/ajg.2013.71; published online 9 April 2013.



Thank you