CASE REPORT

Celiac Disease Presenting As Pancytopenia

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Abstract

Celiac disease is a systemic immune-mediated disorder that can have multiple hematological manifestations. We report a ten years male, who presented with recurrent episodes of loose stools, poor weight gain and on investigations was diagnosed to have celiac disease with pancytopenia which responded dramatically to gluten free diet and hematinic supplements. Pancytopenia is not a common presentation of celiac disease.

Key Words

Pancytopenia, Gluten, Celiac Disease, Malabsorption

Introduction

Celiac disease is an immune-mediated enteropathy caused by a permanent sensitivity to gluten in genetically susceptible individuals (1). The clinical presentation of celiac disease is very often heterogeneous (2). In some of patients, an abnormal hematological pattern may be the only presenting finding (3). Severe iron, folic acid, and/or vitamin B12 deficiency can in result anemia, decrease in both leukocytes and platelets and even manifest as severe pancytopenia (4). These hematological manifestations respond well to iron, folic acid and vitamin B12 supplementations in addition to gluten free diet (4, 5).

Case Report

A 10-year-old boy presented with history of recurrent episodes of loose stools (frequent, bulky, and foul smelling) and poor weight gain since 2 years of age. These episodes were associated with abdominal distension and mild abdominal pain. He also had history of progressive pallor for last 3 months. On examination, his weight was 15 kgs (<3rd centile), height was 112 cms (< 3rd centile), and weight for height was 68.1%. He also noted to have pallor, icterus, and lustureless, hypo-pigmented, sparse hairs but no clubbing, lymphadenopathy, or edema. Abdomen was distended but non tender and liver and spleen were not palpable. Rest of systemic examination was normal. Stool examination revealed 60-70 fat globules/HPF but negative for occult blood, leukocytes, cysts or ova and culture did not show growth of any pathogenic bacteria. His hematological parameters were: hemoglobin 2.7 gm%, TLC 3000/mm^3, platelet count 20,000/mm^3, and reticulocyte count 2%. Peripheral smear examination showed reduced RBC density, mild anisocytosis, mild microcytosis, occasional macrocytes and mild hypochromia. His red cell indices were, MCV: 84 fl; MCH: 23 pg; MCHC: 32.5%; and RDW: 20.7%. His renal functions were normal. Total bilirubin was 1.2 mg% (conjugated: 0.4%). SGOT, SGPT, and ALP were 124, 96, and 113 IU/L respectively. Anti-tissue transglutaminase (anti-tTG) antibody level was 100 IU/L. Upper GI endoscopy revealed normal stomach and first part of duodenum; second part of duodenum showed scalloping and grooving. Duodenal biopsy showed marked shortening of villi with intraepithelial lymphocytosis, hyperplastic crypts, and moderate excess of mononuclear inflammatory cells in lamina propria. These findings were consistent with subtotal villous atrophy (*Fig 1a &b*). Based on clinical profile and laboratory findings, diagnosis of celiac disease was considered. Gluten free diet was started and vitamin B12, folic acid, iron and multivitamin supplements were given. After 3 weeks, his general condition improved, weight increased to 16.5 kgs and hematological parameters improved to hemoglobin of 9.1 gm%, TLC 6230/mm^3, and platelet count 5,00,000/mm^3.

Discussion

Celiac disease or gluten-sensitive enteropathy is an immune-mediated enteropathy caused by a permanent sensitivity to gluten in genetically susceptible individuals (1).The clinical presentation of celiac disease is very often heterogeneous and it can present atypically with extraintestinal symptoms only (2). Celiac disease can have multiple hematologic manifestations like anemia, thrombocytosis, thrombocytopenia, leukopenia/

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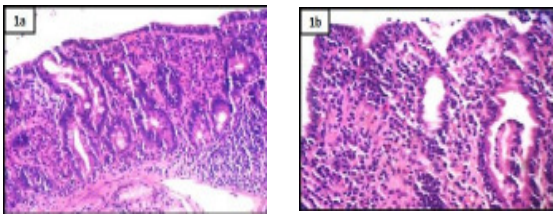

Fig. 1a & b Biopsy2nd Part of Duodenum - Subtotal Villous Atrophy with Intraepithelial Lymphocytosis, Hyperplastic Crypts, & Moderate Excess of Mononuclear Inflammatory Cells in Lamina Propria

neutropenia, venous thromboembolism, coagulopathy, hyposplenism, IgA deficiency, and lymphoma (4). Anemia is common complication of celiac disease (4). The prevalence of anemia in celiac disease varies greatly and has been found in 12% to 69% of newly diagnosed patients with celiac disease (6, 7). Fisgin *et al* studied 22 patients with celiac disease and found that anemia was present alone in 19 (86.3%) patients, leukopenia coexisted with anemia in 2 (9%) patients, and thrombocytopenia alone was found in 1 (4.5%) patient (8). There have been only -case reports of anemia with severe thrombocytopenia (9), and pancytopenia (10) in celiac disease.

Cause of pancytopenia in celiac disease is multifactorial. Severe deficiency of Iron, folic acid, vitamin B12, and other nutrients can lead to pancytopenia (4). Deficiency of folic acid and vitamin B12 usually presents as macrocytic and megaloblastic anemia, but abnormalities of the other cell lines are common. Severe folic acid and vitamin B12 deficiency can result in a leukopenia, thrombocytopenia and even manifest as severe pancytopenia (4). The pathogenesis of iron and other micronutrient deficiency in patients with celiac disease is likely to be due to decreased oral intake caused by reduced food intake due to anorexia and vomiting which are the common symptoms of celiac disease, malabsorption due to reduction in the absorptive surface or by an alteration of the small intestinal mucosa brush border, and increased losses within the small intestine due to rapid enterocyte turnover resulting from the chronic inflammation (4, 11). Copper deficiency has been described in adults and children with celiac disease and may result in anemia, leukopenia, and thrombocytopenia (8). Thrombocytopenia and leukopenia may be secondary to autoimmune phenomenon (4). The diagnosis of celiac disease is usually made with the help of a small-bowel biopsy, which is still considered the gold standard for diagnosis (12). Various serological tests are used of which anti-tTG antibodies are the most practical test and are now widely used for diagnosing celiac disease (4). The treatment of celiac disease is primarily gluten free diet. Hematological manifestations respond to iron supplementation, folic acid, and parenteral vitamin B12 (4). Iron should be given until the iron stores have been restored. This process can take as long as a year for the hemoglobin to normalize and 2 years for the iron stores to be replete. In these patients, the full recovery of the small intestinal mucosa following the introduction of a gluten-free diet, allows the hematological parameters to become normal (5).The cause of pancytopenia in index patient is probably multifactorial. Proper history, examination and targeted investigations lead to diagnosis of celiac disease; dietary management and hematinics resulted in expected recovery.

Conclusion

Pancytopenia is an uncommon hematological complication in celiac disease. Severe deficiencies of iron, folate, vitamin B12& micronutrients can lead to pancytopenia which responds dramatically to gluten free diet and supplementations with micronutrients. Celiac disease must be considered, if changes in hematological parameters occur in association with GI symptoms.

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