

Coeliac disease with hyperthyroidism in a young male

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Abstract: Coeliac disease is an immune-mediated enteropathy that is exaggerated by exposure to gluten diet, resulting in malabsorption which further leads to deficiency of various nutrients. We report a case of a 24 year male suffering from coeliac disease with extraintestinal manifestation such as generalised bodyache predominantly involving the neck, back and lower limbs, weight loss and hyperthyroidism.

Keywords: Coeliac disease, hyperthyroidism, weight loss.

I. Case Report

A 24 year male was referred to the medicine outdoor from the orthopaedic department where he had presented with a three year history of pain in the neck, back and lower limbs. The reason for referral to medicine was weight loss. He had lost about 5 to 6 Kilograms in the last six months. This was unintentional. He said his appetite was good. Though there was no history of diarrhoea he reported increased bowel frequency intermittently. He admitted to having symptoms of heat intolerance. He denied any history of persistent cough or fever. However, he reported symptoms of sore throat and moderate fever for the preceding five days. (This subsided with a five day course of oral azithromycin). He did not smoke or consume alcohol. There was no known history of any other chronic illness. However, he carried with him the results of some blood tests that were carried out in another hospital two months prior to this consultation. These revealed a haemoglobin concentration of 7.6 g/dl with a mean corpuscular volume (MCV) of 60 fL. Rheumatoid factor was negative. He had also tested negative for Hepatitis B, Hepatitis C and Human Immunodeficiency Virus. The patient's father was on treatment for hyperthyroidism. Physical examination revealed moderate pallor, fine tremors and a heart rate of 110 per minute.

On further investigations, he had a haemoglobin of 9.6 g/dl with an MCV of 60 fL. Peripheral smear was reported as showing microcytic hypochromic anaemia. Ferritin level was low at 10.7 ng/ml. Vitamin B12 level was 213 pg/ml (low normal). Serum folic acid concentration was normal. Antibody against tissue transglutaminase (tTG) was positive. Thyroid profile was suggestive of hyperthyroidism with Free T3 > 20pg/ml and TSH 0.010 u/ml. Anti-thyroid peroxidase antibody level was high (227.10 U/ml).

An upper gastrointestinal endoscopy was arranged for duodenal biopsy. The latter showed infiltration of the lamina propria by chronic inflammatory exudates and subtotal villous atrophy of the duodenal mucosa. The patient was started on a strict gluten free diet, vitamin D and calcium supplementation, oral iron and carbimazole. He was advised to seek immediate medical attention if he developed sore throat, fever or any other features of infection. After three months of treatment his symptom of bone pain was much better. He had gained about 4 kg of weight. His thyroid function had normalised. His Haemoglobin had risen to 10.9 g/dl with an MCV of 67.7 fL. One year later, He was asymptomatic. He was taking carbimazole 10 mg twice daily. He had gained 8 kg of weight since his first presentation. His haemoglobin had normalised to 13.4 g/dl, his free T4 level, TSH level also were within normal limit after initiation of anti thyroid medication. Carbimazole was stopped with a plan to repeat thyroid function test after eight weeks.

II. Discussion

Coeliac disease is an immune-mediated small intestinal enteropathy that is triggered by exposure to dietary gluten (found in wheat and other cereals like rye, barley and oat) in genetically predisposed individuals¹. It results in malabsorption which may lead to deficiency of several nutrients. The diagnosis is usually made on the basis of positive anti-tTG or anti-endomysial antibodies and typical histological findings of increased intraepithelial lymphocytes and subtotal villous atrophy. The condition usually responds to lifelong gluten free diet although corticosteroids may be needed occasionally for refractory cases.

Coeliac Disease is common in the west with about 1% of the white population expected to be affected.^{2,3} It is rare in certain geographical areas like the Far East and sub-Saharan Africa.⁴ There is limited data on its prevalence in India. One study in the district of Ludhiana, Punjab reported a frequency of 1 in 310 in school going children.⁵ Another study from north India noted a prevalence of 1 in 179 (0.56%) in healthy blood donors.⁶ It is supposed to be less prevalent in south India compared to the north where there is higher consumption of wheat.⁷

The classical presentation of coeliac disease is with diarrhoea, steatorrhoea, weight loss and failure to thrive.¹ However, increasingly coeliac disease is being diagnosed in patients with extra intestinal manifestations.

As in this case, iron deficiency anaemia is a common presenting symptom.⁸ Conversely, celiac disease has been noted to be an important cause of iron deficiency anaemia.^{9, 10} British Society for Gastroenterology recommends screening for celiac disease in all patients with iron deficiency anaemia.¹¹ The right approach for Indian patients is yet to be established. Folate and vitamin B12 deficiency may also be seen with this condition.¹²

Apart from weight loss and iron deficiency anaemia, the other important presenting feature in this patient was severe bone pain. This could have been secondary to vitamin D malabsorption although serum vitamin D3 level was not checked. Various studies have noted the association of osteomalacia and osteoporosis with celiac disease.^{13,14} In one study from India a retrospective case note analysis of 825 patients revealed that 5 patients (0.6%) presented with musculoskeletal symptoms (bone pain, proximal myopathy or fragility fractures) alone.¹⁵

Another notable feature in this case was the coexisting hyperthyroidism. Interestingly, his father also had hyperthyroidism. There is a known association between celiac disease and autoimmune thyroid disease.^{16, 17} However, hyperthyroidism (rather than hypothyroidism) is uncommon. But this may reflect the fact that hyperthyroidism per se is rare compared to hypothyroidism.

III. Conclusion

Coeliac disease often presents with extraintestinal manifestations and this diagnosis should be considered in patients presenting with symptoms of iron deficiency anaemia or vitamin D deficiency. It may be associated with other autoimmune conditions, specially autoimmune thyroid disease and a high index of suspicion should be maintained to detect their coexistence.

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