CASE REPORT

Coexistence of Celiac and Crohn's Disease in a Patient Presenting with Chronic Diarrhea

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ABSTRACT

Celiac disease (CD) is one of the most common causes of malabsorption. It is an immune-mediated disease manifested by diarrhea, steatorrhea, flatulence, and weight loss, caused by ingestion of gluten containing diets. The disease has typical small intestinal biopsy features of villous atrophy, crypt hyperplasia, and intense inflammation of the mucosal layer. The disease is rarely associated with Crohn's disease (CRD). Studies on the impact of CD on the natural history of inflammatory bowel disease (IBD) have shown that the natural course of CRD is not influenced by coexistent CD. We report a case of 54-year female who presented with diarrhea and weight loss. On initial evaluation, CD was diagnosed, and responded to gluten-free diet (GFD). Later on, she developed joint pains and her diarrhea recurred. Further evaluation revealed coexistence of CRD. The treatment of CRD was also initiated and this led to marked improvement in the symptoms of the patient.

Key Words: *Celiac disease. Crohn's disease. Gluten-free diet. Chronic diarrhea.*

INTRODUCTION

Celiac disease (CD) is an immune-mediated gastrointestinal (GI) disease affecting small intestinal mucosa.[1-3] The prevalence of CD in patients with dyspepsia is 1%.[4-6] Small bowel biopsy and specific serological tests confirm the diagnosis, while gluten-free-diet (GFD) is advised for treatment.[7-9] The coexistence of CD with inflammatory bowel disease (IBD) is rarely reported in literature.[3,4,10]

We report a case of 54-year female who presented with diarrhea and weight loss. She was initially diagnosed as CD but later she developed joint pains. Further evaluation revealed coexistence of Crohn's disease (CRD). Institution of treatment for CRD resulted in improvement of symptoms.

CASE REPORT

A 54-year female, a known case of hypertension, was evaluated for weight loss (8 kg over 3 months' period) and small bowel type diarrhea in 2007. The diarrhea was watery, voluminous and foul smelling. Upper GI endoscopy was performed and distal duodenal biopsy showed features of sprue including mild villous atrophy, mild crypt hyperplasia, and increased intra-epithelial lymphocytes (IEL), as shown in Figure 1A and B. Serology showed raised anti-tTG IgG and IgA. The IgA titer was 84.41 RU/ml (< 20.0 RU/mL = negative), and IgG titer, 25.2 RU/ml (< 1.0 RU/mL = negative), consistent with serologic confirmation of CD. She was advised gluten-free diet (GFD), which showed partial improvement of her symptoms. The above work-up and management was done at some other hospital.

Two years later, she developed pain in both sided large joints including knees, shoulders and elbows, when she presented to our gastrointestinal (GI) outpatient department (OPD). No mouth ulcers, skin lesions, or eye reddening were noted. The diarrhea recurred, although she was strictly compliant with GFD. On examination, she looked pale and dehydrated. No cyanosis, clubbing or joint deformity was seen. Abdominal examination was unremarkable.

The laboratory evaluation revealed: hemoglobin (Hb), 6.3 gm/dl; mean corpuscular volume (MCV), 80.2 fl; platelets, 248,000/mm^3; and leucocytes, 6500/mm^3. The erythrocyte sedimentation rate (ESR) was 45 mm/1st hour. The biochemical investigations showed: serum calcium, 8.5 mg/dl; phosphorus, 2.6 mg/dl; albumin, 3.0 g/dl; total proteins, 5.2 g/dl; vitamin B12, 471 pg/dl; folate, 20 ng/ml; serum iron, 55 ug/dl; ferritin 20 ng/ml, total iron binding capacity (TIBC), 414 ug/dl; and transferrin saturation, 13.28%. Repeat endoscopic biopsy revealed significant improvement in the villous architecture and the anti-tTG titers (IgA titer, 1.1 IU/ml and IgG titer, 0.50 IU/ml) were markedly decreased. Colonoscopy was performed which showed erythematous mucosa with intervening normal mucosa (skip lesions). No fissuring or stricture formation was noted. Caecal and terminal ileal biopsies showed patchy chronic active inflammation with eosinophils. Focally, the inflammation was extending into the submucosa. No epithelioid

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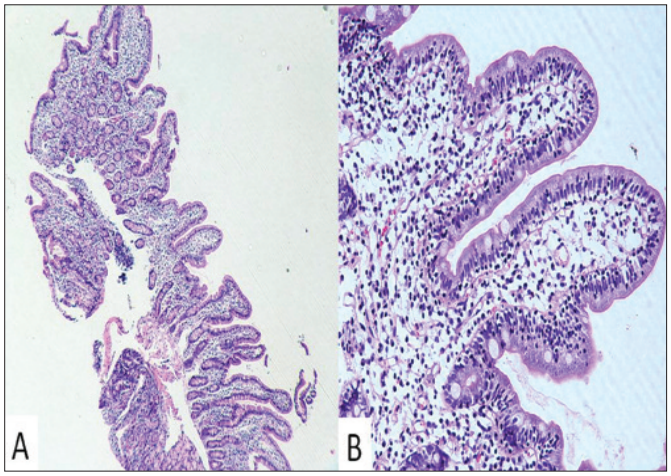

Figure 1: Morphological features on duodenal biopsy. **(A)** Low-power view showing mild villous stunting and mild crypt hyperplasia. Lamina propria contains moderate inflammatory cell infiltration. (H&E, x100). **(B)** High-power view showing markedly increased intra-epithelial lymphocytes at the tip region. (H&E, x200).

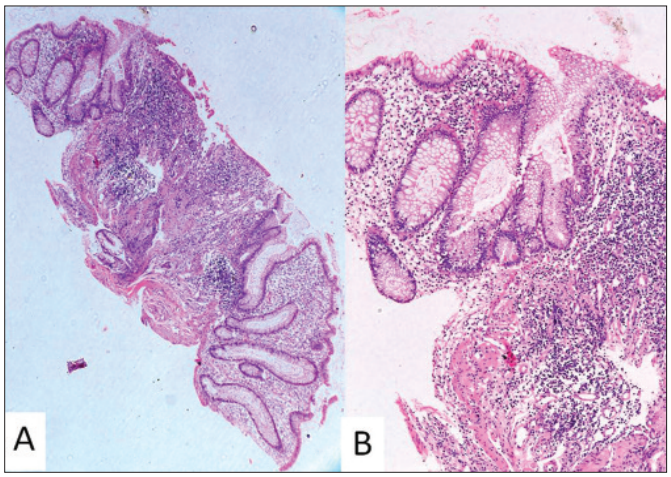

Figure 2: Morphological features of colonic biopsy. **(A)** Low-power view showing patchy dense mixed inflammatory cell infiltration in the lamina propria with focal extension into the submucosa. (H&E, x100). **(B)** High-power view showing patchiness of the distribution of inflammatory cells and their extension into the submucosa. There is also some crypt distortion. (H&E, x200).

granulomata or infective organism was found. The histopathological findings were non-specific and suggestive of focal active colitis pattern. The representative images of the biopsy are shown in Figure 2.

Autoimmune profile including serum anti-nuclear antibody (ANA), anti-mitochondrial antibody (AMA), and anti-smooth muscle antibody (ASMA) were negative. Serum rheumatoid arthritis (RA) factor and serum anti-citrullinated C peptide (CCP) were both negative.

A diagnosis of seronegative arthritis along with CRD and CD was made. She was started on steroids and azathioprine in addition to the continued prescription of GFD. Her symptoms improved markedly. She gained 4 kg of body weight over 4 months of follow-up. Her diarrhea as well as joint pains improved. She is on regular follow-up in our GI, OPD and is symptom-free over one year period.

DISCUSSION

More recently, CD is considered to be an autoimmune disease caused by immune reaction to gluten containing diets including wheat, barley and rye. CD symptoms and age of onset vary with the pre-dominant presentation with diarrhea, weight loss and malabsorption of micronutrients in children. During recent years, increasing numbers of CD cases are being diagnosed for the first time in adult age. Our case was also diagnosed for the first time in adult age. The immunological characteristics of CD establish a relation with other autoimmune conditions, such as dermatitis herpetiformis, thyroid diseases, Addison's disease, autoimmune thrombocytopenia, sarcoidosis, IgA nephropathy and selective IgA deficiency.[8]

CD is known to coexist with IBD (CRD and ulcerative colitis) in studies.[2] During the last decade, a number of reports have appeared in the literature on this coexistence. These suggest that the incidence of IBD, especially CRD in patients with CD, is 5 - 10 times that in the general population. Oxford *et al*. studied the impact of CD on the natural history of IBD, and showed that natural history of CRD is not influenced by coexistent CD, though the patients with ulcerative colitis (UC) and CD were more likely to have pancolitis.[3] Malabsorption and anemia in patients with coexistent CD and IBD is difficult to treat.[9] The coexistent disease should be kept in mind when diagnosis is not clear or the patient is not improving on appropriate therapy. As in this case, the symptoms of malabsorption persisted in the patient albeit with a little improvement in diarrhea on GFD. Due to incomplete response, her colonoscopic examination was performed, which revealed CRD. On treatment of both CD and CRD, her symptoms were well controlled. It is not possible in our case to determine which condition preceded the development of the other intestinal pathology. This report adds to the scanty literature on the coexistence of CD with CRD and sheds light on the relationship between the two disorders. Physicians should think of possibility of coexistent CRD in patients with CD, who do not or only partially respond to GFD.

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