

Case report

Eosinophilic gastroenteritis with persistent abdominal pain: a case report

Yoshiaki Sasaki¹, and Hiroki Kajino¹

¹Department of Pediatrics, Abashiri-Kosei General Hospital, Japan

Abstract

Two months ago, a 9-year-old boy experienced intermittent abdominal pain regardless of food intake, without diarrhea, bloody stool, or nausea. Blood test results revealed a peripheral blood eosinophil count of 660 cells/ μ L, which was marginally elevated, without inflammatory reaction, occult blood, or enteric pathogens. The intestinal mucosa from the terminal ileum to the rectum was endoscopically normal, but mucosal biopsy revealed eosinophilic infiltration of the terminal ileum and whole colon with ≥ 20 eosinophils/high power field (HPF). Subsequent upper gastrointestinal endoscopy revealed normal endoscopic mucosa from the esophagus to the second part of the duodenum, but mucosal biopsy showed an eosinophil infiltration of ≥ 20 eosinophils/HPF. Based on the above findings, he was diagnosed with eosinophilic gastroenteritis (EGE). The cause of EGE and mechanisms of eosinophil infiltration have yet to be fully elucidated. For these nonspecific abdominal symptoms, evidence of eosinophilic infiltration of the gastrointestinal mucosa, specifically 20 eosinophils/HPF in each intestinal mucosa, is required for the definitive diagnosis of EGE. Even if only persistent abdominal pain develops, EGE diagnosis should be confirmed with the analysis of mucosal biopsy in addition to the review of allergic disease history and peripheral blood eosinophil counts.

Key words: eosinophilic gastroenteritis, children, abdominal pain, endoscopy

(J Rural Med 2020; 15(1): 44–46)

Introduction

Eosinophilic gastroenteritis (EGE) is a rare disease in children that is characterized by eosinophil infiltration of the gastrointestinal tract, excluding the esophagus¹⁾. Due to nonspecific abdominal symptoms, EGE should be diagnosed based on gastrointestinal mucosa pathology. Here we report a case of EGE that presented only with abdominal pain.

Case Report

A 9-year-old boy presented to the outpatient department with a chief complaint of intermittent abdominal pain. He

had a history of egg allergy and seasonal allergic rhinitis but no relevant family history. Two months before presentation, he experienced intermittent abdominal pain primarily in the midline under the umbilicus regardless of food intake. Upon initial diagnosis of acute gastroenteritis, he was prescribed probiotics. Despite the absence of diarrhea, bloody stool, and nausea, abdominal pain persisted, and he often required analgesics for abdominal pain relief. Blood test results revealed a peripheral blood eosinophil count of 660 cells/ μ L, which was marginally elevated. There was no inflammatory reaction or elevation of hepatobiliary and pancreatic enzyme levels. His feces tested negative for occult blood and enteric pathogens. For more indepth analysis, lower gastrointestinal endoscopy was performed. The intestinal mucosa from the terminal ileum to the rectum was endoscopically normal (Figure 1a), but mucosal biopsy revealed eosinophilic infiltration of the terminal ileum and whole colon with ≥ 20 eosinophils/high power field (HPF). A maximum of 50 eosinophils/HPF were found in the cecum (Figure 1b). Therefore, we suspected that he suffered from EGE. Subsequent upper gastrointestinal endoscopy revealed normal endoscopic mucosa from the esophagus to the second part of the duodenum (Figure 2a), but mucosal biopsy showed eosinophilic infiltration (≥ 20 eosinophils/HPF) from the

Received: August 9, 2019

Accepted: September 14, 2019

Correspondence: Yoshiaki Sasaki, Department of Pediatrics, Abashiri-Kosei General Hospital, Kita 6 jo Nishi 4 chome, Abashiri, Hokkaido 093-0076, Japan

E-mail: cct33370@syd.odn.ne.jp

This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial No Derivatives

(by-nc-nd) License <<http://creativecommons.org/licenses/by-nc-nd/4.0/>>.



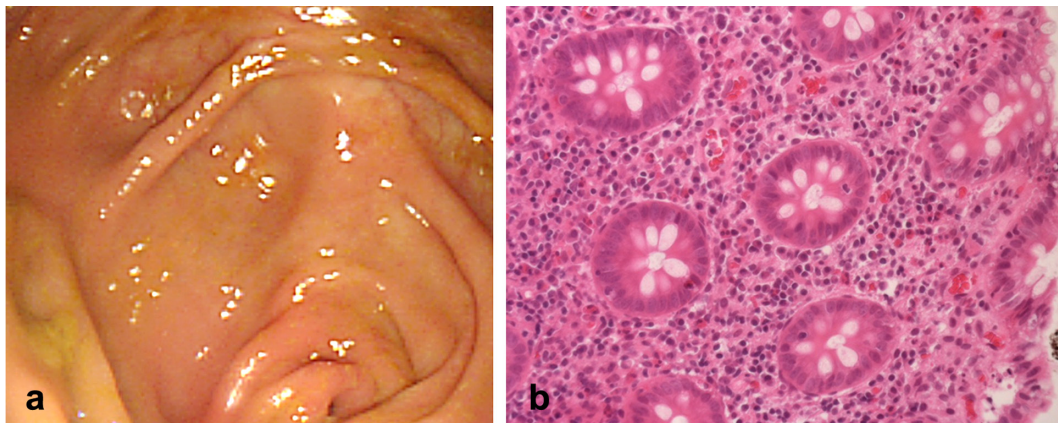


Figure 1 a: Lower gastrointestinal endoscopic findings of the cecum. Endoscopic findings were normal. b: Microscopic findings of the cecum. Fifty eosinophils/high power field (HPF) in the cecum (hematoxylin–eosin staining, $\times 400$).

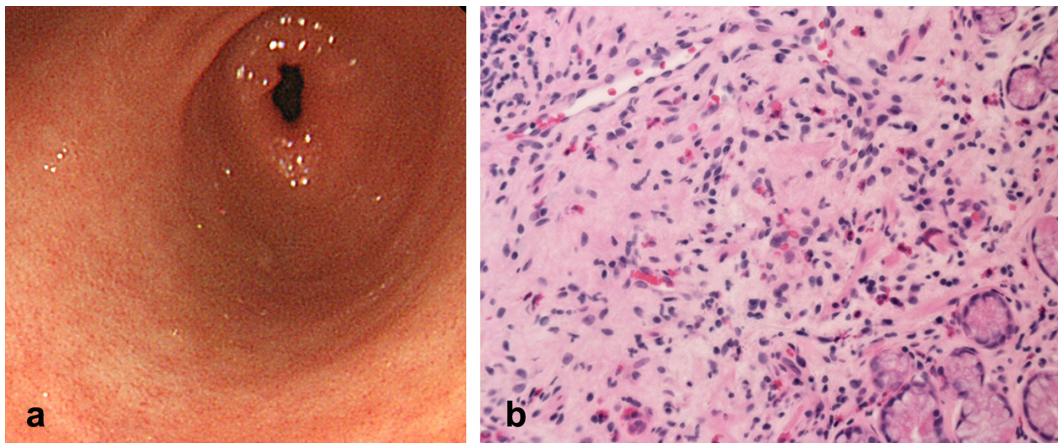


Figure 2 a: Upper gastrointestinal endoscopic findings of the pyloric zone of the stomach. Endoscopic findings were normal. b: Microscopic findings of the pyloric zone of the stomach. Fifty eosinophils/high power field (HPF) in the pyloric zone of the in the stomach (hematoxylin–eosin staining, $\times 400$).

gastric body to the duodenal bulb. The pyloric zone in the stomach was mostly infiltrated by 50 eosinophils/HPF (Figure 2b). There was no eosinophilic infiltration of the esophagus. Based on the above findings, he was diagnosed with EGE and treated with a histamine H1 receptor antagonist and leukotriene antagonist. Total abdominal pain relief was achieved following treatment; however, abdominal pain recurred frequently after 2 months of treatment. A repeat gastrointestinal endoscopy revealed similar eosinophilic infiltration of the gastrointestinal mucosa. Therefore, he was administered prednisolone, an oral corticosteroid (20 mg/day). Following treatment, his abdominal pain reduced and the prednisolone dose was reduced accordingly, until the eventual discontinuation after 6 months. He and his parents agreed to the publication of this case report.

Discussion

The cause of EGE and mechanisms of eosinophil infiltration have yet to be fully elucidated². There are various symptoms of EGE, including abdominal pain, diarrhea, vomiting, and abdominal distension². Some severe cases are diagnosed postoperatively³. For these nonspecific abdominal symptoms, evidence of eosinophil infiltration in the gastrointestinal mucosa, specifically 20 eosinophils/HPF in each intestinal mucosa, is required for the definitive diagnosis of EGE. Mild symptoms may be first observed as gastroenteritis or irritable bowel syndrome. The prevalence of EGE is reported to be 8.4/100,000⁴. Although EGE is rare in children, the actual incidence of EGE may be underestimated¹. Moreover, undiagnosed pediatric EGE is expected. In this case, we showed that the decisive factor for EGE di-

agnosis is pathological eosinophilic infiltration of the gastrointestinal mucosa. Gastrointestinal endoscopy is invasive and challenging to perform promptly in children. Therefore, the diagnosis of EGE may be delayed. Alternatively, noninvasive diagnostic approaches, such as increased peripheral blood eosinophil count and allergic disease history, may help in the diagnosis of EGE¹⁾.

Endoscopic findings of EGE vary and nonspecific. Although some cases have normal endoscopic findings, microscopic examination could reveal eosinophilic infiltration

of the gastrointestinal mucosa. Therefore, mucosal biopsy should always be performed in addition to gastrointestinal endoscopy⁵⁾.

In conclusion, even if only persistent abdominal pain develops, EGE diagnosis should be confirmed with the analysis of mucosal biopsy in the addition to the review allergic disease history and peripheral blood eosinophil counts.

Conflict of interest: There are no conflicts of interest to disclose.

References

1. Tien FM, Wu JF, Jeng YM, *et al.* Clinical features and treatment responses of children with eosinophilic gastroenteritis. *Pediatr Neonatol* 2011; 52: 272–278. [[Medline](#)] [[CrossRef](#)]
2. Kelly KJ. Eosinophilic gastroenteritis. *J Pediatr Gastroenterol Nutr* 2000; 30(Suppl): S28–S35. [[Medline](#)] [[CrossRef](#)]
3. von dem Borne PA, Kramer MH, Vermeijden JR. Acute abdominal pain and eosinophilia, two cases of eosinophilic gastroenteritis. *Neth J Med* 1999; 54: 197–201. [[Medline](#)] [[CrossRef](#)]
4. Jensen ET, Martin CF, Kappelman MD, *et al.* Prevalence of eosinophilic gastritis, gastroenteritis, and colitis: estimates from a national administrative database. *J Pediatr Gastroenterol Nutr* 2016; 62: 36–42. [[Medline](#)] [[CrossRef](#)]
5. Ko HM, Morotti RA, Yershov O, *et al.* Eosinophilic gastritis in children: clinicopathological correlation, disease course, and response to therapy. *Am J Gastroenterol* 2014; 109: 1277–1285. [[Medline](#)] [[CrossRef](#)]