

Celiac Disease Presenting As Budd Chari Syndrome

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Abstract

An 11 year old female child presented with generalized body swelling, ascites and hepatomegaly. She had history of recurrent loose stools since last 5 years. Initial work up revealed ascites, and hepatomegaly. Serum proteins were within normal limits. Initial USG revealed isochoic space occupying lesion in segment VII of liver with ascites. USG Doppler revealed attenuation of blood flow in right hepatic vein. Ascites suddenly improved after 5 days, repeat USG revealed that all three hepatic veins and inferior vena cava were patent. CECT abdomen showed hemangioma measuring 2.1X2.6X1.36 cm in segment VII of liver with fatty liver with ascites with mesenteric lymphadenopathy. Serum tTG level carried out because of short stature and history of diarrhea was 372U/ml (normal 0-20 U/ml). Celiac disease was confirmed on biopsy. Hence the diagnosis of celiac disease with transient obstruction of hepatic veins due to hemangioma or thrombus.

Keywords: Budd Chiari; Ascites; Celiac disease

Introduction

Celiac disease is an immune mediated systemic disorder due to gluten sensitivity in genetically susceptible individuals. The estimated prevalence of celiac disease is 1% in North India according to a hospital based study on North Indian pediatric population [1]. Clinical features of celiac disease vary considerably. Celiac disease presenting as transient ascites due to Budd chiari syndrome is rare.

Budd chiari syndrome in celiac disease is an extra-intestinal complication as a result of unexplained hypercoagulopathy and thrombosis [2]. Budd chiari syndrome is a thrombotic disorder comprising of hepatomegaly, abdominal pain and ascites caused due to obstruction of hepatic venous outflow and / or supra hepatic portion of inferior vena cava without sinusoidal obstruction or right heart failure.

Budd Chiari syndrome (BCS) has been reported to be associated with Celiac Disease in a few case reports [3, 4].

Case Presentation

A 11 year's female presented with chief complaints of generalized swelling of body for 1 month (which increased in last 3 days), fever for 7 days and cough for 2 days. Generalized body swelling started as distension of abdomen followed by both

lower limbs along with facial puffiness. There was no history of fast breathing, palpitations, chest pain, decreased urine output, hematuria, sore throat, skin infections. There was history of recurrent loose stools since last 4-5 years which used to get relieved on giving medications taken from private practitioners. Definitive history of loss of appetite for past few months, easy fatigability, pain in legs. There was no family history of tuberculosis, liver disease, autoimmune disorder, any sibling death.

On examination, her vitals were within normal limits. Her weight was 16.9 kgs (<-3SD) and height was 106.5 cm (<3rd percentile). The patient had pallor, bilateral pitting oedema, facial puffiness, abdominal distension (abdominal girth 61 cm), Clubbing (grade1), angular cheilosis, rachitic rosary, conjunctival xerosis. Abdomen examination revealed distended abdomen, dilated veins, shifting dullness on percussion. Liver was palpated 2 cm below chest margin. Laboratory investigation revealed - Hb- 8.5gm/dl, TLC- 7100, platelet count- 1.65 lacs, SGPT-22 U/mL, SGOT- 30 U/mL, ALP- 530 U/mL, D.Bil- 0.2, T.Bil- 0.3, serum protein- 5.8 gm/dl and albumin level- 2.3 gm/dl. Ascitic fluid cytology was a cellular, protein- 12mg/dl and sugar - 71mg/dl, sterile cultures. Mantoux test-nonreactive. Anti tissue transglutaminase antibody level (ELISA) was 372U/mL (reference value <20 U/mL). USG abdomen revealed a space occupying lesion isochoic to liver parenchyma with a halo round to oval shaped 18X17mm in segment VII of liver. CECT scan showed hemangioma measuring 2.1x2.6x1.36cm in segment VII of liver with fatty liver, ascites and mesenteric lymphadenopathy (Fig. 1). USG Doppler (day 2) showed attenuation of blood flow in right hepatic vein. Child continued to have fever and generalized body swelling till day 4 of admission. On day 5th, there was drastic reduction in swelling all over the body. USG Doppler on day 5th revealed normal patency of all 3 hepatic veins and inferior vena cava. Duodenal biopsy revealed multiple fragments of duodenal mucosa showing moderate villous atrophy & increased crypt: villous ratio, intraepithelial lymphocytes raised, lamina propria showed oedema and moderate lympho plasmocytic infiltrate suggestive of Celiac disease (modified Marsh 3b grade). Patient has been suggested dietary modification and introduction of gluten-free diet. The patient was on follow up in gastro intestinal clinic. Improvement in general well being and weight gain was seen.



Figure 1: CECT abdomen showing well defined hypo dense lesion in segment VII of liver with centripetal filling suggestive of hemangioma.

Discussion

Celiac disease is an immune mediated systemic disorder. It manifests by ingestion of gluten and related prolamines in genetically susceptible individuals. Celiac disease is characterized by the presence of a variable combination of gluten dependent clinical manifestation, celiac disease specific antibodies, HLA-DQ2 or DQ8 haplo types, and enteropathy. Celiac disease specific antibodies comprise auto antibodies against TG2, including endomysial antibodies (EMA) and deamidated forms of gliadin peptides. Clinical manifestations of this disease are varied. Intestinal symptoms are common in children whose disease is diagnosed within the 1st 2 year of life; failure to thrive, chronic diarrhea, vomiting, abdominal distension, anorexia and irritability are present in most of the cases. As the age of presentation of the disease shifts to later in childhood, extra intestinal symptoms have increasingly become recognized, affecting almost all organs. Extra intestinal manifestations include iron deficiency anemia unresponsive to iron therapy, short stature, peripheral neuropathies, epilepsy with bilateral occipital calcifications and alopecia. Rarely celiac disease has been implicated in the causation of a thrombotic disorder, Budd chiari syndrome (BCS). BCS is a rare condition characterized by obstruction of hepatic venous outflow tract and / or supra hepatic portion of inferior vena cava in the absence of sinusoidal obstruction syndrome, right heart failure or constrictive pericarditis [5]. The obstruction can range from the small hepatic veins to the orifice of the IVC into right atrium. Secondary bud chiari syndrome is hepatic venous outflow obstruction due to compression or invasion by extra vascular lesions including malignant or benign diseases such as abscesses, hepato cellular carcinoma or secondary to cardiac or pericardial diseases. Its prevalence is estimated at approximately one case per 100,000 inhabitants [6]. Underlying pro thrombotic conditions are absent in more than 50 % of cases, suggesting the role of celiac disease in the occurrence of thrombosis.

Impairment of hemostasis in Celiac disease is attributed to (i) thrombocytosis because of hyposplenism, (ii) protein C and S deficiency secondary to mal absorption of vitamin K (iii) hyper homocysteinemia due to folate deficiency, (iv) an associated autoimmune disease, and (v) development of lymphoma (vi)

association with serum lupus anticoagulant [7]. Untreated celiac disease is found to be associated with hyper homocysteinemia resulting due to combination of vitamin deficiencies and variants of MTHFR gene [8]. Magnesium deficiency is also been incriminated in causing thrombosis in patients of celiac disease especially splenic vein thrombosis [9]. It has also been suggested that as the celiac disease progresses, a cascade of biological or nutritional epitopes may contribute to secondary autoimmunity, which could result in vasculitis. This, in turn could explain the increased incidence of vascular events in celiac patients [10, 11]. These prothrombotic mechanisms have been proposed without definitive cause-effect relationship between celiac disease and Budd chiari syndrome. The unexplained hyper coagulable state in celiac disease may affect the hepatic veins, the mesenteric veins or the spleno portal axis, causing different syndromes. In the above case we could not find cause for the development of BCS, such as latent myelo proliferative disease, anti thrombin III, protein S and C deficiency, lupus anticoagulant, anticoagulant activated protein C-factor V Leiden, or hyper homocysteinemia. In this case, we assume a transient thrombotic event lead to occlusion of hepatic vein which later on had self resolution as no anticoagulant or shunt procedure was conducted till then. Despite the fact that no definitive relationship between these diseases could be elucidated, we think this association, must be remembered, especially in the setting of Celiac disease presenting as generalized anasarca with ascites. The diagnosis of Budd chiari syndrome is based on non-invasive imaging methods: Doppler ultrasound and tri phasic CT scan. The diagnostic criteria are the demonstration of direct signs: obstruction of the hepatic veins (HV) and/or the IVC and hepatic venous collaterals. Indirect signs: hypertrophy of the caudate lobe and "pseudo-HNF" parenchymal nodules are sometimes found.

Kochhar et al in 2009 (reported a case of celiac disease in a 19 year old male who presented with gastrointestinal bleeding, ascites and hepato splenomegaly. He was diagnosed as celiac disease. MRI of liver suggested Budd chiari syndrome and MR venography showed non visualization of hepatic veins with patent inferior vena cava [2].

Another case of celiac - buddchiari syndrome association was reported by Temani et al in 2016 in a 5 year male child who was a known case of celiac disease since 2 years of age. The child presented with progressive abdominal distension, pain abdomen and failure to thrive. Examination revealed moderate ascites, hepatomegaly. USG abdomen showed caudate lobe hypertrophy, narrow hepatic vein lumen, comma shaped collaterals in the periphery of liver and transient intussusception [12].

In our patient celiac disease was diagnosed by serology and duodenal biopsy. Transient ascites could be possibly due to buddchiari syndrome. USG Doppler revealed transient attenuation of blood flow in hepatic vein. Serum protein levels were within normal limits. We assume that hemangioma of liver might have transiently caused obstruction of hepatic venous flow or blockage of blood flow by thrombus and manifestation of Budd Chari. We suggest that celiac disease should be considered

in case of unexplained ascites and features suggestive of Budd chiari syndrome. Similarly, Budd chiari syndrome can be kept as a possibility for unexplained manifestations of liver injury or sudden ascites in a diagnosed celiac disease patient.

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