General Pathologists Did Not Routinely Evaluate Gastric or Duodenal Eosinophilia

A. Joe Saad MD1, Kevin O. Turner DO1, Amol Kamboj MD2, Evan S. Dellon MD MPH2, Mirna Chehade MD MPH4, Robert M. Genta MD, FACG1,5

1MDMC, UTSWMC; 2Allakos Inc., Redwood City, CA; 3University of North Carolina, Chapel Hill, NC; 4Icahn School of Medicine at Mount Sinai, New York, NY; 5Baylor College of Medicine, Houston, TX

Background

- Pathologic accumulation and over-activation of eosinophils and mast cells are implicated in chronic inflammatory diseases in the gastrointestinal (GI) tract, such as eosinophilic gastritis (EoG) and duodenitis (EoD).1,2
- Patients with EoG and/or EoD have chronic, unexplained symptoms such as abdominal pain and/or cramping, bloating, early satiety, loss of appetite, nausea, vomiting, and diarrhea.
- In patients with EoG and/or EoD, inflammation may be present normally appearing mucosa during endoscopy.

Figure 1. Pathogenesis of EGIDs

Figure 2. Ideal Biopsy Specimens, Countable Eosinophils, and 3 Systematic Approaches to Counting Eosinophils

Methods

We performed a study of 31 general pathologists who completed their residencies 35 years ago and analyze ~25% gastrointestinal biopsies in their practices.

- Pathologists were provided a succinct history of each case (eg, “30-year-old man with dyspepsia, bloating, frequent vomiting and diarrhea. No GERD”)
- Patient history + hint of allergic or eosinophilic condition (eg, “history of atopic dermatitis; 1500 eosinophils/µL in peripheral blood”)
- Pathologists received a list of common and uncommon gastric and duodenal diagnoses, including EoG and EoD, and were asked to make selections; a space for comments was provided (Figure 4)
- Results were analyzed descriptively

Figure 3. Examples of H&E-stained EoG and EoD Biopsies

Figure 4. Example Document Provided to Pathologists

- Diagnosis of gastric and duodenal biopsies in clinical practice

Case # ___

A. Patient history

- Normal duodenal or small intestinal mucosa
- Peptic ulcer disease
- Duodenal ulcer
- Duodenal intractable lymphocytis
- Peptic ulcer disease
- Duodenal ulcer
- Duodenal intractable lymphocytis
- Peptic ulcer disease
- Duodenal ulcer
- Duodenal intractable lymphocytis

B. Pathology + hint of allergic or eosinophilic condition

- Normal duodenal or small intestinal mucosa
- Peptic ulcer disease
- Duodenal ulcer
- Duodenal intractable lymphocytis
- Peptic ulcer disease
- Duodenal ulcer
- Duodenal intractable lymphocytis
- Peptic ulcer disease
- Duodenal ulcer
- Duodenal intractable lymphocytis

C. A clear request to rule out EoG and EoD

- Normal duodenal or small intestinal mucosa
- Peptic ulcer disease
- Duodenal ulcer
- Duodenal intractable lymphocytis
- Peptic ulcer disease
- Duodenal ulcer
- Duodenal intractable lymphocytis
- Peptic ulcer disease
- Duodenal ulcer
- Duodenal intractable lymphocytis

Results

- Pathologists made correct diagnoses of many non-eosinophilic GI disorders (H pylori gastritis, atrophic gastritis, and celiac sprue) indicating competence in GI pathology (data not shown)

Figure 5A. Proportion of Pathologists Correctly Identifying All Observations of EG and/or EoD

- Most pathologists did not identify elevated eosinophils, even when pathologists were asked to rule out EoG and EoD (as in Group C)

Figure 5B. Proportions of Observations of Gastric and Duodenal Eosinophilia by Each Group

- Few observations of EoG and EoD were made, even when Pathologists were asked to rule out EoG and EoD (as in Group C)

Conclusions/Discussion

- Most pathologists did not observe gastric or duodenal eosinophilia, nor correctly identify EoG and/or EoD, when assessing biopsies, even for patients with reported histories of eosinophilic disorders
- Specific training of pathologists and increased awareness of EoG and EoD among gastroenterologists might increase identification of patients with EoG and/or EoD
- A standardized biopsy and histopathology protocol should be used to evaluate patients for EoG/EoD, so that they can receive an accurate diagnosis

References