Mucosal-type Eosinophilic Gastroenteritis in Thailand: 12-Year Retrospective Study

Wuttiporn Manatsathit MD*, Radsamee Sermsathanasawadi MD**,
Ananya Pongpaiboon MD***, Supot Pongprasobchai MD**

** Siriraj Hospital, Mahidol University, Bangkok, Thailand; Department of Internal Medicine, Saint John Hospital and Medical Center, Detroit MI 48236, Michigan, USA*
*** Division of Gastroenterology, Department of Internal Medicine, Siriraj Hospital, Mahidol University, Bangkok, Thailand*
**** Department of Pathology, Siriraj Hospital, Mahidol University, Bangkok, Thailand*

Objective: *To evaluate the clinical features and natural course of disease among patients with mucosal-type eosinophilic gastroenteritis in Thailand.*
Material and Method: *The present study was conducted by retrospectively searching for the ICD-10 code for eosinophilic gastroenteritis (EGE) among medical records for the period 2001-2012. Clinical and pathological specimens were reviewed using the same diagnostic criteria. Appropriate tests were conducted to exclude other secondary causes of EGE. All patients had to have either received empirical treatment for parasitic infections or were tested for parasites in the stool. After the diagnosis had been established, each patient received 30-40 mg/day of oral prednisolone for four weeks, which was tapered down as clinical status improved. All patients were followed up by monitoring clinical symptoms and relevant laboratory findings. Patients who did not maintain follow-up appointments were contacted by telephone and asked about their clinical symptoms.*
Results: *Seventeen patients with a diagnosis of mucosal-type EGE (6 male, 11 female, M:F ratio 1:1.83) were found. Mean age at the time of presentation was 52.5±13.04 years. Four patients (23.5%) had either allergic or atopic conditions. Chronic diarrhea and weight loss were the most common initial presentation in 16 patients (94.1%). Microscopically and macroscopically, bloody diarrhea was observed in 13 cases (76.5%). Four patients were found to have protein-losing enteropathy. Peripheral eosinophilia was found in 10 patients (58.8%) with absolute eosinophil counts between 744 and 23,550 cells/mm^3. Eight of these had an absolute eosinophil count in the hypereosinophilic range (> 1,500 cells/mm^3). All patients treated with prednisolone treatment showed symptomatic improvement within four weeks. One patient's symptom resolved spontaneously, without treatment. Thirteen patients relapsed during the tapering-off of prednisolone. Seven patients showed complete remission. Three patients subsequently developed cancer (lung, breast, and bladder) after EGE was diagnosed.*
Conclusion: *EGE, although uncommon, is present in Thailand, where parasitic infections continue to be a significant public-health problem.*

Keywords: *Eosinophilic, Eosinophilia, Gastroenteritis, Enterocolitis, Diarrhea*

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Eosinophilic Gastrointestinal Disease (EGID) is a spectrum of diseases characterized by idiopathic eosinophilic inflammation of the gastrointestinal tract. EGID consists of Eosinophilic Esophagitis (EE), Eosinophilic Gastroenteritis (EGE), and Eosinophilic Proctocolitis (EP), each of which has its own clinical entity. Eosinophilic Gastroenteritis (EGE) refers to eosinophilic inflammation of one or more layers of the gastrointestinal tract, usually the stomach or small intestine[1-3]. Since the first description by Kaijser, in 1937, the number of patients diagnosed with EGE has been increasing, possibly due to increasing awareness, improvements in endoscopic techniques, and better pathologic descriptions of the disease[4,5]. EGE can occur in patients at any age; however, patients are usually diagnosed in their 30's or 40's[6-8].

Correspondence to:
Manatsathit W, Department of Internal Medicine, Saint John Hospital and Medical Center, Detroit MI 48236, Michigan, USA.
Phone: +1-424-2704225
E-mail: wuttiporn.manatsathit@stjohn.org, wtpmanatsathit@hotmail.com

Pathogenesis

Eosinophils can typically be found through-

out the gastrointestinal tract, except the esophagus. However, under abnormal circumstances, the number of eosinophils recruited into the mucosa increases, resulting in clinical gastrointestinal manifestations. Both IgE and non-IgE mediated allergic reactions have been postulated as responsible for a common pathway causing eosinophilic infiltration within the gastrointestinal tract[9-11]. Recently, several studies have provided a better understanding of the pathogenesis orchestrating this common pathway. As a result of both IgE and non-IgE mediated immune response, Th-2 cells are activated and subsequently express and secrete various cytokines, such as IL-4, IL-5, and IL-13. By far the most studied cytokine is IL-5, which is found to enhance eosinophil proliferation, activation, and survival[12-14]. In a murine model, IL-5-deficient mice were found to have 80% decreased circulating peripheral eosinophil and 50% decreased gastrointestinal eosinophil[15,16]. Furthermore, eotaxin secretion from the tissues plays a critical role in eosinophil tissue translocation, by attaching to eosinophil CCR3[17]. Eotaxin-1-deficient mice had significantly decreased gastrointestinal eosinophil and were protected from oral allergen despite normal peripheral eosinophils[18]. Ultimately, activated eosinophils in the gastrointestinal tract degranulate and release major basic proteins, histamine, and other substances, causing inflammation and destruction of the gastrointestinal mucosa.

Secondary eosinophilic infiltration of the gastrointestinal tract can also be caused by various conditions, such as inflammatory bowel diseases, a side effect of medication, connective tissue diseases, hypereosinophilic syndrome, or parasitic infestation[19-27]. As a result, these conditions have to be excluded before making a diagnosis.

Classification & clinical presentation

Klein classified EGE into mucosal, muscular, and subserosal types, according to the layer in which infiltration takes place[28]. Each type leads to entirely different manifestations. The most common type of EGE is mucosal; it presents with non-specific abdominal pain, diarrhea, protein-losing enteropathy, or anemia from occult bleeding[29-32]. Obstructive jaundice caused by mucosal involvement of the bile duct has also been reported[33]. The muscular type typically presents with intestinal obstruction or gastric-outlet obstruction[7,34]. The subserosal type almost always leads to ascites[6,7]. One case of transmural involvement with perforation has been reported[35]. Concurrent extraintestinal conditions can also be found, such as primary biliary cirrhosis, eosinophilic dermatitis, eosinophilic cystitis, and thyroid dysfunction[36-39]. When organs apart from the gastrointestinal tract are involved, the diagnosis of hypereosinophilic syndrome should be seriously considered.

Management

Several medications and methods have been used to alleviate symptoms, with the hope of curing the disease; however, no controlled trial has been conducted to establish the true efficacy of these treatments. So far, the two most accepted modalities are dietary modification and steroid medication. Implementation of an elemental diet and the elimination of an offending diet are used, based on the principle of stopping the introduction of oral allergens to decrease local gastrointestinal inflammation. An elimination diet is used when an allergen, identified by a skin prick test or RAST, is eliminated from the oral dietary intake. An elemental diet is generally indicated for patients who suffer from multiple oral allergens. In practice, diet modification is difficult to achieve and the success rate is low in the adult population, so that steroids are the mainstay of treatment when dietary modification is not feasible. Corticosteroids are very effective and result in symptomatic improvement within a few weeks' post-initiation[2,4,6,7,40]. Usually, oral prednisolone is used at a dosage of 1-2 mg/kg/day, tapered down every 1-2 weeks after symptoms have improved. Non-enteric-coated budesonide is more appropriate for long-term treatment of patients who suffer from relapsing-remitting clinical courses, since it has relatively favorable systemic side-effects.

In this review, the authors focus only on the mucosal type of EGE. Therefore, EGE mentioned below is referred to as EGE, mucosal type.

Material and Method

The present study retrospectively reviewed the medical records of Siriraj Hospital patients diagnosed with EGE, between the years 2001-2012. Patients were identified by searching records for the ICD-10 code for EGE. EGE, mucosal type, was defined by three criteria: 1) the presence of gastrointestinal manifestations, 2) histological evidence of 20 cell/HPF or more eosinophils in the mucosal layer, from biopsy or operative specimen the absence of other conditions that cause secondary EGE, such as parasitic infestation, inflammatory bowel disease, cancer, hypereosinophilic syndrome, and medication. Many patients were found to have peripheral eosinophilia; however, it was not

considered mandatory in diagnosing this condition[4]. Patients who did not meet the above criteria were excluded.

Data collection

Demographic data and clinical manifestations were collected from patients' medical records, including age, sex, history of allergic and atopic conditions, and underlying medical conditions, abdominal pain, diarrhea, edema, weight loss, and history of blood in the stool. Significant weight loss was defined as the loss of > 5% of baseline bodyweight over a period of six months.

Complete blood count, stool examination for parasites, and stool cell count, were tested for each patient. Serum albumin was tested in fifteen patients. Fourteen patients received both upper and lower endoscopy. Colonoscopy without esophagoduodenoscopy (EGD) was performed in two cases, and one patient underwent an EGD without colonoscopy. Multiple biopsies were taken from suspected lesions together with multiple random biopsies from normal-looking mucosa. Histological criteria were defined as eosinophil counts $\geq$ 20 cells/high-power field in the mucosal layer of a specimen. All specimens were reevaluated by a gastrointestinal pathologist to reassure that the diagnosis was made according to the same criteria. Patients with eosinophil counts > 600 cells/mm^3, were defined as having peripheral eosinophilia. Hypereosinophilia was defined as an absolute eosinophil count > 1,500 cells/mm^3. Other laboratory tests (echocardiogram, chest x-ray, thyroid function test, anti-HIV, barium enema, and CT scan) were performed selectively according to patient's initial presentation, to exclude secondary EGE. Criteria for a diagnosis of protein-losing enteropathy consisted of diarrhea, generalized edema, and hypoalbuminemia with or without positive scan using ^{99}Tc human serum albumin.

Treatment and follow-up

Due to the high prevalence of parasitic infections in Thailand, all patients either received anti-parasitic medication empirically, or were found negative for ova and parasites by stool examination. After EGE was diagnosed, every patient was treated with oral corticosteroids. Initially, 30-40mg/day of prednisolone was prescribed for four weeks, tapered to 10-20 mg every 2-4 weeks. Patients were followed for clinical and laboratory improvement every four weeks. Relapse cases were defined as the recurrence of the initial presentation or initial laboratory abnormality, such as recurrence of diarrhea and/or hypoalbuminemia. Remission was defined as the absence of initial presentation after corticosteroid treatment had been discontinued.

Results

Demography

Searches for ICD-10-coded EGE found 21 cases labeled as eosinophilic gastroenteritis. After reviewing the clinical course and pathological specimens, four cases were excluded, including one case of strongyloides infestation, one case of Crohn's disease, one case of cows'-milk allergy, and one case of nonspecific colitis. Finally, 17 patients were defined as genuine EGE cases and included in this study. The study patients' demographic data are shown in Table 1. The mean age at diagnosis was 52.5 years (youngest 27 years; oldest 74 years). The male-to-female ratio was 1:1.83. Four patients (23.5%) were found to have the clinical features of atopic conditions or allergies. No patient was taking medication that could cause secondary EGE, such as enalapril or carbamazepine[21,23,24].

Clinical presentations and laboratory findings

Chronic diarrhea and significant weight loss were found among 16 of the 17 patients (94.1%). Half of the patients with diarrhea presented with visible blood in the stool. Another five patients were found microscopically to have red blood cells in the stool. Abdominal pain presented in seven cases and protein-losing enteropathy in four patients; one had a positive ^{99}Tc human serum albumin scan. The other three patients were diagnosed by the presence of generalized edema, hypoalbuminemia and diarrhea. Eosinophilia was found in ten patients (58.8%) with eight having absolute eosinophil counts in the hypereosinophilic range. Anemia was found in seven cases. Details of the clinical presentations are shown in Table 2.

Endoscopic findings & pathology reports

The most common endoscopic finding was nonspecific diffuse swelling and erythema of either the small bowel or colon followed by normal endoscopic findings, ulcer, polyp, loss of villi, swelling and multiple whitish nodules, diffuse submucosal hemorrhagic spots, and patchy colitis, respectively (Table 3). More diagnostic specimens were obtained from colonoscopy than EGD. Abnormal endoscopic findings were found equally in both the hypereosinophilic and non-

Table 1. Demographic data and laboratory test results for patients with EGE

Case no.	Age/sex	Allergy or atopic diseases	Eo%	Abs Eo	Hb (gm%)	Albumin g/dl
1	58/F	-	75.7	23,550	10	3.2
2	59/F	-	33.4	4,766	12.7	3.9
3	53/M	-	1.7	151	12.4	4.6
4	56/F	-	1	70	11.1	-
5	73/F	-	1	59	10.3	3.2
6	45/F	Asthma	8	408	-	-
7	27/F	-	63.5	17,888	13.2	4.4
8	56/F	Eczema	0	0	7.2	4.1
9	69/M	-	4.1	299	13.2	4.4
10	74/F	Sulfa	17	1,241	12.1	4.4
11	56/M	-	12	744	15.2	4.8
12	37/M	-	45	4,635	13.7	4.1
13	57/F	-	25.2	1,789	11.5	4.1
14	52/F	-	15.5	1,516	12	2.9
15	37/M	-	1.4	241	12.3	1.7
16	46/F	-	37.8	5,220	13.6	2.9
17	38/M	Allergic rhinitis	37.8	5,402	14	4.4

Eo, eosinophil; Hb, hemoglobin; M, male; F, female

Table 2. Clinical presentation of patients with EGE

Symptoms	Cases
Diarrhea	16
- Non bloody	3
- Microscopic RBC	5
- Gross mucous blood	8
Weight loss	16
Abdominal pain	7
Pitting edema	5

RBC, red blood cell

hypereosinophilic groups (Table 4). However, whitish nodules and ulcers were found in three hypereosinophilia cases. A finding of *H. pylori* was positive for three patients. Interestingly, seven of eight patients (87.5%) with hypereosinophilia had small-bowel involvement and four of nine patients (44.4%) without hypereosinophilia had small-bowel involvement.

Treatment and clinical course

Twelve patients were treated with 30-40mg/day of oral prednisolone, and one patient received 60 mg/day. One case resolved spontaneously. All treated patients showed complete symptomatic improvement within one month of treatment. Thirteen patients developed recurrent diarrhea and abdominal pain after tapering corticosteroid dosage down. Seven patients were able to stop corticosteroid completely without recurrence. Three patients subsequently developed cancer (lung, breast, and bladder) after EGE was diagnosed. Details of treatments and outcomes are shown in Table 5.

Discussion

EGE is a rare condition that has been well-described and reported increasingly over the past twenty years. Due to the scarcity of the disease, most information regarding characteristics, course, and prognosis for this condition were obtained from observational studies; however, all studies consistently showed similar information. Recently, Kinoshita et al reported the largest EGE case series in the world, with 144 diagnosed cases during a 6-year period[41]. The present study showed similar results to previous studies, in terms of demographic data, laboratory findings, and course of disease. Considering that most of the large studies were conducted in developed countries (e.g., the USA, Taiwan, Korea, and Japan), which have low prevalence rates of parasitic infections and higher rates of atopic conditions, the current study better reflects the characteristics and clinical courses of EGE in an area with highly prevalent parasitic infections and less prevalent allergic and atopic conditions.

Table 3. Endoscopic findings of patients with EGE

Case	Stomach	Duodenum	Jejunum	Ileum	Colon	Rectum
1	N*	N[E]	n/a	N[E]	N[E]	N
2	Gastritis	Duodenitis	n/a	N[E]	SW[E]	SW[E]
3	-	-	-	N[E]	Mild patchy colitis[E]	N
4	Mosaic	Ulcer	n/a	SW[E]	SW[E]	SW[E]
5	Swelling pylorus*	Duodenitis	n/a	N	Submucosal hemorrhage[E]	N
6	N[E]	N[E]	n/a	N[E]	SW[E]	n/a
7	N	N	N	SW[E]	N[E]	N
8	-	-	-	SW[E]	SW[E]	SW[E]
9	-	-	-	N	SW[E]	SW[E]
10	N	Duodenitis	N	N	N[E]	N
11	-	-	-	N	N[E]	N
12	Hypertrophic rugae	N	n/a	N[E]	Ulcer[E]	N[E]
13	WH[E]	WH[E]	n/a	WH[E]	WH[E]	WH[E]
14	Gastritis [E]	Duodenitis	n/a	SW[E]	SW[E]	N
15	N	N	Exudate & blunting of villi[E]	-	-	-
16	N	N	N	Loss of villi [E]	N[E], polyp [E]	N
17	SW	Ulcer*	N	N	N[E]	Ulcer[E]

N, normal-looking mucosa; SW, diffuse swelling and erythema of mucosa; n/a, not available; WH, multiple whitish nodules and swelling of mucosa; *positive for H. pylori; [E] eosinophils > 20/hpf

Table 4. Endoscopic findings for hypereosinophilic and non-hypereosinophilic groups

Group	Normal	Abnormal				
		Diffuse swelling & erythema	Whitish nodule	Ulcer	Other	Total
HES	1	3	1	2	1*	7
Non HES	2	4	0	0	3[+]	7

* loss of villi and polyp;[+]patchy colitis, diffuse hemorrhagic spots, and protein exudate; HES, hypereosinophilia

The characteristics of this disease vary minimally among studies. The mean age at the time of diagnosis is the 30s and 40s in all of the studies; however, on closer examination, EGE seems to have a bimodal distribution in childhood and adulthood (during the 40s and 50s)[2,6,7]. This might explain why the present study reports a higher mean age than other studies, since no young children were diagnosed with EGE in the present study. There male-female distribution is also roughly equivalent in most studies (Table 6). Any history of allergy or atopic condition varied widely among studies, which might result from differences in the prevalence of allergic and atopic diseases among countries. Eosinophilia was uniformly found in 60-80% of patients with EGE. The most common clinical presentation was abdominal pain. By contrast, the current study reported only 41.2% of patients presenting with abdominal pain, while 94.1% of EGE cases had experienced chronic diarrhea and significant weight loss. One possible reason is that patients who presented with non-specific abdominal pain might be underdiagnosed, especially those with normal endoscopic results. The presence of eosinophilia in patients with diarrhea, non-specific abdominal pain, or significant weight loss should alert physicians to arrange a gastroenterologic referral for endoscopy and biopsy.

Interestingly, Kinoshita et al noted the

Table 5. Treatment and follow up and outcome

Case	f/u (yr.)	Relapse	Clinical response (wk)	Prednisolone	Phone f/u & outcome
1	5.33	No	0	No	Cured
2	4.17	Yes	3	Prednisolone	Steroid-dependent
3	n/a	Yes	n/a	Prednisolone	Steroid-dependent
4	4.5	Yes	3.1	Prednisolone	Cured
5	2.42	Yes	4	Prednisolone	Lost to follow-up*
6	2.42	Yes	Unknown	Prednisolone	Lost to follow-up
7	1.33	Yes	2.6	Prednisolone	Cured
8	1.43	Yes	2	Prednisolone	Ongoing diarrhea
9	2.31	Yes	4	Prednisolone	Died from lung cancer**
10	4.35	Yes	7.3	Prednisolone	Lost to follow-up
11	3	Yes	4.3	Prednisolone	Lost to follow-up+
12	4.16	Yes	4	Prednisolone	Lost to follow-up
13	4.86	No	2	Prednisolone	Cured
14	4.71	Yes	2	Prednisolone	Cured
15	0.73	No	4	Prednisolone	Cured
16	1.1	Yes	3.6	Prednisolone	Cured
17	3.65	No	2	Prednisolone	Cured

f/u, follow-up; n/a, not available; * developed breast cancer; ** developed lung cancer; + developed bladder cancer

Table 6. Clinical features of patients with EGE compared with other studies

Characteristics/studies	Talley et al[6]	Jeon et al[43]	Chen et al[7]	Kinoshita et al[41]	Present study
Number of cases	50	17	15	144	17
Male: Female	104:1*	1.2:1*	1:2.5*	1.2:1	1:1.83
Mean age	36.7	43.6*	49.4	46	52.5
History of allergy	52%	11.8%	n/a	46%	23.5%
Eosinophilia	n/a	72.7%	100%	80.6%	58.8%

n/a, not available; *Mucosal type

relationship between eosinophilia and small-bowel involvement[41]. The present study showed significantly higher peripheral eosinophil counts among patients with small-bowel involvement, a finding that also supports our data, since seven of eight patients with hypereosinophilia had positive small-bowel biopsies for EGE. This may be explained by the larger affected surface area of patients with, than those without, small-bowel involvement. No difference was found in the rate of abnormal endoscopic findings among patients related to the presence of eosinophilia. The most common endoscopic finding was non-specific erythema and swelling of the gastrointestinal mucosa; however, normal mucosae were also frequently found. Other findings (e.g., ulcers, diffuse hemorrhagic spots, and multiple whitish nodules) can be visualized by endoscopy. It is common knowledge that the distribution of EGE is patchy, so that a small number of biopsied specimens might not permit EGE to be detected effectively. Further study should evaluate the appropriate locations and numbers of biopsies to achieve satisfactory diagnoses of EGE. Clinical information is very important in interpreting pathological specimens, so that communication between gastroenterologists and pathologists should improve diagnostic accuracy and sensitivity.

EGE is generally a benign condition. One study reported of 40% rate of spontaneous resolution among cases of EGE[42]. Most reports showed that corticosteroids are very effective at least for short-term symptomatic relief. This has made systemic corticosteroids the mainstay treatment for induction. In corticosteroid-dependent patients, non-absorbable corticosteroids or immunosuppressants might be another option, to avoid the long-term systemic side-effects. An absolute peripheral eosinophil count at

follow-up visit does not appear to correlate with clinical response to prednisolone, as patients whose eosinophilia has returned to normal may or may not have persistent diarrhea, and vice versa. No long-term study has been done to evaluate the outcome after the treatment has stopped. The present study followed patients for an average of 3.2 years, and found that steroids were successfully discontinued with at least eight patients (47%).

Currently, medication focusing on target cytokines and receptors in the pathogenesis of EGE are being investigated, such as anti-IgE (Omalizumab) and monoclonal antibody to IL-5 (Mepolizumab and Reslizumab). These developments may throw new light on the treatment of EGE.

Conclusion

EGE mucosal type is a rare but benign condition and commonly presents with abdominal pain, chronic diarrhea, and weight loss. Even in areas where parasitic infections are very prevalent, EGE can still be found. The natural history of disease and outcome of EGE seem similar, regardless of the prevalence of allergic conditions. The only difference is the lower rate of coexisting allergic conditions found in the present study. Physicians should be aware of this condition and multiple random biopsies should be performed to confirm endoscopic findings. For patients with eosinophilia, pathologic analysis of small-bowel biopsies is mandatory, since they have a higher rate of small-bowel involvement. EGE almost always responds to corticosteroids and has a good prognosis; however, the majority of patients experience a fluctuating clinical course, and many require long-term corticosteroid therapy. Although various treatment strategies and modalities are available, the successful management of EGE can still present many challenges. Mucosal-type EGE, though uncommon, is present in Thailand, where parasitic infections continue to be a significant public-health problem.

Potential conflicts of interest

None.

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การศึกษาผู้ป่วยกระเพาะและลำไส้อักเสบจากเม็ดเลือดขาวอีโอซิโนฟิลชนิดที่เป็นตามเยื่อบุ ประสบการณ์ 12 ปีในประเทศไทย

วุฒิพร มานัสสถิตย์, รัศมี เสริมสาธนสวัสดิ์, อณัญญา พงษ์ไพบูลย์, สุพจน์ พงศ์ประสบชัย

***วัตถุประสงค์**: เพื่อศึกษาลักษณะทางคลินิกและการดำเนินโรคของผู้ป่วยกระเพาะและลำไส้อักเสบจากเม็ดเลือดขาวชนิดอีโอซิโนฟิลที่เป็นตามเยื่อบุที่พบในประเทศไทย*

***วัสดุและวิธีการ**: เป็นการศึกษาย้อนหลังจากการค้นหาจากระหัส ICD-10 ของระบบเวชระเบียนของโรงพยาบาลศิริราชในช่วงปีพ.ศ.2544-2555 เพื่อค้นหาผู้ป่วยกระเพาะและลำไส้อักเสบจากเม็ดเลือดขาวอีโอซิโนฟิลชนิดที่เป็นตามเยื่อบุ ข้อมูลทางคลินิกและข้อมูลทางพยาธิได้รับการทบทวนว่าสามารถเข้ากับเกณฑ์การวินิจฉัยโรคได้ รวมทั้งได้มีการตรวจดูว่าได้มีการทำการตรวจทางห้องปฏิบัติการเพื่อแยกแยะสาเหตุอื่นๆ ของโรคกระเพาะและลำไส้อักเสบจากเม็ดเลือดขาวอีโอซิโนฟิล ผู้ป่วยทั้งหมดเคยได้รับการรักษาแบบครอบคลุมด้วยยาต้านปรสิตและเคยตรวจอุจจาระไม่พบไข่หรือตัวอ่อนของพยาธิใดๆ ผู้ป่วยที่ได้รับการวินิจฉัยแล้วได้รับการรักษาด้วยยาเพรดนิโซโลนทางปากในขนาด 30-40 มก./วัน นาน 4 สัปดาห์และค่อยๆ ลดขนาดยาลงเมื่ออาการดีขึ้น ผู้ป่วยทุกรายได้รับการติดตามดูอาการและผลการตรวจทางห้องปฏิบัติการ ในรายที่ไม่สามารถมาติดตามที่โรงพยาบาลได้รับการติดตามทางโทรศัพท์เพื่อสอบถามอาการและการดำเนินโรค*

***ผลการศึกษา**: มีผู้ป่วย 17 ราย ได้รับการวินิจฉัยเป็นโรคกระเพาะและลำไส้อักเสบจากเม็ดเลือดขาวอีโอซิโนฟิลชนิดที่เป็นตามเยื่อบุ เป็นชาย 6 ราย หญิง 11 ราย (ชาย:หญิง 1:1.83) อายุเฉลี่ยเท่ากับ 52.5 +13.04 ปี ผู้ป่วย 4 รายมีประวัติของโรคผื่นคันหรือภูมิแพ้ อาการแรกพบที่พบบ่อยที่สุดคือท้องเสียเรื้อรังและน้ำหนักลด ซึ่งพบในผู้ป่วย 16 ราย (94.1%) ตรวจพบเม็ดเลือดแดงและเม็ดเลือดขาวในอุจจาระทั้งที่ดูเห็นได้ด้วยตาเปล่าและที่ต้องดูด้วยกล้องจุลทรรศ์ 13 ราย (76.5%) มีผู้ป่วย 4 รายที่พบมีการเสียโปรตีนในทางเดินอาหารมากกว่าปกติ การตรวจเลือดพบเม็ดเลือดขาวชนิดอีโอซิโนฟิลสูงในกระแสเลือด 10 ราย (58.8%) มีปริมาณเม็ดเลือดขาวทั้งหมดในกระแสเลือดระหว่าง 744-23,550 ตัว/ตร.มม. ผู้ป่วย 8 ราย มีปริมาณเม็ดเลือดขาวชนิด อีโอซิโนฟิลสูงมากหรือสูงกว่า 1,500 ตัว/ตร.มม.อยู่ในภาวะอีโอซิโนฟิลสูงเกิน ผู้ป่วยทุกรายได้รับการรักษาด้วยเพรดนิโซโลนและตอบสนองต่อการรักษาภายใน 4 สัปดาห์ ผู้ป่วย 1 รายอาการหายไปเองโดยไม่ได้รับการรักษา มีผู้ป่วย 13 รายเกิดอาการเป็นซ้ำระหว่างลดยาเพรดนิโซโลน ผู้ป่วย 7 รายมีอาการหายขาด ผู้ป่วย 3 รายเกิดเป็นมะเร็งในเวลาต่อมา ได้แก่ มะเร็งปอด มะเร็งเต้านม และมะเร็งกระเพาะปัสสาวะ*

***สรุป**: โรคกระเพาะและลำไส้อักเสบจากเม็ดเลือดขาวอีโอซิโนฟิลชนิดที่เป็นตามเยื่อบุแม้จะเป็นโรคที่ไม่พบบ่อย แต่ก็สามารถพบได้ในประเทศไทย ซึ่งการติดเชื้อพยาธิยังคงเป็นปัญหาทางสาธารณะสุขของประเทศ*