Clinical presentation of adult celiac disease in Western Saudi Arabia

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ABSTRACT

Objective: To study the clinical presentation of adult celiac disease.

Methods: A retrospective study of adult patients who were diagnosed with celiac disease based on findings of small intestinal biopsy, response to gluten free diet and exclusion of other causes of malabsorption or vitamin deficiency over a period of 5 years from 1998-2002. The study was carried out at the King Abdul-Aziz University Hospital, Jeddah, Kingdom of Saudi Arabia.

Results: Sixteen patients were diagnosed with celiac disease. Osteomalacia and iron deficiency anemia were common clinical presentations. Diarrhea, malabsorption associated with growth failure was observed in 3 patients with a mean age of 14.5 years. Celiac disease associated with other autoimmune diseases was reported in 6 patients. Insulin-dependent diabetes mellitus in 3 patients, Hashimoto's hypothyroidism in 2 patients and dermatitis herpetiformis in one patient. No malignancy was observed during the follow-up of our patients. There was a good clinical and biochemical response to gluten free diet in 12 cases.

Conclusion: Osteomalacia and iron deficiency anemia were common clinical presentations of celiac disease. Hence, the presence of either one of them in a female patient should raise the possibility of celiac disease.

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Celiac disease was first described by Samuel Gee in 1888 in a report entitled "On the Coeliac Affection".[1] The cause of celiac disease was unexplained until Willem K. Dick (Dutch Pediatrician) recognized an association between the consumption of bread and cereals and the relapsing diarrhea.[1] This observation was corroborated when there was a shortage of bread and cereals in the Second World War,[2] the symptoms improved once the bread was replaced by non-cereal containing foods. The incidence varies from 12 per 100,000 to 300,000 and it is higher in females than males, this number refers to typical cases.[3] The occurrence of a typical and symptomatic cases (silent celiac) in adults makes it difficult to accurately estimate the true incidence of the disease in any population. Since the widespread application of jejunal biopsies; celiac disease has been increasingly diagnosed in both children and adults. Zawawi et al[4] reported 6 cases of adult celiac disease from King Khalid National Guard Hospital, Jeddah, Kingdom of Saudi Arabia (KSA). We reported 16 cases of adult celiac disease, to draw awareness of the occurrence of adult celiac disease in KSA. Diagnosis of celiac or even sub-clinical silent celiac disease is of potential importance for various reasons: danger of malignancy, presence of unsuspected nutritional deficiencies, association with low birth weight infants in affected mothers, and other autoimmune disorders.

Methods. A retrospective study of adult patients who were diagnosed with celiac disease at King Abdul-Aziz University Hospital, Jeddah, KSA between 1998-2002. The diagnosis was made based

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on the following features: 1) Small-intestinal changes of biopsies in celiac disease include mucosal inflammation, crypt hyperplasia and total or partial villous atrophy. 2) Symptoms of malabsorption such as diarrhea, weight loss or other signs of nutrient or vitamin deficiency. 3) Clinical improvement on a gluten free diet within few weeks or months. 4) Exclusion of other disease which cause malabsorption such as parasitic infestation, inflammatory bowel disease, and intestinal tuberculosis in patients above 13 years of age. The data collected includes age, sex, nationality, clinical presentation, associated diseases, and complications. The results of the following investigations were reviewed hemoglobin (Hb), serum iron and ferritin, corrected calcium, phosphate, alkaline phosphatase, enzyme-linked immunosorbent assay (ELISA) for immunoglobulin A (IgA) and immunoglobulin G (IgG) antibodies to gliadin and the immunofluorescence test for IgA antibodies to endomysium (a structure of the smooth muscle connective tissue), the presence of which is virtually pathognomonic of celiac disease. The endoscopic and jejunal biopsy findings are reported.

Statistical analysis was carried out using the Statistical Package for Social Sciences (SPSS 7.5). Group results were presented as mean or as percentage.

Results. Sixteen patients fulfilled the criteria for adult-onset celiac disease. There were 7 Saudis and 9 non-Saudis from Arab nationalities (6 Yemenis, 2 Palestinian, and one Ethiopian). There were 14 females and 2 males with a male to female ratio of 7:1. All patients who had jejunal biopsy at presentation, which showed densely, infiltrated lamina propria by lymphocytes and plasma cells, crypt hyperplasia and villous atrophy with flattening of the mucosa. Iron deficiency anemia and osteomalacia was seen in 8 patients (50%), the most common clinical presentation. Diarrhea and abdominal pain was observed in 3 patients, whereas diarrhea with growth failure was also reported in 3 patients. One of them had tetany and convulsion. Dermatitis herpetiformis (DH) was seen in one patient only (6.25%). Laboratory investigations showed mean Hb level of 10.4 gm/dL with low mean corpuscular volume (MCV) figures, low serum iron 8.2µmol\L and low serum ferritin (11.6 ng\L); however, Hb was normal in 3 patients and no evidence of iron deficiency on the blood film. Corrected calcium was low in 7 patients with mean level of 1.8 mmol\L (2.1-2.6), serum phosphate 0.8 mmol\L (0.7-1.45) and alkaline phosphatase was high 801 u\L (40-115). Seven patients with hypocalcemia had looser's zone on bone skeletal radiology while one of them had a fracture of dorsal spine. Anti-gliadin antibodies such as IgG and IgA were positive in all patients. Antibodies against endomysium were tested in 3 cases only. Our study group revealed association with other autoimmune diseases such as insulin dependent diabetic mellitus (IDDM) in 3 patients, Hashimoto's hypothyroidism in 2 cases, and primary infertility in one patient. One patient had repeated attacks of acute pancreatitis complicated by septicemia, which resolved with conventional therapy. Human leukocyte antigen (HLA) was not carried out in our study group as it is not available in our institute. Twelve patients (75%) who were compliance with gluten free diet have a satisfactory outcome, they became asymptomatic, gained weight, and showed desirable improvement in the laboratory parameter during the 5 years follow-up. Small intestinal biopsies were repeated in 5 patients after treatment which showed improvement in villous height, and the lamina propia was infiltrated with less number of lymphocyte and plasma cells. Other 4 (25%) patients did not achieve good response due to poor compliance to gluten free diet.

Discussion. Celiac disease occurs primarily in the Northern European Ancestry. The incidence of celiac disease varies from 1:300-1:500 in most Western countries.[3] There are few reports of celiac disease in children from KSA and other Middle East

Table 1 - Pattern of adult celiac disease.

Clinical findings	n (%)
Clinical presentation	
Iron deficiency anemia and osteomalacia	7 (43.8)
Iron deficiency anemia	1 (6.2)
Abdominal pain and diarrhea	3 (18.5)
Growth failure with diarrhea	3 (18.5)
Convulsion	1 (6.2)
Dermatitis herpetiformis	1 -
Associated diseases	
IDDM	3 (18.5)
Hashimoto's hypothyroidism	2 (12.5)
Infertility	1 (6.2)
Skeletal survey (looser's zone)	7 (100)

Mean age = 37.5 years. Female to male ratio = 7:1.
Saudi to Non-Saudi ratio = 0.78:1 (7 Saudis and 9 Non-Saudis).
n - number, IDDM - insulin dependent diabetes mellitus

countries.[4-7] Zawawi et al[4] reported 6 cases of adult celiac disease among Saudi and Arab patients in Western region of KSA. The incidence in females was higher than males in our study, which is similar to that reported previously. Whereas reports from Western countries; patients showed male preponderance.[3] Therefore, it is important to screen our female population whenever there is evidence of malabsorption or vitamin deficiencies. Osteomalacia associated with iron deficiency anemia is the most common clinical presentation in our series, which is similar to Zawawi et al[4] study. Although celiac disease is a frequent cause of iron deficiency anemia, only one patient in our study had iron deficiency. Some of the patients had mucosal abnormalities, such as esophagitis and gastritis, which could have been attributed to the cause of anemia and hence, resulted in the delay of the diagnosis of celiac disease. Celiac disease has also been associated with occult bleeding.[8] Nearly most of the patients who presented with osteomalacia had low serum calcium phosphate and high alkaline phosphatase with the presence of looser's zone in peripheral skeleton x-ray. Serum vitamin D level could not be measured in our patient due to its high cost and it is not available in our institute. We observed improvement in symptoms with normalization of serum biochemistry and Hb with gluten-free diet and with vitamin D and iron supplement.[9,10] Classically the disease in children presents with foul smelling bulky diarrhea. This disturbance leads to malabsorption, as a consequence, of which the child present with weight loss and growth retardation. Three of our young adult patients with a mean age of 14.5 years had steatorrhea with growth failure.[11] One patient had growth retardation with epilepsy, which was difficult to control initially, but with a good dietary compliance, the patient was free of epileptic attacks and required less anti-epileptic drugs. Celiac disease is frequently associated with other conditions, which have autoimmune features such as type I diabetes mellitus and this has been reported in 3 of our patients,[12-14] and Hashimoto's hypothyroidism in 2 patients.[15] Dermatitis herpetiformis was seen in one patient with very high titer of anti-gliadin antibodies (IgA).[16] The diagnosis was confirmed histologically by the demonstration of granular IgA deposits along the sub-epidermal basement membrane. Dermatitis herpetiformis and celiac disease is associated with HLA-DQ beta hetrodimers, which was not documented in our study, as it is not available in our institute.[17,18] Skin lesions of dermatitis herpetiformis showed good response to gluten free diet. Women with untreated celiac disease may have an increase frequency of infertility.[19-21] One patient was infertile for more than 10 years. Serological studies are now used to confirm the diagnosis of celiac disease. All patients in our study had ELISA positive for IgA and IgG antibodies to gliadin. Three patients had positive antibodies against endomysium,[22] the presence of which is virtually pathognomonic for celiac disease. Serological testing with anti-gliadin antibodies were used as a screening test for silent celiac disease with subsequent small intestinal biopsy.[23] This type of screening can result an early recognition and treatment of unrecognized nutritional deficiency states, resolution of mild symptoms and reduction in potential risk of malignancy.[24] This was attributed to the patient's awareness of the disease and the continuous supervision and encouragement by dietician. We observed good clinical and biochemical response in 12 patients with satisfactory compliance to gluten free diet. However, these benefits require strict adherence to dietary regimens.

In conclusion, clinical presentation of adult celiac disease in Saudis and Arabs was atypical, late and associated with other out immune diseases. Osteomalacia and iron deficiency anemia is a common clinical presentation. The prevalence of celiac disease is not known in the Arab community neither in children nor in adult. A high index of suspicious is required in order to reach the early diagnosis and to prevent complications and malignancy. Presence of unexplained osteomalacia and iron deficiency anemia raise a strong possibility of celiac disease.

References

1. Dick WK, van de Kamer JH, Weyers HA. Celiac disease II. The presence of wheat of a factor having deleterious effects in cases of celiac disease. *Acta Paediatr* 1953; 42: 34-36.
2. Booth CC. History of celiac disease. *BMJ* 1989; 298: 527-531.
3. Logan RFA, Rifkind EA, Busuttil A, Gilmore HM, Ferguson A. Prevalence and "incidence" of celiac disease in Edinburgh and Lothian Region of Scotland. *Gastroenterology* 1988; 83: 274-277.
4. Zawawi TH, Gangi MT, Hossain J, Mahgoub I, Sulieman R, Abdul-Wahab ESM et al. Adult celiac disease: Clinical features in patient seen in Western Region, Saudi Arabia. *Saudi Med J* 1996; 17: 51-54.
5. Ahluwalia ML, Larbi E, Fadali G. Adult celiac disease: Report of case. *Annals of Saudi Medicine* 1996; 16: 74-76.
6. Abdullah AM. Coeliac disease in Saudi-Arab children. *Saudi Med J* 1990; 11: 401-404.
7. Kuffash FA, Barakat MH, Shaltout AA, Ahmed M. Celiac disease among children in Kuwait. Difficulties in diagnosis and management. *Gut* 1987; 28: 1595-1599.
8. Annibale B, Severi C, Chistolini A, Antonelli G, Lahner E, Levovit HE. Efficacy of gluten-free diet alone on recovery from iron deficiency anemia in adult celiac patients. *Am J Gastroenterol* 2001; 96: 132-137.
9. Caraceni MP, Molleni N, Bardella MT, Barret EJ, De Fronzo RA, Marshall SM. Bone and mineral metabolism in adult celiac disease. *Am J Gastroenterol* 1988; 83: 274-277.
10. Shaker JL, Breckner RC, Finding JW. Hypocalcaemia and skeletal disease as presenting features of celiac disease. *Arch Intern Med* 1997; 157: 1013-1017.
11. Ferguson A, Arranz E, O'Mahoney S. Clinical and pathological spectrum of celiac disease-active-silent, latent, potential. *Gut* 1993; 34: 150-154.

12. Cacciari E, Salardi S, Volta U. Prevalence and characteristics of celiac disease in Type 1 Diabetes Mellitus. *Acta Paediatr Scand* 1987; 76: 671-673.
13. Acerini CL, Ahmed ML, Ross KM. Celiac disease in children and adolescents with IDDM: Clinical characteristics and response to gluten-free diet. *Diabet Med* 1998; 15: 38-42.
14. Cronin CC, Feighery A, Feriss JB. High prevalence of celiac disease among patients with insulin-dependent (Type 1) diabetes mellitus. *Am J Gastroenterol* 1997; 92: 2210-2214.
15. Counsell CE, Taha A, Ruddell WS. Celiac disease and autoimmune thyroid disease. *Gut* 1994; 35: 844-850.
16. Balas A, Vicario JL, Zambrano A. Absolute linkage of celiac disease and dermatitis herpetiformis to HLA-DQ. *Tissue Antigens* 1997; 50: 52-55.
17. Petrozelli F, Bonamico M, Ferrante P. Genetic contribution of the HLA region to the familiar clustering of celiac disease. *Ann Hum Genet* 1997; 61: 307-310.
18. Houlston RS, Ford D. Genetics of celiac disease. *QJM* 1996; 89: 737-781.
19. Sher KS, Mayberry JF. Female fertility, obstetric and gynecological history in celiac disease: A case control study. *Acta Paediatr Suppl* 1996; 412: 76-82.
20. Meloni GF, Dessoles S, Vargiu N, Walker M, Shaltout A. The prevalence of celiac disease in infertility. *Hum Reprod* 1999; 14: 2759-2783.
21. Collin P, Vilska S, Heinonen PK, Lakhader A, Kilshaw B. Infertility and celiac disease. *Gut* 1996; 39: 382-387.
22. Johnston SD, Waston RG, McMillan SA, Bennett PH, Kasiske BL, Jaconson HR et al. Preliminary results from follow-up of a large-scale population survey of antibodies to gliadin, reticulin and endomysium. *Acta Paediatr Suppl* 1996; 412: 61-66.
23. Grodiznsky E. Screening for celiac disease in apparently healthy donors. *Acta Paediatr Suppl* 1996; 412: 46-50.
24. Holmes GK. Malignant complications of celiac disease. *Acta Paediatr Suppl* 1996; 412: 68-74.

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Abstract

The clinicopathological features of 19 children with coeliac disease seen at King Khalid University Hospital, Riyadh, over a 5-year period are described. Their mean age at presentation, introduction to cereals and onset of symptoms were 4.5 years, 0.7 years and 2.0 years respectively. The main symptoms were diarrhea in 17 patients (89%) and failure to thrive in 13 (68%). The main physical signs at admission were abdominal distension in 16 patients (86%), wasting in 15 (78%), pallor in 12 (63%), edema in 5 (27%), and short stature in one (5%). The mean hemoglobin, serum folate level and 1 h blood d-xylose were 9.1 g/di, 1.4 ng/ml and 0.9 mmol/i respectively. The initial jejunal biopsy showed subtotal villous atrophy in every patient. Repeat biopsy showed normal villi in 10 patients while on gluten-free diet and subtotal villous atrophy on gluten challenge in 4 patients. There was considerable delay in establishing the diagnosis. All improved on a gluten-free diet.