

Quantification of the duodenal eosinophil content in adults: a necessary step for an evidence-based diagnosis of duodenal eosinophilia

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Summary

Background: The normal content of eosinophils in the adult duodenum remains undefined. Therefore, there is no foundation for evidence-based criteria to diagnose eosinophilic duodenitis.

Aim: This study aimed at: (1) establishing the range of the eosinophil density in the mucosa of the duodenum of normal adults, and (2) determining the biopsy-based prevalence of isolated eosinophilic duodenitis in a large population of adults.

Methods: We counted intact eosinophils in three separate high-power fields (hpf area = 0.237 mm² each) with the highest densities of eosinophils from the duodenal biopsy specimens of 370 consecutive adults (60% women) with no history of small intestinal disease and a normal duodenal histology. From a large database we also extracted patients with a diagnosis of elevated duodenal eosinophilia and reviewed their biopsies and clinical history.

Results: The mean eosinophil count for the 370 patients was 8.2 eos/hpf with a standard deviation of ± 6.3 . Twenty-seven of the 370 had eosinophil counts outside the 95% range, which was calculated as: mean + 1.96 \times SD = 20.4 eos/hpf. In a database of 458 668 adult subjects, 31 patients (6.8/100 000) had elevated duodenal eosinophilia; 21 of these had other gastrointestinal organs involved by eosinophilia, suggesting eosinophilic gastroenteritis. No significant association between duodenal eosinophilia and any specific symptom was observed.

Conclusions: This study suggests that in this diverse US population, a cut-off count of 20 eos/hpf would be useful to separate patients with normal from those with elevated duodenal eosinophilic infiltrations. The clinical implications of duodenal eosinophilia, particularly when it is not an expression of eosinophilic gastroenteritis, remain to be established.