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Case Report

Successful Treatment of Eosinophilic Gastroenteritis with Anti-IgE Therapy

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Abstract

Eosinophilic gastroenteritis (EGE) is a rare chronic inflammatory disorder characterized by infiltration of different parts of the gastrointestinal (GI) tract with eosinophils producing variable clinical presentations.

Diagnosis is largely dependent on the histopathological findings in the appropriate clinical context and absence of other causes of eosinophilic infiltration such as inflammatory bowel diseases, parasitic infections, drugs and malignancies.

The mainstay of treatment is systemic steroid. However, several other immunomodulatory agents have been used as a second line therapy.

Omalizumab is an anti-IgE monoclonal antibody developed for treatment of severe uncontrolled bronchial asthma and urticarial, its' efficacious utilization for treatment of EGE has been reported recently in the literature.

Herein, we report a case of 25-years-old male patient who presented with acute abdomen requiring surgery and bowel resection, he was found to have eosinophilic infiltration of the GI tract on subsequent workup, Other secondary causes of eosinophilic infiltration were ruled out.

A trial of Omalizumab was initiated after a long-term therapy of systemic steroids and multiple relapses of his abdominal pain upon tapering down his steroids dose, therapy with Omalizumab has resulted in a remarkable clinical response and sustained remission of his symptoms.

Keywords: *Gastroenteritis; Anti-Ig; Omalizumab; Eosinophilic*

Introduction

Eosinophils are granulocytes that are integrated in the immune system. It orchestrates our immune system in certain conditions such as allergic reactions and parasitic infections.

Amount of eosinophils in GI tract varies and no definite cut-off value for its amount has been established. However, it is presence in the esophageal mucosa is seldom considered normal [1]. Eosinophilic gastroenteritis is characterize by eosinophils infiltrating both upper and lower GI mucosa [2].

Spectrum of symptoms varies from nonspecific abdominal pain, bloating [3] and diarrhea [4] to intestinal obstruction. Diagnosis is established based on histopathological findings in the context of clinical presentation with absence of alternative diagnosis.

Prevalence of this disease has been estimated to be 5.1 - 28/100,000 persons [5,6]. Unfortunately, data assessing local prevalence are lacking.

The mainstay of treatment is glucocorticoids. However, other treatment modalities have been implemented such as immunosuppressive antimetabolite therapy (azathioprine or 6-mercaptopurine) [2]. Furthermore, monoclonal antibody therapy such as Omalizumab has been successfully used as last resort in a patient failing glucocorticoid therapy [7].

Case Report

A 25 year-old male patient, presents with acute abdomen, diagnosed with large bowel obstruction required emergent bowel resection. Histopathological evaluation at the resected segment revealed segmental inflammatory changes with eosinophilic infiltrate. He is referred to our facility for further evaluation.

Extensive infectious work-up yield negative results. Furthermore, a colonoscopy is done, and multiple biopsies were taken for histopathological evaluation revealing numerous inflammatory cells with increased number of eosinophils.

In keeping with diagnosis of Eosinophilic Gastroenteritis, decision to commence him on tapering steroid doses is taken with an excellent initial clinical response. later on, he presents to our emergency department with a complaint of vague abdominal pain along with nausea and vomiting. He underwent another colonoscopy, biopsies showed chronic inflammatory changes with eosinophilia reaching 21 eosinophils/high-power field. Another trial of tapering steroid doses initiated again with complete resolution of his symptoms. Yet, he was admitted later for several times, few months apart, with similar symptomatology upon tapering steroid dose requiring re-initiation of steroid with high doses. Patient developed osteoporosis of the lumbar vertebrae during the course of therapy requiring treatment.

An immunological work-up consistently showing high IgE levels reaching 3682 with marginally elevated peripheral eosinophils in the blood on first episode. He underwent extensive work-up for high eosinophils including RAST and cultures and serologies all which were unrevealing. In light of these findings and recurrent relapses along with failure of tapering steroid dose as well as ruling out other differentials for eosinophilia, allergy/immunology service recommend a trial of Omalizumab therapy on monthly basis.

This was carried out resulting in a marked clinical and biochemical response. With no relapses over 1 year period of frequent follow up.

Discussion

Eosinophilic gastroenteritis is an uncommon disorder of gastrointestinal tract with unclear etiology. Precise prevalence of the disorder is not well studied. Clinical manifestations are nonspecific ranging from simple abdominal discomfort to more serious presentations of intestinal obstruction and perforation. EGE is classically classified into 3 different categories based on pathological involvement. Mucosal, muscular and subserosal types with clinical presentation determined by location and pattern of involvement [8]. Establishing diagnosis requires high clinical suspicion along with pathological evidence of eosinophils infiltration. Owing to the rarity of the disorder and ab-

sence of consensus on diagnostic criteria, as well as vague clinical presentation, exclusion of secondary etiologies of eosinophilic infiltration remains an essential part of diagnosis.

Likewise, therapeutic lines have not been agreed upon. With corticosteroid being the most common modality used in the clinical practice after a trial of dietary modifications. However, failure to respond to steroid therapy have been reported in the literature. In addition to that, long term adverse effects to steroid therapy necessitates exploring for an alternatives treatment strategies. Thus, treatment with mast cell inhibitors, Leukotriene receptor antagonist, Anti-IL5 and antihistamines have all been implemented with variable clinical response [9].

We report a 25-year-old male with eosinophilic gastroenteritis, that responded well to steroid therapy and frequent relapses upon tapering. He has significant clinical resolution upon trial of Omalizumab on monthly bases with no relapses thereafter.

Omalizumab is a monoclonal antibody that is selectively targets human IgE leading to formation of immune-complex by which-means it is inhibits its affinity to IgE receptors blocking immune response [10]. Its currently approved as a line for treatment of sever uncontrolled bronchial asthma.

Although, pathophysiology of EGE is not fully understood, it has been suggested that mast cells play a major role in the pathogenesis of the disease. Furthermore, IgE is essential for activation of mast cells. Hence, Omalizumab-being an IgE Inhibitor- can blunt the disease process.

Only few studies reported utilization of this line of treatment in clinical practice with no inconsistent clinical outcome [11-13]. Conversely, in our case it showed significant and sustained clinical remission. Of note, high IgE level demonstrated in our case could have contributed to the substantial response observed.

Conclusion

In conclusion, we report a case of EGE with significant elevation in peripheral IgE level, responding to Omalizumab, highlighting the possible role of IgE in the disease process and it being a potential target for selective therapy.

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