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Clinical-pathological correlation of endoscopic findings in eosinophilic esophagitis in the pediatric population

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Dear Editor,

Eosinophilic esophagitis (EoE) is an immunologic disorder of the esophagus with an increasing incidence in our region of 8.1 cases per 100,000 inhabitants per year (1). It is characterized by dysphagia, and its diagnosis requires esophagoscopy with biopsies for histopathological analysis, which macroscopically reveals certain characteristic endoscopic

findings, although their diagnostic utility remains uncertain (2,3). The correlation between these endoscopic findings and the histopathological diagnosis of EoE continues to be the subject of controversy in the pediatric population. This study evaluates the clinical-pathological association of different endoscopic abnormalities in EoE. We conducted an analytical study of patients under 15 years of age who underwent esophagoscopy due to highly suspicious symptoms of EoE at a pediatric hospital between 2015 and 2022 (Reg. 341E/2023). Patients with normal pathological reports and those with a histological diagnosis of EoE were included; children with different diagnoses were excluded from the analysis. The prevalence of different macroscopic abnormalities, as determined by the agreement of at least two of the three endoscopists present during the procedure, were compared along with their association with histopathological abnormalities between patients with EoE and those without the disease (NEoE). A total of 24 subjects with EoE and 17 NEoE children were included. Endoscopic normality, defined as the absence of macroscopic esophageal mucosal lesions, was more prevalent among NEoE patients, whereas the most prevalent macroscopic abnormality in EoE patients was trachealization ($p < 0.05$) (Table 1).

The diagnostic criteria for EoE include symptoms of esophageal dysfunction, > 15 intraepithelial eosinophils/HPF, and limited esophageal involvement in the absence of other causes of esophageal eosinophilia. Therefore, diagnosis ultimately requires esophagoscopy (4). Compared to previous studies describing endoscopic normality in 10-30 % of EoE cases (5), our data show 12 % normality in EoE patients, which aligns with these figures but also highlights the importance of other findings, such as trachealization. In fact, endoscopic normality was significantly higher in NEoE patients compared to those with EoE (47 % *vs* 12 %; $p = 0.014$), suggesting that macroscopic normality might initially point to another etiology for the symptoms, although the definition of “normality” has a significant subjective component. Trachealization, a characteristic finding of the disease, is present in 5-50 % of EoE patients. In our cohort, esophageal trachealization was documented in 25 % of EoE patients, while it was absent in all NEoE subjects. This was the only macroscopic finding that demonstrated a statistically significant association with EoE ($p = 0.026$). In an analysis of 189 paired biopsies from 115 children with EoE, macroscopic endoscopic scores (edema, rings, exudates, furrows, and strictures) moderately correlated with histological

scores (r = 0.61) (6). In our cohort, the concurrent presence of exudates, trachealization, and longitudinal furrows was more common in EoE patients than in NEoE children (16 % *vs* 0 %), although it was not statistically significant (p = 0.076).

Although this study has limitations related to sample size and the subjectivity of interpreting endoscopic findings, our results suggest that the absence of endoscopic abnormalities in the esophagus should prompt consideration of other differential diagnoses, while trachealization is associated with the histological diagnosis of EoE. Furthermore, the combination of exudates, trachealization, and longitudinal furrows should warrant continued clinical vigilance in the presence of indeterminate histological results.

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Table 1. Macroscopic endoscopic findings and their histopathological association with eosinophilic esophagitis

Macroscopic endoscopic abnormality n (%)	*NEoE (n = 17)*	*EoE (n = 24)*	*p value*
None	8 *(47.1 %)*	3 (12.5 %)	*0.014*
Erythema	5 *(29.4 %)*	3 (12.5 %)	0.178
Mucosal friability	1 *(5.9 %)*	0 (0 %)	0.229
Exudates	1 (5.9 %)	3 *(12.5 %)*	0.482
Trachealization	0 (0 %)	6 *(25 %)*	*0.026*
Longitudinal furrows	0 (0 %)	1 *(4.2 %)*	0.394
Incompetent cardia	0 (0 %)	1 *(4.2 %)*	0.394
Exudates, trachealization and longitudinal furrows	0 (0 %)	4 (*16.7 %)*	0.076
Exudates and trachealization	2 (11.8 %)	3 *(12.5 %)*	0.943

EoE: with eosinophilic esophagitis; NEoE: without eosinophilic esophagitis.