

Quantification of Mast Cells in Patients with Inactive Eosinophilic Esophagitis versus Non-EoE Controls
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Background: Eosinophilic esophagitis (EoE) is a chronic inflammatory disease characterized by esophageal dysfunction with associated endoscopic as well as histopathologic changes. Pediatric patients with EoE often present with dysphagia, abdominal pain, symptoms of GERD, or food impactions. On endoscopy, these patients have both inflammatory and/or fibrostenotic features. Biopsy specimens demonstrate ≥ 15 eosinophils per high power field, a diagnostic feature of EoE. The etiology of EoE is unclear and though the role of eosinophils is well described, other inflammatory mediators are also postulated to have a role in the disease process. Recent studies, for example, have shown that some patients with histologically inactive EoE continue to have abnormal endoscopic findings and persistent symptoms.

Objective: To quantify the number of mast cells present in patients with inactive EoE using manual oversight of computer based analysis software.

Design/Methods: A total of 93 patients from the Lurie Children's Eosinophilic Gastrointestinal Disease Database with inactive EoE were included in the study. Esophageal biopsy specimens were compared to 35 non-EoE controls. Patient biopsy specimens from both mid and distal esophagus were immunohistochemically stained for tryptase – a marker of mast cells. Slides were scanned using Nikon Elements software at 40X magnification. Nikon Analysis software with manual oversight was then used to quantify mast cells within both the epithelium and lamina propria if present.

Results: Final statistical results are not yet available; however, preliminarily, data shows correlation between manual counts and computer generated mast cell counts.

Conclusions: Mast cells are increased in biopsies from children with EoE with persistent endoscopic and epithelial abnormalities despite histologic resolution of eosinophilia. Computer analysis of mast cell counts appears to be an effective means to quantify mast cells when compared to manual counts.