

CLINICOPATHOLOGICAL CORRELATION IN THE DIAGNOSIS OF EOSINOPHILIC ESOPHAGITIS: A RETROSPECTIVE ANALYSIS

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Resume. The diagnosis of Eosinophilic Esophagitis (EoE), going back, is a chronic Immune-mediated condition diagnosed by linking clinical, endoscopic, and Histopathological (HP) features. This study investigated 30 cases of children/adolescents that have been suspected for EoE using a retrospective study to establish a correlation between the endoscopic presumption of EoE and the definitive Histopathological (HP) diagnosis of EoE. It was found this study indicated that the definitive diagnosis of EoE is highly correlated with the findings made by histopathologic evaluation, including eosinophils > 15 per high power field (hpf), basal zone hyperplasia, and spongiosis. The study also demonstrated that many instances of diagnostic error occurred in cases whereby the number of biopsies performed appeared to be restricted to the distal esophagus. The study further illustrates the necessity for an exhaustive systematic esophageal biopsy sampling process and thorough HP evaluation when trying to achieve an accurate diagnosis for EoE.

Keywords: eosinophilic esophagitis, pathological anatomy, diagnosis, histopathology.

Relevance. The prevalence and diagnosis of eosinophilic esophagitis (EoE) have risen over the last two decades, with EoE now being among the leading causes of esophageal disorders in children and adults alike. Patients with EoE present with nonspecific symptoms that can mimic gastroesophageal reflux disease (GERD), including dysphagia, food on the throat, chest pain, and/or vomiting. Although endoscopic features in the esophagus, such as esophageal wall thickening, line/stripping, and areas with white flecks and rings along the esophageal walls, may raise suspicion for EoE, none of these findings are definitively diagnostic (i.e., although these signs have a strong correlation with EoE, these signs may also occur in other esophageal disorders such as GERD). Although the only definitive test for diagnosing EoE is through an examination of esophageal tissue, the tissue histopathology

associated with EoE (eosinophils present in elevated numbers) may not be uniformly present and may also be present in lower numbers in GERD. Thus, diagnosing EoE from other eosinophil-dominant esophageal disorders represents a significant diagnostic challenge to both clinicians and pathologists. The specific treatment for EoE as opposed to other eosinophil-associated esophageal disorders is quite different than the treatment for GERD; in order to ensure accurate treatment of these disorders by matching the appropriate treatment option to each disorder, it is necessary to understand both diseases from a clinicopathological standpoint and the correlation between them.

Aim: will be to determine the relationship between the clinical findings of eosinophilic esophagitis (EoE) and the pathological findings of EoE by comparing the initial clinical/endoscopic

diagnosis of EoE as a suspected diagnosis with the final diagnosis of EoE made by the pathologist after reviewing the tissue samples.

Objectives:

1. To review the clinical information, presumptive clinical diagnosis, and pathological diagnosis of the patients included in the analysis.

2. To identify the extent of the histopathological changes (eosinophil count, basal zone hyperplasia, spongy changes) found in the biopsy specimens of the eosinophilic esophagus.

3. To measure the level of agreement between the clinical diagnosis of EoE and the final pathological diagnosis of EoE.

4. To identify patients with differences between their clinical diagnosis of EoE and the final histopathological diagnosis and investigate the reasons for these differences.

Materials and methods. After obtaining ethical approval, we performed a retrospective chart review of thirty patient cases retrieved from the hospital's patient database using the patient's endoscopic reports and the associated histopathologic diagnoses of the esophagus over the reporting cycle of 2025. The demographic information (age and sex), clinical presentation, endoscopic findings, and working diagnosis, biopsy locations, and final pathologic assessment were all obtained from the medical record for each patient reviewed. The histological assessment of the H&E stained slides from the formalin-fixed paraffin-embedded tissue was performed according to the following histological parameters; peak eosinophilia per high-power field (hpf; 400x), basal zone hyperplasia,

spongiosis (edema between cells), microabscesses with eosinophils, and eosinophilic layering in the surface layers. Eosinophilic esophagitis (EoE) was likely diagnosed when there were more than 15 to 20 eos/hpf and EoE was confirmed by adequate clinical symptoms and exclusion of other causes of eosinophilia in the esophagus. The statistical analysis performed was descriptive in nature.

Results and their discussion. The range of ages for patients in this study was 1–17 years, with a predominance of young boys (22 male to 8 female). The final pathological diagnoses of the children included 17 cases of eosinophilic esophagitis (EoE), which represented 56.7% of total cases; and 8 cases of reflux esophagitis (GERD), which represented 26.7% of total cases (e.g., 5 other cases that could have been diagnosed as either EoE or Reflux). There was a distinct difference in peak eosinophil counts among the confirmed cases of EoE. For example, both cases 142901-10 (2025) and 6322-35 (2025) had a peak eosinophil count of > 100 eos/hpf, as shown by the presence of pooling lesions that resembled pools of water, and small abscess formations indicative of EoE. All confirmed EoE cases had characteristic histological features, which included prominent basal hyperplasia and spongiosis.

The pathology diagnosis resulting from the biopsy procedures performed will have an effect on the EoE diagnosis for a biopsy performed on 143633-46(2025) and for selected cases that were indeterminate (by biopsy) (10456-71(2025)) and for those that were presumed to be reflux disease (9179-98(2025)). Most biopsy observations made by pathologists were for eosinophil

counts obtained from the lower esophagus and/or were borderline in nature (eosinophil count (eo/hpf) of 5-30) thus warranting consideration of other causes or evaluation of specimens obtained from the mid to upper portions of the esophagus since EoE can be diagnosed anywhere throughout the esophagus while GERD typically presents at the lower end of the esophagus only; it was not possible to definitively diagnose GERD without evidence of an EoE diagnosis from the upper esophagus. All patients with eosinophilic esophagitis (EoE) had a high-comorbidity profile for allergic disorders (such as asthma, allergic rhinitis, and atopic dermatitis) and a high prevalence of gastroesophageal reflux disease (GERD) and cardiac insufficiency. A complex patient case (2025/15879-96) that was complicated by Barrett's esophagus; this case exemplified the long-term complications or aftereffects of severely chronic esophagitis. In the majority of cases, it was found that approximately seventy percent of all presumptive endoscopic diagnoses and pathologic diagnosis matched; the most common discrepancy between endoscopic and histologic findings occurred when the endoscopist suspected "peptic" or "reflux" esophagitis when there was evidence of significant eosinophilic infiltration on histologic findings.

Conclusion:

1. A diagnosis of EoE can only be made definitively if a clinicopathological correlation is obtained. The gold standard for establishing histopathological

diagnosis is eosinophil counts greater than or equal to 15 per high-power field (hpf), basal zone hyperplasia, and spongiosis as determined by histopathological examination.

2. There is a significant effect on diagnostic accuracy by the biopsy protocol used to obtain biopsies. Biopsies should be systematically obtained from multiple levels of the esophagus (e.g., proximal, mid, and distal esophagus) to accurately distinguish between EoE and GERD and to minimize sampling error.

3. There is often significant diagnostic discrepancy between preliminary endoscopic impressions and final histopathological diagnosis. This reflects the fact that the majority of endoscopic findings are nonspecific and the final diagnosis is based on the results of histopathology.

4. In addition to asthma, a significant number of patients with EoE have one or more other comorbidities, including food allergies and GERD, as well as Barrett's esophagus, which can result from the long-term inflammatory changes and need to be evaluated precisely histopathological for appropriate staging and management.

5. Future diagnostic strategies for EoE should focus on the development of a standardized, multi-level esophageal biopsy protocol, in conjunction with a comprehensive histopathologic review of the biopsy samples, in order to ensure an accurate diagnosis, the selection of appropriate therapies, and improved patient outcomes

Literature

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КЛИНИКО-ПАТОЛОГИЧЕСКИЕ КОРРЕЛЯЦИИ В ДИАГНОСТИКЕ ЭОЗИНОФИЛЬНОГО ЭЗОФАГИТА: РЕТРОСПЕКТИВНЫЙ АНАЛИЗ

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Резюме. Эозинофильный эзофагит (ЭоЭ) - хроническое иммуноопосредованное заболевание, диагностика которого основывается на взаимосвязи клинических, эндоскопических и гистологических данных. В данном исследовании проведён ретроспективный анализ 30 клинических случаев детей и подростков с подозрением на ЭоЭ с целью определения соответствия между предварительным эндоскопическим диагнозом и последующим патоморфологическим заключением. В результате исследования было установлено, что окончательный диагноз ЭоЭ в значительной степени зависит от гистологического подтверждения, которое включает: содержание 15 или более эозинофилов на большом увеличении в поле зрения, базальную гиперплазию и спонгиоз. Отступления от диагноза отмечены в случаях ограниченной биопсии, полученной только из дистального отдела пищевода. Исследование подчеркивает, что системный забор биоптатов из разных отделов пищевода для диагностики ЭоЭ обязателен.

Ключевые слова: эозинофильный эзофагит, патологическая анатомия, диагностика, гистопатология.