Eosinophilic Ascites-Rarest Presentation of a Rare Disease, Eosinophilic Gastroenteritis

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Abstract
Eosinophilic gastroenteritis (EGE) is an uncommon disease of unknown etiology reported in both adult and pediatric age group. Here we report a case of a 46-year-old HIV positive female who presented to us with ascites and abdominal distension with peripheral eosinophilia and diagnosed as EGE.

Introduction
Eosinophilic gastroenteritis (EGE) is a rare disease with very few cases which have been reported. EGE can affect the entire gastrointestinal tract from esophagus to colon, most commonly affecting gastric antrum and proximal intestine. It is characterized by tissue and peripheral eosinophilia without any obvious cause. EGE can present with wide spectrum of symptoms depending on the part and layer of gastrointestinal tract involvement. Eosinophilic ascites is manifested when subserosal layer of gastrointestinal tract is involved.

Case Report
46-year-old female, married, HIV positive, diabetic and hypothyroid was admitted with complaints of gross abdominal distension, loss of appetite and nausea since 2-3 days.

Patient gives no h/o fever, loose motion, hemetemesis or melena.

She was admitted 20 days back for severe vomiting; CT abdomen was done s/o sub-acute intestinal obstruction secondary to ileal stricture. Colonoscopy was normal, biopsy report was suggestive of mild terminal ileitis.

On examination, she was afebrile, pulse 82/min, regular, BP- 112/74 mm Hg, mild pallor, no icterus or pedal edema.

On per abdominal examination, her abdomen was distended, umbilicus everted, shifting dullness was present suggestive of moderate ascites. Rest of the systemic examination was normal.

On investigation, Hemoglobin- 10 gm%, total leucocytes- 16290/cmm, (Neutrophils- 30%, Lymphocytes- 22%, Eosinophils- 38%). Liver function test, serum electrolytes were normal, Stool for parasitic infestation was negative, and Serum IgE was within normal range.

USG guided peritoneal tapping was done, peritoneal fluid was slightly hazy in appearance, with total protein- 4.53 gm/dl, albumin- 2.62 gm/dl, ADA- 8.4 U/L, WBC counts- 13010 with 85% eosinophils. Aerobic culture showed no organism and no acid fast bacilli seen, cytopathology of the peritoneal fluid showed predominant eosinophils with no malignant cells (Figure 1).

Discussion
Eosinophilic gastroenteritis (EGE) can affect entire gastrointestinal tract from esophagus to colon, commonly affecting distal antrum and proximal small intestine, characterized by eosinophilic infiltration of bowel with or without associated peripheral eosinophilia. Data regarding its prevalence and demographic distribution is scarce. It affects adult as well as pediatric age group with female preponderance. Approximately half of the patients give history of allergic diseases like asthma, food sensitivities, eczema or rhinitis. The clinical manifestation of EGE depends on the location, extent and layer of bowel with eosinophilic infiltration.

The exact cause of eosinophilic gastroenteritis is unknown. Some cases of this disease may be caused by a hypersensitivity to certain foods or other unknown allergens. Often, a family history of allergy is present.

A case was reported from India of a 40-year male with eosinophilic ascites with eosinophilic gastroenteritis.4 Till date no study has been done or case reported of association between HIV and EGE.

Eosinophilic infiltration of the mucosal layer (mucosal disease) gives rise to nonspecific symptoms like abdominal pain, nausea, vomiting, early satiety and diarrhea. These patients can develop malabsorption, protein losing enteropathy, and failure to thrive.

Eosinophilic infiltration of the muscle layer of gastrointestinal tract (muscular layer disease) results in wall thickening and impaired motility. Patients may present with nausea, vomiting, and abdominal distension suggestive of intestinal obstruction. It sometime may result in perforation or obstruction of gastric outlet.

Patients with subserosal EGE present with ascites or ascites with other symptoms of mucosal or muscular EGE.

The pathogenesis of eosinophilic gastroenteritis is not well understood. Although food allergy role has not been clearly defined in EGE, but extensive investigation provides insight of role of food allergen, eosinophils and T helper 2 (Th2) cells. Food exposure activates interleukin 5 (IL-5) + Th2 cells leads to gut eosinophilia. The eotaxin family of chemokines appears to play central role in the recruitment of eosinophils in gut in response to food allergen. Eosinophils can also cause local inflammation by release of eosinophil major basic protein, a cytotoxic cationic protein.

The diagnosis of eosinophilic gastroenteritis (EGE) is based on exclusion criteria. The unexplained ascites with tissue eosinophilia may point towards EGE, when all other causes are ruled out. There is no single diagnostic criterion of EGE; 5 it is based on clinical features, laboratory tests, and/or biopsies of the gastrointestinal tract. The other causes of hypereosinophilia
such as intestinal parasite infestation with Ankyclostoma, Strongyloids; malignancies like lymphoma, gastric carcinoma, colon cancer; Inflammatory bowel disease, Hypereosinophilic syndrome, Polyarteritis nodosa, drug reaction to be ruled out.

The diagnosis of EGE should include complete blood count with differential counts, erythrocyte sedimentation rate, liver function test, amylase and lipase level, stool routine and microscopic examination for ova and parasites, upper and lower gastrointestinal endoscopies with tissue biopsies, serum IgE level. In the presence of ascites, peritoneal fluid tapping should be done and fluid should be sent for routine examination, cytology, culture for tuberculosis. The peripheral smear may show eosinophils with tissue biopsy or ascitic fluid showing eosinophilic infiltration. The radiological imaging like ultrasound or computed tomography for intestinal wall thickness or stricture should be done.

The mainstay treatment of EGE is steroids. The glucocorticoids in the dose of 20-40 mg/day for first few weeks show dramatic response and then slowly tapering off. Most patients quickly respond to steroid therapy as in our case too. Elemental diet with avoidance of food allergen may also help. Other therapies like antihistaminic, mast cell stabilizer, leukotriene antagonist or IgE monoclonal antibody can also be tried.6

Conclusion
EGE is a rare disorder that can affect any patient age group and may present with unexplained ascites. Absence of malignancy and ruling out other causes of eosinophilia, with presence of peritoneal fluid eosinophilia and significant response to steroid therapy confirms our diagnosis of Eosinophilic Ascites (EA), a rare presentation of Eosinophilic Gastroenteritis (EGE).

References