Primary Eosinophilic Esophagitis in Children: Successful Treatment with Oral Corticosteroids

Liacouras, Chris A.; Wenner, William J.; Brown, Kurt; Ruchelli, Eduardo*  

Division of Gastroenterology and Nutrition, and Department of Pathology, The University of Pennsylvania School of Medicine, The Children’s Hospital of Philadelphia, Philadelphia, Pennsylvania, U.S.A.

Received March 18, 1997; revised July 18, 1997; accepted September 22, 1997.

Address correspondence and reprint requests to Dr. C. A. Liacouras, The Children’s Hospital of Philadelphia, Division of Gastroenterology and Nutrition, 324 South 34th Street, Philadelphia, PA 19104, U.S.A.

Background: The histologic appearance of esophageal eosinophils has been correlated with esophagitis and gastroesophageal reflux disease in children. Esophageal eosinophilia that persists despite traditional antireflux therapy may not represent treatment failure, but instead may portray early eosinophilic gastroenteritis or allergic esophagitis. In this study, a series of pediatric patients with severe esophageal eosinophilia who were unresponsive to aggressive antireflux therapy were examined and their clinical and histologic response to oral corticosteroid therapy assessed.

Methods: Of 1809 patients evaluated prospectively over 2.5 years for symptoms of gastroesophageal reflux, 20 had persistent symptoms and esophageal eosinophilia, despite aggressive therapy with omeprazole and cisapride. These patients were treated with 1.5 mg/kg oral methylprednisolone per day, divided into twice-daily doses for 4 weeks. All patients underwent clinical, laboratory, and histologic evaluation before and after treatment.

Results: Histologic findings in examination of specimens obtained in pretreatment esophageal biopsies in children with primary eosinophilic esophagitis indicated significantly greater eosinophilia (34.2 ± 9.6 eosinophils/high-power field [HPF]) compared with that in children with gastroesophageal reflux disease who responded to medical therapy (2.26 ± 1.16 eosinophils/HPF; p < 0.001). After corticosteroid therapy, all but one patient with primary eosinophilic esophagitis had dramatic clinical improvement, supported by histologic examination (1.5 ± 0.9 eosinophils/HPF, p < 0.0001).

Conclusions: Pediatric patients in a series with marked esophageal eosinophilia and chronic symptoms of gastroesophageal reflux disease unresponsive to aggressive medical antireflux therapy had both clinical and histologic improvement after oral corticosteroid therapy.

This article is accompanied by an editorial. Please see: Furuta GT. In 1982, Winter et al. correlated the histologic appearance of eosinophils in the esophagus: acid is not the only cause. J Pediatr 1982:100:468-471.


In the past, patients with chronic symptoms of gastroesophageal reflux disease were often referred to a surgeon for an antireflux procedure. Recently, several reports in the adult literature have histologically described patients with idiopathic eosinophilic esophagitis with persistent dysphagia, esophageal spasm, or esophageal strictures, with the eosinophilic esophagitis responding to steroids. Kelly et al. have reported a series of 10 children with symptoms of GER and eosinophilic esophagitis who improved with the introduction of an amino acid-based formula.
Between January 1, 1993, and July 1, 1995, 1809 patients were evaluated for GER disease. Each patient displayed chronic gastrointestinal symptoms (>2 months’ duration) including abdominal-epigastric pain or regurgitation-vomiting, and at least one of the following: nausea, globus, water brash, chest pain, dysphagia, the reference group of children with GER. If the patients’ symptoms persisted or recurred despite medical management (positioning, feeding alteration, antacids, or H$_2$ blockers) or when the dose of omeprazole (1 mg/kg per day; Olympus video endoscope (Olympus, Columbia, MD, U.S.A.) (N30, minimum, 10 mg/day; maximum, 20 mg twice daily). Patients with disease, or weight loss, an esophagogastrroduodenoscopy (EGD) was continued histologic evidence of esophagitis continued receiving performed by a board-certified pediatric gastroenterologist using an esophageal endoscope but with the addition of omeprazole (1 mg/kg per day; Olympus video endoscope (Olympus, Columbia, MD, U.S.A.) (N30, minimum, 10 mg/day; maximum, 20 mg twice daily). Patients who remained symptomatic despite more than 3 months of omeprazole and cisapride therapy again underwent EGD (11.2 ± 3.8 months after the initial EGD). Those in whom continued severe esophageal eosinophilia was demonstrated, consisting of more than 15 eosinophils/HPF without evidence of antral or duodenal eosinophilia were defined as the study population. In patients with antral or duodenal eosinophilia, in addition to esophageal eosinophilia, eosinophilic gastroenteritis was diagnosed, and the patients were excluded from the study. Figure 1 outlines selection of the study population.

![Figure 1](http://journals.lww.com/jpgn/Fulltext/1998/04000/Primary_Eosinophilic_Esophagitis_in_Children_4.aspx)
An EGD was performed in 583 patients: Findings were normal in 165. Findings in a second EGD examination showed 30 patients with whereas 418 had histologic evidence of esophagitis. Of these, 214 had continued esophageal eosinophilia (>15 eosinophils/HPF) and at least 1 esophageal eosinophil/HPF without evidence of gastric or persistent symptoms. In 8 patients with antral or duodenal duodenal disease (Figure 1). After treatment with ranitidine-eosinophilia (in addition to their continued esophageal eosinophilia), omeprozole and metoclopramide-cisapride, clinical symptoms eosinophilic gastroenteritis was diagnosed and the patients were excluded improved in 184 patients (control group). The clinical characteristics of the study group consisted of 94% with regurgitation-vomiting, 82% probe (Synectios pH probe, Irving, TX, U.S.A.), with all acid-with abdominal-epigastric pain, 60% with nausea, 53% with chest-suppressing agents and prokinetic medications withdrawn. Two pain-heartburn, 22% with weight loss, 17% with water-brash-globus, patients had severe GER according to pH probe criteria (reflux index 16% with choking, 11% with dysphagia, and 8% with bronchospasm, >40%; total time and longest episodes >60 minutes) and underwent an antireflux procedure. Twenty patients demonstrated mild or no reflux in examination by pH probe but continued to have severe symptoms and eosinophilic esophagitis, despite medical therapy with omeprozole and cisapride (Table 1). Table 2 depicts the 24-hour pH probe characteristics of the study population. The average duration of symptoms in these patients was 3.2 ± 1.8 years. Results of laboratory testing revealed 1 patient with an elevated sedimentation rate and 1 with hypoalbuminemia.

Table 1

| The average number of esophageal eosinophils/HPF was significantly greater in those children with eosinophilic gastroenteritis and primary eosinophilic esophagitis (34.7 ± 17.3 eosinophils/HPF and 34.2 ± 9.6 eosinophils/HPF, respectively), compared with the mean in children with GER that responded to antireflux therapy (2.26 ± 1.16 eosinophils/HPF; p < 0.001); however, no statistical difference was found in the average number of esophageal eosinophils/HPF between children with primary eosinophilic esophagitis and those with eosinophilic gastroenteritis. |

Results of Corticosteroid Therapy

Twenty patients entered the study and began a 4-week course of 1.5 mg/kg methylprednisolone twice daily. Thirteen of 20 patients became completely asymptomatic and 6 others had marked improvement in their clinical symptoms after 4 weeks of corticosteroid therapy. The average time for initial appearance of clinical improvement was 8 ± 4 days. One patient continued to experience abdominal pain similar to the pain described before the initiation of steroid therapy. All 20 patients demonstrated significant clinical (asymptomatic) improvement, which was supported by histologic evidence of the average number of esophageal eosinophils/HPF. In addition, a significant difference was seen in the serum eosinophil count and quantitative IgE level (Table 3). Figure 2 shows the esophageal histologic improvement after corticosteroids.

LONG-TERM FOLLOW UP

After a second EGD, each patient's corticosteroids and reflux medications were tapered and withdrawn in 6 weeks. At the 12-month follow up, 10 patients (50%) remained asymptomatic. In 9, symptoms redeveloped and dietary restrictions were imposed, as previously described (7). Of these patients, 7 (35%) responded to dietary withdrawal, whereas 2 (10%) remained asymptomatic and required a second corticosteroid challenge, 6± 2.5 months after initial steroid therapy. One patient (5%) remained symptomatic despite corticosteroids and dietary restriction.

DISCUSSION

These results demonstrate that a significant number of children with the precise role of the esophageal eosinophil has not been defined. Characteristic symptoms of gastroesophageal reflux and predominant eosinophilic esophagitis was linked to pediatric reflux esophagitis in eosinophilic esophagitis do not have GER but instead have a unique eosinophilic gastroenteritis was diagnosed and the patients were excluded. They correlated the observation of esophageal disorder, which does not respond to antireflux therapy but does eosinophilic esophagitis with abnormal esophageal acid clearance. However, none respond both clinically and histologically to oral corticosteroids. The 46 patients studied had more than 3 eosinophils per HPF. Since features of this disorder, as observed in the patients reported here, are at that time, in several reports adult patients with severe eosinophilic significant eosinophilic infiltration only of the esophagus; minimal-to-esophagitis have been identified, suggesting a cause other than acid no acid reflux detectable by 24-hour pH monitoring; and resolution of reflux. In 1989, Lee reported on a series of 11 patients with more than the esophageal eosinophilia, evident in histologic study, within 110 esophageal eosinophils per HPF who had dysphagia, heartburn, month of initiation of steroid therapy. Although not statistically cystic reflux, and esophageal strictures (in 3 of 11) (10). Although he significant, the clinical features of dysphagia, eczema, and suggested that reflux occurred in the majority, reflux was not indicated.
Primary Eosinophilic Esophagitis in Children: Successful Tre...

Although all of our study patients responded rapidly to corticosteroids. Our results demonstrate that eosinophilic esophagitis may take and 50% remained asymptomatic 12 months after therapy, allergic. months to years to evolve. One fourth of our patients did not enter into the study, therefore, enteritis should always be considered in these patients. A food challenge test should be conducted when parents of the infants examined. In each of these studies, pronounced and persistent physicians choose not to use corticosteroids or when symptoms recur, eosinophilic esophagitis was found in a second EGD after failure to manifest. In all of these groups, who did not respond to antireflux therapy but did respond to an amino-acid based formula. Only 1 patient underwent a 24-hour pH probe study, until 5 months after initial evaluation. In 26%, patients with isolated gastroesophageal reflux disease (GER). Symptomatic improvement was seen within an average of 3 weeks; subsequently, regular foods were slowly reintroduced. Kelly et al. suggested an immunologic basis secondary to delayed hypersensitivity or to a cell-mediated hypersensitivity response. In several reports, it has been suggested that eosinophilic gastroenteritis can involve the esophagus. Eosinophilic gastroenteritis is a poorly characterized, chronic disorder in which eosinophils infiltrate various layers of the alimentary tract, causing myriad gastrointestinal symptoms, including abdominal pain, vomiting, diarrhea, gastrointestinal bleeding, protein losing enteropathy, weight loss, and failure to thrive. In the past, the diagnosis of eosinophilic gastroenteritis was not made unless eosinophils were observed in another portion of the gastrointestinal tract. Eosinophilic tissue infiltration in eosinophilic gastroenteritis can occur in all layers and in every part of the gastrointestinal tract. In children, findings of antral or duodenal eosinophilia, coupled with peripheral eosinophilia, suggest the diagnosis. Other gastrointestinal sites, including the esophagus and colon, have been reported to be affected in eosinophilic gastroenteritis but always in association with gastric or small bowel disease. The majority of patients manifest peripheral eosinophilia; an elevated IgE level; and other allergic symptoms, including asthma, rhinitis, and eczema.

Although the findings in this study do not answer the question of whether children in whom gastroesophageal reflux and cause, they indicate that children with presumed severe reflux esophagitis are diagnosed, who do not respond to aggressive antireflux therapy, should not be immediately referred for antireflux surgery but should be evaluated for other immunologic and allergic causes gastroesophageal reflux. In the past, the diagnosis of eosinophilic esophagitis was not made unless eosinophils were observed in another portion of the gastrointestinal tract. Eosinophilic tissue infiltration in eosinophilic gastroenteritis can occur in all layers and in every part of the gastrointestinal tract. In children, findings of antral or duodenal eosinophilia, coupled with peripheral eosinophilia, suggest the diagnosis. Other gastrointestinal sites, including the esophagus and colon, have been reported to be affected in eosinophilic gastroenteritis but always in association with gastric or small bowel disease. The majority of patients manifest peripheral eosinophilia; an elevated IgE level; and other allergic symptoms, including asthma, rhinitis, and eczema.

REFERENCES


In the Next Issue

Original Articles

Celiac Disease and Turner Syndrome
M. Bonamico, G. Bottaro, A. M. Pasquino, M. Caruso-Nicoletti, P. Mariani, G. Gemme, E. Paradiso, M. C. Ragnu, and M. Spina

Serum Leptin in Children and Young Adults with Inflammatory Bowel Disease
Alison G. Hoppin, Lee M. Kaplan, David Zurakowski, Alan M. Leichtner, and Athos Bousvaros

The Effect of Intestinal Permeability on Pancreatic Enzyme-Induced Enteropathy in the Rat
John D. Lloyd-Still, Michael R. Ubing, Valerie Arango, Aldo Fusaro, and Robert E. Kimura

Efficacy of a Glutamine-Based Oral Rehydration Solution on the Electrolyte and Water Absorption in a Rabbit Model of Secretory Diarrhea Induced by Cholera Toxin
Alessandra C. Silva, Messias S. Santor-Neto, Alberto M. Soares, Manassés C. Fonteles, Richard L. Guerrant, and Aldo A. M. Lima

Epithelial Growth of the Small Intestine in Human Infants
Fiona M. Thompson, Anthony G. Catto-Smith, David Moore, Geoff Davidson, and Adrian G. Cummins

Editorial

Glutamine-Based Oral Rehydration Solutions: The Magic Bullet Revisited?
Christopher Duggan

Cited By:

This article has been cited 201 time(s).

*Current Problems in Pediatric and Adolescent Health Care*

Gastrointestinal Syndromes Associated with Food Allergies
Saltzman, RW; Brown-Whitehorn, TF

10.1016/j.cppeds.2012.03.007

CrossRef

Hippokratia
Eosinophilic Esophagitis: update on treatment approaches
Fotis, I; Xatzipsalti, M; Papadopoulou, A
Hippokratia, 16(3): 200-204.

Journal of Allergy and Clinical Immunology
Idiopathic eosinophilic esophagitis is associated with a T(H)2-type allergic inflammatory response
Straumann, A; Bauer, M; Fischer, B; Blaser, K; Simon, HU
Journal of Allergy and Clinical Immunology, 108(6): 954-961.  
10.1016/j.jaci.2001.11.9917
CrossRef

Gastrointestinal Endoscopy
White specks in the esophageal mucosa: an endoscopic manifestation of non-reflux eosinophilic esophagitis in children
Lim, JR; Gupta, SK; Croffie, JM; Pfefferkorn, MD; Molleston, JP; Corkins, MR; Davis, MM; Faught, PP; Steiner, SJ; Fitzgerald, JF
Gastrointestinal Endoscopy, 59(7): 835-838.
PII S0016-5107(04)00364-5
CrossRef

Pediatric Gastroenterology 2004
Eosinophilic esophagitis: A paediatric experience
De Angelis, P; Torroni, F; Pane, A; Caldarro, T; di Abriola, GF; Boldrini, R; Dall'Oglio, L
Pediatric Gastroenterology 2004, (): 505-508.

Best Practice & Research in Clinical Gastroenterology
Idiopathic eosinophilic disorders of the gastrointestinal tract in children
Mukkada, VA; Furuta, GT
10.1016/j.bmpg.2007.09.002
CrossRef

Nutrition in Clinical Practice
Medical and Nutrition Management of Eosinophilic Esophagitis in Children
Feuling, MB; Noel, RJ

Archives of Pathology & Laboratory Medicine
Update on Esophagitis Controversial and Underdiagnosed Causes
Noffsinger, AE
Archives of Pathology & Laboratory Medicine, 133(7): 1087-1095.

Gastroenterology
Intratracheal IL-13 induces eosinophilic esophagitis by an IL-5, eotaxin-1, and STAT6-dependent mechanism
Mishra, A; Rothenberg, ME
Gastroenterology, 125(5): 1419-1427.  
CrossRef

Seminars in Diagnostic Pathology
Allergic eosinophilic esophagitis: a primer for pathologists
Antonioli, DA; Furuta, GT
Seminars in Diagnostic Pathology, 22(4): 266-272.  
10.1053/j.sem.d.2006.05.002
CrossRef

World Journal of Gastroenterology
Eosinophilic esophagitis: A newly established cause of dysphagia
Yan, BM; Shaffer, EA

Gastrointestinal Endoscopy
Clinical presentation of patients with eosinophilic inflammation of the esophagus
Baxi, S; Gupta, SK; Swigonski, N; Fitzgerald, JF
Pathology
Clinical and pathological features of eosinophilic oesophagitis: a review
Chang, F; Anderson, S
10.1080/03008604.2010.1016660
CrossRef

Best Practice & Research in Clinical Gastroenterology
General laboratory diagnostics of eosinophilic GI diseases
Conus, S; Simon, HU
Best Practice & Research in Clinical Gastroenterology, 22(3): 441-453.
10.1016/j.bpg.2007.09.003
CrossRef

Digestive Diseases and Sciences
Pheasant-induced dysphagia
Rodriguez-Stanley, S; Robinson, M; Biscopink, RJ; Miner, PB
Digestive Diseases and Sciences, 45(9): 1743-1746.

Gastrointestinal Endoscopy
EUS and histopathologic correlates in eosinophilic esophagitis
Stevoff, C; Rao, S; Parsons, W; Kahrilas, PJ; Hirano, I

Digestive Diseases and Sciences
Visceral sensitivity in gastroesophageal reflux
Theodoropoulos, DS; Pecoraro, DL; Lockey, RF; Boyce, HW; Bukantz, SC
Digestive Diseases and Sciences, 47(0): 2554-2564.

Expert Opinion on Pharmacotherapy
Management of food allergies
Fogg, MI; Spergel, JM

American Journal of Gastroenterology
Correlation between number of eosinophils and reflux index on same day esophageal biopsy and 24 hour esophageal pH monitoring
Steiner, SJ; Gupta, SK; Croffie, JM; Fitzgerald, JE
10.1111/j.1572-0241.2004.04170.x
CrossRef

Allergic Diseases and the Environment
The changing prevalence and clinical profile of food allergy in infancy
Hill, DJ; Heine, RG; Hosking, CS

Endoscopy
Analysis of symptoms and endoscopic findings in 117 patients with histological diagnoses of eosinophilic esophagitis
Muller, S; Puhl, S; Vieth, M; Stolte, M
CrossRef

Immunology and Allergy Clinics of North America
Eosinophilic Esophagitis
Franciosi, JP; Liacouras, CA
10.1016/j.iac.2008.09.001
CrossRef

Nature Reviews Gastroenterology & Hepatology
Eosinophilic esophagitis: the newest esophageal inflammatory disease
Atkins, D; Kramer, R; Capocelli, K; Lovell, M; Furuta, GT
10.1038/nrgastro.2009.45
CrossRef
Gut
Anti-interleukin-5 antibody treatment (mepolizumab) in active eosinophilic oesophagitis: a randomised, placebo-controlled, double-blind trial
Straumann, A; Conus, S; Grzonka, P; Kita, H; Kephart, G; Bussmann, C; Beglinger, C; Smith, DA; Patel, J; Byrne, M; Simon, HU
10.1136/gut.2009.178558
CrossRef

Digestive Diseases
Eosinophilic Esophagitis
Furuta, GT
Digestive Diseases, 27(1): 122-128.
10.1159/000268132
CrossRef

Diseases of the Esophagus
Diagnosis of eosinophilic esophagitis after fundoplication for refractory reflux: implications for preoperative evaluation
Dellon, ES; Farrell, TM; Bozymski, EM; Shaheen, NJ
10.1111/j.1442-2050.2009.01019.x
CrossRef

Gastrointestinal Endoscopy
The small-caliber esophagus: an unappreciated cause of dysphagia for solids in patients with eosinophilic esophagitis
Vasilopoulos, S; Murphy, F; Auerbach, A; Massey, BT; Shaker, R; Stewart, E; Komorowski, RA; Hogan, WJ
10.1067/mge.2002.118645
CrossRef

Allergy
The physiological and pathophysiological roles of eosinophils in the gastrointestinal tract
Straumann, A; Simon, HU
Allergy, 59(1): 19-25.

Pediatric and Developmental Pathology
Reflux esophagitis: Sequelae and differential diagnosis in infants and children including eosinophilic esophagitis
Dahms, BB
Pediatric and Developmental Pathology, 7(1): 5-16.
10.1007/s10024-003-0203-5
CrossRef

Cochrane Database of Systematic Reviews
Non-surgical interventions for eosinophilic esophagitis
Elliott, EJ; Thomas, D; Markowitz, JE
Cochrane Database of Systematic Reviews, (3): -. ARTN CD004065
CrossRef

Pediatric Allergy and Immunology
Educational clinical case series in pediatric allergy and immunology
Khan, S; Kandula, L; Orenstein, SR
Pediatric Allergy and Immunology, 18(7): 629-639.
10.1111/j.1399-3038.2007.00659.x
CrossRef

Current Allergy & Clinical Immunology
Gastrointestinal syndromes in food allergy
Motola, C
Current Allergy & Clinical Immunology, 21(2): 76-81.

American Journal of Gastroenterology
Histopathologic Variability in Children With Eosinophilic Esophagitis
Shah, AA; Kagalwalla, AF; Gonsalves, N; Melin-Aldana, H; Li, BUK; Hirano, I
10.1038/ajg.2008.117
CrossRef
Digestive Diseases and Sciences
Eosinophilic Esophagitis
Moawad, FJ; Veerappan, GR; Wong, RK
Digestive Diseases and Sciences, 54(9): 1818-1828.
10.1007/s11662-009-0875-6
CrossRef

Pediatrics
Gastroesophageal reflux and cow milk allergy: Is there a link?
Salvatore, S; Vandenplas, Y

Diseases of the Esophagus
Primary eosinophilic esophagitis
Munitiz, V; de Haro, LFM; Ortiz, A; Pons, JA; Bermejo, J; Serrano, A; Molina, J; Parrilla, P
Diseases of the Esophagus, 16(2): 165-168.

Pediatric Gastroenterology 2004
Eosinophilic esophagitis: Increasing prevalence or best recognized?
de Carpi, JM; Varea, V; Gomez, M; Casteljon, E; Masiques, MLI; Vilar, P

Medicina Clinica
Eosinophilic esophagitis
Lucendo, AJ
Medicina Clinica, 128(): 590-597.

American Journal of Gastroenterology
Oral viscous budesonide: A potential new therapy for eosinophilic esophagitis
in children
Aceves, SS; Bastian, JF; Newbury, RO; Dohil, R
American Journal of Gastroenterology, 102(): 2271-2279.
10.1111/j.1572-0241.2007.01379.x
CrossRef

American Journal of Gastroenterology
Variability in diagnostic criteria for eosinophilic esophagitis: A systematic review
Dellon, ES; Aderoju, A; Woosley, JT; Sandler, RS; Shaheen, NJ
American Journal of Gastroenterology, 102(): 2300-2313.
10.1111/j.1572-0241.2007.01396.x
CrossRef

American Journal of Gastroenterology
"Congenital" esophageal stenosis, corrugated ringed esophagus, and eosinophilic esophagitis
Langdon, DE
American Journal of Gastroenterology, 95(8): 2123.

Immunological Reviews
Gastrointestinal eosinophils
Rothenberg, ME; Mishra, A; Brandt, EB; Hogan, SP
Immunological Reviews, 179(): 139-155.

American Journal of Gastroenterology
Ringed esophagus: Unclear relationship to gastroesophageal reflux disease
Bonis, PAL
American Journal of Gastroenterology, 96(): 3439.

Clinical Gastroenterology and Hepatology
Comparison of oral prednisone and topical fluticasone in the treatment of eosinophilic esophagitis: A randomized trial in children
Schaefer, ET; Fitzgerald, JF; Molleston, JP; Croffie, JM; Pfefferkorn, MD; Corkins, MR; Lim, JD; Steiner, SJ; Gupta, SK
Clinical Gastroenterology and Hepatology, 6(2): 165-173.
10.1016/j.cgh.2007.11.008
CrossRef

Primary Eosinophilic Esophagitis in Children: Successful Tre...

Expert Review of Clinical Immunology
The link between allergies and eosinophilic esophagitis: implications for management strategies
Brown-Whitehorn, TF; Spergel, JM
10.1586/ECI.09.74
CrossRef

American Journal of Gastroenterology
Elemental diet is an effective treatment for eosinophilic esophagitis in children and adolescents
Markowitz, JE; Spergel, JM; Ruchelli, E; Liacouras, CA
10.1016/S0002-9270(00)00054-6
CrossRef

Gastroenterology Clinics of North America
Eosinophilic esophagitis
Markowitz, JE; Liacouras, CA
Gastroenterology Clinics of North America, 32(3): 949-+
10.1016/S0889-8553(03)00047-5
CrossRef

Alimentary Pharmacology & Therapeutics
Review article: epidemiology and management of gastro-oesophageal reflux in children
Gold, BD
Alimentary Pharmacology & Therapeutics, 19(): 22-27.

Clinical and Experimental Allergy
Eosinophil infiltration of the oesophageal mucosa in patients with pollen allergy during the season
Onbasli, K; Sin, AZ; Doganavsargil, B; Onder, GF; Bor, S; Sebik, F
Clinical and Experimental Allergy, 35(1): 1423-1431.
10.1111/j.1365-2222.2005.02351.x
CrossRef

Journal of Allergy and Clinical Immunology
Eosinophilic esophagitis: Pathogenesis, genetics, and therapy
Blanchard, C; Wang, N; Rothenberg, ME
Journal of Allergy and Clinical Immunology, 118(5): 1054-1059.
10.1016/j.jaci.2006.07.038
CrossRef

Revista Espanola De Enfermedades Digestivas
Eosinophilic esophagitis - clinical manifestations, diagnosis, and treatment
Villarin, AJL

Current Medical Research and Opinion
Patient and caregiver perspective on pediatric eosinophilic esophagitis and newly developed symptom questionnaires
Flood, EM; Beusterien, KM; Amonkar, MM; Jurgensen, CH; Dewit, OE; Kahl, LP; Matza, LS
Current Medical Research and Opinion, 24(): 3369-3381.
10.1185/03007990802536900
CrossRef

Gastrointestinal Endoscopy
Histopathologic variability and endoscopic correlates in adults with eosinophilic esophagitis
Gonsalves, N; Policarpio-Nicolas, M; Zhang, Q; Rao, MS; Hirano, I
Gastrointestinal Endoscopy, 64(3): 313-319.
10.1016/j.gie.2006.04.037
CrossRef

Annual Review of Nutrition
Food allergies: Prevalence, molecular characterization, and treatment/prevention strategies
Lee, LA; Burks, AW
10.1146/annurev.nutr.26.061505.111211
CrossRef
**Best Practice & Research in Clinical Gastroenterology**

Eosinophilic oesophagitis and other non-reflux inflammatory conditions of the oesophagus: Diagnostic imaging and management
Attwood, SEA; Lamb, CA
10.1016/j.bpg.2007.12.003
CrossRef

*Gut*

Primary eosinophilic disorders of the gastrointestinal tract
Yan, BM; Shaffer, EA
10.1136/gut.2008.165894
CrossRef

*Neurogastroenterology and Motility*

Eosinophilic oesophagitis in adults
Gonsalves, N; Kahrilas, PJ
*Neurogastroenterology and Motility*, 21(): 1017-1026.
10.1111/j.1365-2982.2009.01307.x
CrossRef

*Pathology*

Oesophagitis in children: reflux or allergy?
Ireland-Jenkin, K; Wu, X; Heine, RG; Cameron, DJS; Catto-Smith, AG; Chow, CW
10.1080/0031302080215727
CrossRef

*Gastroenterology Clinics of North America*

Eosinophilic Esophagitis
Liacouras, CA
10.1016/j.gtc.2008.09.004
CrossRef

*Diseases of the Esophagus*

Is the etiology of eosinophilic esophagitis in adults a response to allergy or reflux injury? Study of cellular proliferation markers
Lewis, CJ; Lamb, CA; Kanakala, V; Pritchard, S; Armstrong, GR; Attwood, SEA
10.1111/j.1442-2050.2008.00896.x
CrossRef

*Radiology*

Idiopathic eosinophilic esophagitis in adults: The ringed esophagus
Zimmerman, SL; Levine, MS; Rubesin, SE; Mitre, MC; Furth, EE; Lauffer, I; Katzka, DA
*Radiology*, 236(1): 159-165.
10.1148/radiol.2361041100
CrossRef

*Annals of Otology Rhinology and Laryngology*

Clinical characteristics of eosinophilic esophagitis in children
Dauer, EH; Freese, DK; El-Youssef, M; Thompson, DM

*Endoscopy*

Eosinophilic esophagitis in adults: What is the clinical significance?
Sgouros, SN; Bergele, C; Mantides, A
CrossRef

*Pediatric Transplantation*

Audit of eosinophilic oesophagitis in children post-liver transplant
Noble, C; Francis, L; Withers, GW; Ee, LC; Lewindon, PJ
*Pediatric Transplantation*, 13(7): 827-830.
10.1111/j.1399-3046.2008.01063.x
CrossRef

*Acta Medica Portuguesa*

EOSINOPHILIC ESOPHAGITIS Increasing Incidence in Paediatric Population
Braga-Tavares, H; Teles, A; Nogueira, R; Rodrigues, FC; Costa, C
Primary Eosinophilic Esophagitis in Children: Successful Treatment with Fluticasone Propionate

Remedios, M; Campbell, C; Jones, DM; Kerlin, P

Gastrointestinal Endoscopy, 63(1): 3-12.
10.1016/j.gie.2005.07.049

CrossRef

Gastrointestinal Endoscopy
Eosinophilic esophagitis in adults: clinical, endoscopic, histologic findings, and response to treatment with fluticasone propionate

Remedios, M; Campbell, C; Jones, DM; Kerlin, P

Gastrointestinal Endoscopy, 63(1): 3-12.
10.1016/j.gie.2005.07.049

CrossRef

Annals of Allergy Asthma & Immunology
Eosinophilic esophagitis: an allergist's approach

Norvell, JM; Venarske, D; Hummell, DS


Gastrointestinal Endoscopy
Eosinophilic esophagitis: a clinical, endoscopic, histologic study of 45 patients

Remedios, M; Campbell, C; Jones, DM; Kerlin, P

Gastrointestinal Endoscopy, 63(1): 3-12.
10.1016/j.gie.2005.07.049

CrossRef

Gastrointestinal Endoscopy
Eosinophilic esophagitis: it's not just kid's stuff

Remedios, M; Campbell, C; Jones, DM; Kerlin, P

Gastrointestinal Endoscopy, 63(1): 3-12.
10.1016/j.gie.2005.07.049

CrossRef

Gastrointestinal Endoscopy
Eosinophilic esophagitis: it's not just kid's stuff

Remedios, M; Campbell, C; Jones, DM; Kerlin, P

Gastrointestinal Endoscopy, 63(1): 3-12.
10.1016/j.gie.2005.07.049

CrossRef

World Journal of Gastroenterology
Eosinophilic gastroenteritis: Clinical experience with 15 patients

Chen, MJ; Chu, CH; Lin, SC; Shih, SC; Wang, TE


Journal of Allergy and Clinical Immunology
Eosinophilic gastrointestinal disorders (EGID)

Rothenberg, ME

Journal of Allergy and Clinical Immunology, 113(1): 11-28.
10.1016/j.jaci.2003.10.047

CrossRef

Digestive and Liver Disease
Paediatric eosinophilic oesophagitis: Towards early diagnosis and best treatment

De Angelis, P; Markowitz, JE; Torroni, F; Caldaro, T; Pane, A; Morino, G; Wietrzykowska, RS; di Abrilola, GF; Ponticelli, A; Dall'Oglio, L

10.1016/j.dld.2005.08.004

CrossRef

Journal of Pediatrics
Predictors of Response to Proton Pump Inhibitor Therapy among Children with Significant Esophageal Eosinophilia

Dranove, JE; Horn, DS; Davis, MA; Kernek, KM; Gupta, SK

10.1016/j.jpeds.2008.07.042

CrossRef

Medizinische Klinik
Impaction of a "Sausage Bread" in the Esophagus - First Manifestation of an Eosinophilic Esophagitis in a 17-Year-Old Patient

Gabele, E; Endlicher, E; Zuber-Jerger, I; Uller, W; Eder, F; Scholmerich, J

10.1007/s00063-009-1077-8

CrossRef

Revista Medica De Chile
Eosinophilic esophagitis. Report of three cases

Gonzalez, CG; Torres, J; Molina, R; Harris, PR

Revista Medica De Chile, 137(5): 666-671.

Schweizerische Medizinische Wochenschrift
Idiopathic eosinophilic oesophagitis: a case report

Fischer, CA; Reimers, MP

Schweizerische Medizinische Wochenschrift, 130(): 131S-133S.

Gut
Diversity in the oesophageal phenotypic response to gastro-oesophageal reflux: immunological determinants

Fitzgerald, RC; Omwuegbusi, BA; Bajaj-Elliott, M; Saeed, IT; Burnham, WR; Farthing, MJG


Gastrointestinal Endoscopy
Eosinophilic esophagitis: it's not just kid's stuff

Remedios, M; Campbell, C; Jones, DM; Kerlin, P

Gastrointestinal Endoscopy, 63(1): 3-12.
10.1016/j.gie.2005.07.049

CrossRef
Primary Eosinophilic Esophagitis in Children: Successful Tre... : Journal of Pediatric Gastroenterology and Nutrition

Primary Eosinophilic Esophagitis in Children: Successful Treatment With Topical Corticosteroids

Rudolph, CD; Mazur, LJ; Liptak, GS; Baker, RF; Boyle, J; Cohen, KB; Gerson, WJ

Pediatric Clinics of North America
Food allergy - Mechanisms, diagnosis, and management in children
Spergel, JM, Pawlowski, NA

Pediatric Clinics of North America, 49(1): 73-+

Gastrointestinal Endoscopy
High-resolution EUS in children with eosinophilic “allergic” esophagitis
Fox, VL; Nurko, S; Teitelbaum, JE; Badizadegan, K; Furuta, GT

Gastrointestinal Endoscopy, 57(1): 30-36

Journal of Immunology
IL-5 promotes eosinophil trafficking to the esophagus
Mishra, A; Hogan, SP; Brandt, EB; Rothenberg, ME

Journal of Immunology, 168(5): 2464-2469

American Journal of Gastroenterology
Corrugated (multiple) ringed esophagus, GERD versus allergy?
Langdon, DE

American Journal of Gastroenterology, 97(5): 1257-1258

Journal of Pediatric Gastroenterology and Nutrition
The pediatric esophagus comes of age
Thomson, M

10.1097/01.MPG.0000017296.92960.A3

Pediatrics
Clinical aspects of gastrointestinal food allergy in childhood
Sicherer, SH

Pediatrics, 111(6): 1609-1616

European Journal of Pediatric Surgery
Non stenotic food impaction due to eosinophilic esophagitis: A potential surgical emergency
Luis, AI; Rinon, C; Encinas, JL; Prieto, G; Molina, M; Sarria, J; Olivares, P; Tovar, JA

European Journal of Pediatric Surgery, 16(6): 399-402

Journal of Allergy and Clinical Immunology
Pediatric patients with eosinophilic esophagitis: An 8-year follow-up
Assaad, AH; Putnam, PE; Collins, MH; Akers, RM; Jameson, SC; Kirby, CL; Buckmeier, BK; Bullock, JZ; Collier, AR; Konikoff, MR; Noel, RJ; Gugliardo, JR; Rothenberg, ME

Journal of Allergy and Clinical Immunology, 119(3): 731-738
10.1016/j.jaci.2006.10.044

Best Practice & Research in Clinical Gastroenterology
Gastro-oesophageal reflux disease and motility disorders
Salvatore, S; Vandenplas, Y

Best Practice & Research in Clinical Gastroenterology, 17(2): 163-179
10.1053/ybega.2003.366

Mayo Clinic Proceedings
Topical corticosteroid treatment of dysphagia due to eosinophilic esophagitis in adults
Arora, AS; Perrault, J; Smyrk, TC

Mayo Clinic Proceedings, 78(7): 830-835

American Journal of Gastroenterology
Predictors of early recurrence of benign esophageal strictures: What about eosinophilic esophagitis?
Liacouras, CA; Markowitz, JE
Primary Eosinophilic Esophagitis in Children: Successful Tre... : Journal of Pediatric Gastroenterology and Nutrition

5/13/14, 9:39 PM

Primary Eosinophilic Esophagitis in Children: Successful Tre... : Journal of Pediatric Gastroenterology and Nutrition

American Journal of Gastroenterology
Treatment of Eosinophilic Esophagitis: Overview, Current Limitations, and Future Direction
Bohm, M; Richter, JE
10.1111/j.1572-0241.2008.02116.x
CrossRef

Immunology and Allergy Clinics of North America
Mechanism of Eosinophilic Esophagitis
Mishra, A
Immunology and Allergy Clinics of North America, 29(1): 29–+. 10.1016/j.iac.2008.09.010
CrossRef

Annals of Allergy Asthma & Immunology
A 17-month-old boy with periorbital swelling
Ko, J; Magid, MS; Benkov, KJ; Chehade, M; Nowak-Wegrzyń, A
Annals of Allergy Asthma & Immunology, 93(3): 220-226.

Annals of Allergy Asthma & Immunology
Treatment of eosinophilic esophagitis with specific food elimination diet directed by a combination of skin prick and patch tests
Spergel, JM; Andrews, T; Brown-Whitehorn, TF; Beausoleil, JL; Liacouras, CA
Annals of Allergy Asthma & Immunology, 95(4): 336-343.

Annals of Otology Rhinology and Laryngology
Airway manifestations of pediatric eosinophilic esophagitis: A clinical and histopathologic report of an emerging association
Dauer, EH; Ponikau, JU; Smyrk, TC; Murray, JA; Thompson, DM

Dysphagia
Eosinophilic esophagitis in infants and toddlers
Pentiuk, SP; Miller, CK; Kaul, A
CrossRef

Dysphagia
Intermittent dysphagia for solids associated with a multiringed esophagus: Clinical features and response to dilatation
Lee, GSC; Craig, PI; Freiman, JS; de Carle, D; Cook, IJ
CrossRef

Archives of Disease in Childhood
Upregulated eotaxin expression and T cell infiltration in the basal and papillary epithelium in cows' milk associated reflux oesophagitis
Butt, AM; Murch, SH; Ng, CL; Kitching, P; Montgomery, SM; Phillips, AD; Walker-Smith, JA; Thomson, MA
Archives of Disease in Childhood, 87(2): 124-130.

Gastrointestinal Endoscopy
Clinical and endoscopic features of eosinophilic esophagitis in adults
Croese, J; Fairley, SK; Masson, JW; Chong, AKH; Whitaker, DA; Kanowski, PA; Walker, NI
PII S0106-5197(03)01870-4
CrossRef

Digestive Diseases and Sciences
Eosinophilic esophagitis - Strictures, impactions, dysphagia
Eosinophilic esophagitis - Strictures, impactions, dysphagia
Khan, S; Orenstein, SR; Di Lorenzo, C; Kocoshis, SA; Putnam, PE; Sigurdsson, I; Shalaby, TM

Journal of Pediatric Surgery
Eosinophilic infiltration of the esophagus: Gastroesophageal reflux versus eosinophilic esophagitis in children - Discussion on daily practice
Cury, EK; Schraibman, V; Faintuch, S
ARTN 64
CrossRef

Gastroenterologie Clinique Et Biologique
Eosinophilic esophagitis: 3 case reports
Budin, C; Villard-Truec, F; Rivet, C; Dumortier, J; Legall, C; Bouvier, R; Scoazec, JY; Lachaux, A
Gastroenterologie Clinique Et Biologique, 29(1): 73-75.

Clinical Gastroenterology and Hepatology
Effect of six-food elimination diet on clinical and histologic outcomes in eosinophilic esophagitis
Kagalwalla, AF; Sentongo, TA; Ritz, S; Hess, T; Nelson, SP; Emerick, KM; Melin-Aldana, H; Li, BUK
Clinical Gastroenterology and Hepatology, 4(9): 1097-1102.
10.1016/j.cgh.2006.05.026
CrossRef

American Journal of Gastroenterology
3-Yr-Follow-Up of Topical Corticosteroid Treatment for Eosinophilic Esophagitis in Adults
Helou, EF; Simonson, J; Arora, AS
American Journal of Gastroenterology, 103(9): 2194-2199.
10.1111/j.1572-0241.2008.01989.x
CrossRef

American Journal of Gastroenterology
The spectrum of pediatric eosinophilic esophagitis beyond infancy: A clinical series of 30 children
Orenstein, SR; Shalaby, TM; Di Lorenzo, C; Putnam, PE; Sigurdsson, I; Kocoshis, SA

Journal of Clinical Investigation
An etiological role for aeroallergens and eosinophils in experimental esophagitis
Mishra, A; Hogan, SP; Brandt, EB; Rothenberg, ME

Pediatric Annals
Chronic abdominal pain: Inflammatory dowel disease and eosinophilic gastroenteropathy
Gokhale, R
Pediatric Annals, 30(1): 49-55.

Journal of Pediatric Gastroenterology and Nutrition
Eosinophilic esophagitis - Is it in the air?
Elitsur, Y

Journal of Pediatric Gastroenterology and Nutrition
Eosinophilic esophagitis in children and adults
Liacouras, CA

Gastrointestinal Endoscopy
Association of eosinophilic inflammation with esophageal food impaction in adults
Desai, TK; Steevic, V; Chang, CH; Goldstein, NS; Badizadegan, K; Furuta, GT
Gastrointestinal Endoscopy, 61(7): 795-801.
PII S0016-5107(05)00119-5
Primary Eosinophilic Esophagitis in Children: Successful Tre... : Journal of Pediatric Gastroenterology and Nutrition

Gastroenterology Clinics of North America
Gastroesophageal reflux disease in children
Orenstein, SR; Izadnia, F; Khan, S

Jama-Journal of the American Medical Association
The spectrum of pediatric gastroesophageal reflux
Furuta, GT; Nurko, S; Bousvaros, A; Antonioli, D; Badizadegan, K

American Journal of Gastroenterology
Fluticasone in eosinophilic corrugated ringed esophagus
Langdon, DE

Zeitschrift Fur Gastroenterologie
Differential diagnosis of gastroesophageal reflux disease - eosinophilic esophagitis: Case report
Franzius, M; Stolte, M; Porschen, R
CrossRef

Gastrointestinal Endoscopy
Eosinophilic esophagitis: the endoscopist's enigma
Straumann, A; Beglinger, C
10.1016/j.gie.2005.09.010
CrossRef

American Journal of Gastroenterology
Eosinophils in the esophagus - Peptic or allergic eosinophilic esophagitis? Case series of three patients with esophageal eosinophilia
Ngo, P; Furuta, GT; Antonioli, DA; Fox, VL
10.1111/j.1572-0241.2006.00562.x
CrossRef

Gastroenterology Clinics of North America
Food allergies and eosinophilic gastrointestinal illness
Gonsalves, N
10.1016/j.gtc.2007.01.003
CrossRef

Clinical Gastroenterology and Hepatology
Atopic characteristics of adult patients with eosinophilic esophagitis
Roy-Ghanta, S; Larosa, DF; Katzka, DA
Clinical Gastroenterology and Hepatology, 6(5): 531-535.
10.1016/j.cgh.2007.12.045
CrossRef

American Journal of Gastroenterology
ACG Clinical Guideline: Evidenced Based Approach to the Diagnosis and Management of Esophageal Eosinophilia and Eosinophilic Esophagitis (EoE)
Dellon, ES; Gonsalves, N; Hirano, I; Furuta, GT; Liacouras, CA; Katzka, DA
10.1038/ajg.2013.71
CrossRef

Gastroenterology Clinics of North America
Eosinophilic Esophagitis
Dellon, ES
10.1016/j.gtc.2012.11.008
CrossRef

The American Journal of Surgical Pathology
Allergic Esophagitis in Children: A Clinicopathological Entity
Walsh, SV; Antonioli, DA; Goldman, H; Fox, VL; Bousvaros, A; Leichtner, AM; Furuta, GT
The American Journal of Surgical Pathology, 23(4): 390-396.
European Journal of Gastroenterology & Hepatology
Eosinophilic esophagitis in adults: a systematic review
Sgouros, SN; Bergele, C; Mantides, A

European Journal of Gastroenterology & Hepatology
Eosinophils and gut dysmotility
Attwood, SE
European Journal of Gastroenterology & Hepatology, 17(9): 891-892.

Journal of Clinical Gastroenterology
Distinguishing Eosinophilic Esophagitis in Pediatric Patients: Clinical, Endoscopic, and Histologic Features of An Emerging Disorder
Aceves, SS; Newbury, RO; Dohil, R; Schwimmer, J; Bastian, JF
10.1097/01.mcg.0000212639.52359.f1
PDF (156) | CrossRef

Journal of Pediatric Gastroenterology and Nutrition
Vomiting and Gastric Motility in Infants With Cow's Milk Allergy
Ravelli, AM; Tobanelli, P; Volpi, S; Ugazio, AG
Journal of Pediatric Gastroenterology and Nutrition, 32(1): 59-64.
PDF (723)

Journal of Pediatric Gastroenterology and Nutrition
Cytokine Expression in Normal and Inflamed Esophageal Mucosa: A Study into the Pathogenesis of Allergic Eosinophilic Esophagitis
Gupta, SK; Fitzgerald, JF; Kondratyuk, T; HogenEsch, H
PDF (320)

Journal of Pediatric Gastroenterology and Nutrition
Activated Mucosal Mast Cells Differentiate Eosinophilic (Allergic) Esophagitis From Gastroesophageal Reflux Disease
Kirsch, R; Bokhary, R; Maron, MA; Cutz, E
10.1097/MPG.0b013e318120d006
PDF (664) | CrossRef

Journal of Pediatric Gastroenterology and Nutrition
Childhood Esophagitis: Then and Now
Lee, JJ; Baker, RD; Khan, AR; Baker, SS
10.1097/MPG.0b013e31817c0399
PDF (84) | CrossRef

Journal of Pediatric Gastroenterology and Nutrition
Adherent White Plaques: An Endoscopic Finding in Eosinophilic Esophagitis
Sundaram, S; Sunku, B; Nelson, SP; Sentongo, T; Melin-Aldana, H; Kumar, R; Li, BU
PDF (487)

Journal of Pediatric Gastroenterology and Nutrition
Cow's Milk Protein-induced Eosinophilic Esophagitis in a Child With Gluten-sensitive Enteropathy
Kagalwalla, AF; Shah, A; Ritz, S; Melin-Aldana, H; Li, B
Journal of Pediatric Gastroenterology and Nutrition, 44(3): 386-388.
10.1097/01.mpg.0000243430.32087.5c
PDF (124) | CrossRef

Journal of Pediatric Gastroenterology and Nutrition
Eosinophils in the Esophagus: Acid is Not the Only Cause
Furuta, GT
Primary Eosinophilic Esophagitis in Children: Successful Tre... : Journal of Pediatric Gastroenterology and Nutrition

Journal of Pediatric Gastroenterology and Nutrition
Dyspepsia in Children and Adolescents: A Prospective Study
Hyams, JS; Davis, P; Sylvester, FA; Zeiter, DK; Justinich, CJ; Lerner, T
Journal of Pediatric Gastroenterology and Nutrition, 30(4): 413-418.

Journal of Pediatric Gastroenterology and Nutrition
Long-term Follow-up of Symptoms and Peripheral Eosinophil Counts in Seven Children with Eosinophilic Esophagitis
Esposito, S; Marinello, D; Paracchini, R; Guidali, P; Oderda, G

PDF (57)

Journal of Pediatric Gastroenterology and Nutrition
Severity of Basal Cell Hyperplasia Differs in Reflux Versus Eosinophilic Esophagitis
Steiner, SJ; Kernek, KM; Fitzgerald, JF
10.1097/01.mpg.0000221906.06899.1b
PDF (118) | CrossRef

Journal of Pediatric Gastroenterology and Nutrition
Eosinophilic Esophagitis Associated With Anastomotic Strictures After Esophageal Atresia Repair
Batres, LA; Liacouras, C; Schnauber, I; Mascalenas, MR
PDF (149)

Journal of Pediatric Gastroenterology and Nutrition
Eosinophilic Oesophagitis: Epidemiology, Clinical Aspects, and Association to Allergy
Nielsen, RG; Husby, S
10.1097/MPG.0b013e31806210c8
PDF (187) | CrossRef

Journal of Pediatric Gastroenterology and Nutrition
Esophageal Subepithelial Fibrosis in Children With Eosinophilic Esophagitis
Chehade, M; Sampson, HA; Morotti, RA; Magid, MS
10.1097/MPG.0b013e31806ab384
PDF (491) | CrossRef

Journal of Pediatric Gastroenterology and Nutrition
Esophageal Eosinophilia In Children With Dysphagia
Cheung, KM; Oliver, MR; Cameron, DJ; Catto-Smith, AG; Chow, CW
PDF (372)

Journal of Pediatric Gastroenterology and Nutrition
Eosinophilic Esophagitis in Children: Symptoms, Histology and pH Probe Results
Sant'Anna, A; Rolland, S; Fournet, J; Yazbeck, S; Drouin, E
PDF (357)

Journal of Pediatric Gastroenterology and Nutrition
Esophageal Candidiasis in an Infant With Reflux Esophagitis
Uc, A; North, P; Burks, W
PDF (385)

Journal of Pediatric Gastroenterology and Nutrition
Bilateral Atopic Cataracts in a Child with Eosinophilic Esophagitis: An Association to Look Out For
Karhik, SV; Casson, DH
PDF (267)

Keywords:
Primary Eosinophilic Esophagitis in Children: Successful Tre... : Journal of Pediatric Gastroenterology and Nutrition

Allergy; Corticosteroids; Eosinophilia; Esophagitis; Gastroesophageal reflux

© Lippincott-Raven Publishers