Chronic diarrhea with Hyper Immunoglobulin E syndrome

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Abstract:

Hyperimmunoglobin E syndrome is a rare primary immunodeficiency disease characterized by recurrent infections, eosinophilia and high titre of IgE. Although 200 cases has been reported worldwide, to the best of our knowledge its association with chronic diarrhea has not been reported till date in Indian literature and hence this case report.

Key words: Chronic diarrhea, Hyper immunoglobulin E syndrome
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Introduction

Hyper immunoglobulin E syndrome (HIES) is a primary phagocytic disorder characterized by atopic like dermatitis, recurrent abscesses and sinopulmonary infections during infancy [1, 2]. In 1966, Davis et al first reported it as a case of Jobs syndrome. The nomenclature is derived from the similarity of the condition to the Biblical prophet job who was afflicted with sore boils from the sole of the feet onto his crown [3]. The first case from India was reported in 1994 by pherwani et al [4]. In 2001, pherwani and Madnani reported six patients with prominent skin and respiratory tract infections. An elevated IgE level (>2000IU/L) and peripheral eosinophilia are the most consistent finding in this disorder. We report a case of chronic diarrhea with growth retardation and recurrent infections with high titre of IgE and peripheral eosino-philia.

Case report

A four year old male, a product of non- consanguineous marriage presented to our hospital with chronic diarrhea with multiple abscess all over the body for the last one month. During the last one year child had several episodes of serious infections requiring hospitalizations in the form of pyoderma, otitis media, pneumonia and recurrent multiple abscesses. There was also atopic dermatitis in form of eczema over the scalp with hyper pigmentation over the scalp, lips, angle of mouth , with dry skin , icthyosis and patchy loss of hair in the scalp and eye brows. Chronic diarrhea has been consistent presentation whenever hospitalized in the form of oily greasy loose stools 10 -12 times in a day. Growth retardation was evident as his weight and height (10 kg and 82 cm, respectively) were below the 5th centile. His mid arm circumference was 12cm. Child was emaciated with loss of subcutaneous fat over the axilla and gluteal region with the presence of genu valgum in the child. The child developmental history is normal for age. The child was conscious with normal vitals with normal milestones of development.

Investigations revealed hemoglobin 10.2gm%, Total leukocyte count 30,500mm3, Neutrophil 10%, Eosinophil 64%, lymphocyte 22% with absolute eosinophil count of 13,520, total platelet count 5, 20,000 and ESR were 40mm/1st hour. ANA was weakly positive, however Anti ds DNA was negative and C3 and C4 levels were normal. Pus culture from the abscesses yielded Methicillin resistant staphylococcal aureus sensitive to vancomycin. Filarial serology was positive and the child was put on diethyl carbamazepine therapy for three weeks. Multiple Abscesses were drained and vancomycin was given for two weeks. There was absence of reducing substance in stool and the stool microscopy and culture were negative. HIV screening was negative and the child's liver and renal function tests were normal.

The repeat counts values after three weeks showed hemoglobin of 8.7gm%, Total leukocyte count 26,500, Lymphocyte 27%,Eosinophil, 40%, Neutrophil 33%, total platelet count of 5, 23,000. The peripheral smear showed eosinophilia and the absolute eosinophil count was 10,600. In view of the persistence of eosinophilia and chronic diarrhea and atopic dermatitis the immunoglobulin assay, Bone marrow biopsy and endoscopy was planned. The immunoglobulin assay suggested normal values of IgM, IgG, and low IgA with increase in levels of IgE. The IgE level was > 2500 IU/ml. Tcells, B cells, CD4, CD8 and CD19 were normal. Bone marrow biopsy showed significant eosinophilia but absent malignant cells. Skin biopsy showed perivascular infiltration with eosinophils. FNAC of the lymph nodes showed reactive hyperplasia with mild eosinophilic infiltration. Upper GI Endoscopy was normal, however the biopsy of gastric and antral mucosa showed mild eosinophilic infiltration.

During the third visit to the hospital repeat counts were done and it revealed hemoglobin of 8gm%, Total leukocyte count 18000 with Neutrophil 28%,Basophil 1%,Eosinophil 30%, Lymphocyte 41% with normal platelet count and the absolute eosinophil count of 2400 . In view of chronic diarrhea, recurrent infections with eosinophilia and elevated IgE titre the diagnosis of chronic diarrhea with Hyper Immunoglobilin E syndrome and atopic dermatitis was made. Child was treated with anti-biotics for the recurrent infections and the multiple ab-scesses were drained. Atopic dermatitis was treated with topical steroid. High protein diet, vitamin supplementation was adviced and was put on prophylactic oral pencillin at the time of discharge. Parents were advised for regular follow up and educated regarding food hypersensitivity and timely intervention and treatment of infections.

Discussion

Hyper Immunoglobulin E syndrome is very rare immunodeficiency disorder characterized by the clinical triad of high serum levels of IgE (>2000IU/ml), peripheral eosinophilia and recurrent infections in the form of mutilple skin abscesses and pneumonia [5]. Most cases are spo-radic, but both the autosomal dominant and recessive forms of the disease have been described. Skeletal symptoms such as joint hyperextensibility, scoliosis, osteoporosis and retained primary teeth are associated with autosomal dominant form, where as autosomal recessive form is associated with recurrent bacterial and viral infections. Severe eosinophilia and devastating neurological complications are often fatal in childhood. Dermatitis is present in more than 80% of the patients. It resembles atopic dermatitis, but it is accentuated in retro auricular and flexural involvement. The skin and soft tissue infections present as cellulites, furunculosis, paronychia, suppurative adenitis and deep soft tissue cold abscesses. Severe pulmonary infections caused by either staphylococcal aureus or Haemophilous influenza are common. Empyema may complicate pneumonia and there is high propensity for bronchiectasis and pneumatocoeles. Otitis externa, chronic otitis media, chronic mastoiditis, dental and periodontal diseases are common. Mucocutaneous candidiasis and tinea unguium is also observed in hyper immunoglobulin E Syndrome. The Gastro-intestinal manifestations of hyper immunoglobulin E syndrome may be in the form of eosinophilic gastroenteritis as an IgE mediated hypersensivity reaction to food in the form of food allergy. This child underwent extensive clinical and laboratory examinations to establish an association between chronic diarrhea and the triad of eosinophilia, hyperIgE syndrome and atopic dermatitis.

There are clinically three categories of peripheral eosiniphilia: first, the reactive (non clonal) eosiniphilias observed in parasitic infestations, asthma or allergies, second the clonal disorders of bone marrow, and third idiopathic hypereosinophilic syndrome, in the absence of any clonal abnormality or reactive cause.[6,7] . Among the neoplastic conditions Hodgkin's lymphoma may elicit striking eosinophilia. Acquired and congenital immune disorders, often with eczema are frequently associated with eosinophilia. Ommen syndrome is an autosomal recessive form of severe combined immunodeficiency disorder characterized by erythroderma, desquamation, hepatosplenomegaly, lymphadenopathy and chronic diarrhea. The patient may develop fungal, bacterial and viral infections like in SCID. These disorders were ruled out in our patient.

Since the child presented with chronic diarrhea, eosinophilia and high titre of IgE with eosinophilic infiltration of gastric and antral mucosa the diagnosis of HyperIgE syndrome was made. Food hypersensitivity in presence of Hypereosinophilia and the presence of atopic dermatitis has been well documented [8, 9]. The prevalence of food allergies may vary from 0.3%-7.5% and dairy products of infants that have high allergenic potential may be derived from different protein sources such as bovine casein, wheat, chicken egg and soy protein. In view of the presence of High IgE, peripheral eosinophilia and atopic dermatitis and other causes of chronic diarrhea being excluded, it can be said that Hyper Immunoglobulin E syndrome with food hypersensitivity is the cause for the chronic diarrhea with growth retardation in this case.

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