Primary thyroid failure and diarrhoea

Filitsa Sugihltjoglu, Trevor Wheatley, Keith Hine

A 36-year-old Caucasian woman with a strong family history of autoimmune thyroid disease presented with tiredness and diarrhoea. One year previously she had an apparent episode of acute gastro-enteritis, but change in bowel habit had persisted with two to five episodes of non-bloody diarrhoea daily, attributed to the irritable bowel syndrome. She had a history of a hydatidiform mole with no subsequent complications, mild endometriosis and iron deficiency in both her pregnancies, four and eight years ago. She had regular normal menstrual bleeding, consumed a balanced diet and had not travelled to tropical countries. On clinical examination she was pale, her blood pressure was normal without postural fall and there were no other abnormalities. Sigmoidoscopy was normal with no evidence of inflammatory bowel disease. Initial blood tests revealed primary thyroid failure with basal thyrotropin concentration 53.98 mU/l (normal 0.4–3.5), free thyroxine concentration 6.4 pmol/l (normal 7.0–16.0) and thyroid microsomal antibody concentration 697 U/l (normal less than 200). Adrenal and thyroglobulin autoantibodies were not detected. Other tests showed a microcytic hypochromic anaemia (haemoglobin 8.0 g/dl, mean corpuscular volume 62.1 fl), normal serum vitamin B12 and red cell folate concentrations and normal serum electrolytes, urea, liver tests, calcium and phosphate. A short tetracosactrin (synacthen) test, stool culture and faeces tested for occult blood, cysts, ova and parasites showed no abnormality.

Questions

1. What is the probable cause of the diarrhoea?
2. What further investigations should be performed?
3. How should this patient be treated?
Answers

QUESTION 1
The unusual combination of autoimmune hypothyroidism and persistent diarrhoea in a woman with previous and current iron deficiency led to the clinical suspicion of coeliac disease, a condition occurring with increased frequency in patients with organ-specific autoimmune conditions, including thyroid disease and type 1 (insulin-dependent) diabetes. Diarrhoea is very uncommon in association with significant hypothyroidism, where constipation due to reduced gastrointestinal motility is typical. Other causes of diarrhoea must also be considered, but there were no clinical features to suggest inflammatory bowel disease or gastrointestinal malignancy, and primary adrenal failure (Addison’s disease) was excluded by a normal tetracosactrin (short synacthen) test.

QUESTION 2
Small bowel biopsy is indicated. In our patient, this confirmed the diagnosis of coeliac disease, showing marked blunting of the villi with increased plasma cells on the lamina propria and lymphocytic infiltration in the surface enterocytes.

QUESTION 3
The patient should be given thyroxine replacement therapy and put on a gluten-free diet. In our patient, treatment with thyroxine initially resulted in some increase in stool frequency. However, following the initiation of a gluten-free diet, the diarrhoea soon resolved and repeat duodenal biopsy three months later showed normalisation of the duodenal mucosa.

Discussion

The association of primary thyroid failure and coeliac disease is well recognised. In a series of 83 patients with autoimmune thyroid disorders (Hashimoto’s thyroiditis or Graves’ disease), coeliac disease was diagnosed in 4.8%, while in studies of coeliac patients the overall frequency of thyroid disease ranged between 5.4 and 14%. Patients with hypothyroidism are frequently constipated and may develop abdominal distension, paralytic ileus or megacolon. Chronic diarrhoea is not consistent with primary thyroid failure and in the absence of features of inflammatory bowel disease or glucocorticoid deficiency, coeliac disease should be considered. In this case, a diagnosis of malabsorption was supported by the presence of a microcytic anaemia without evidence of reduced intake or excessive loss of iron. Although anaemia may occur in hypothyroidism, it is usually normocytic or macrocytic.

Coeliac disease is effectively treated by a gluten-free diet with rapid relief of symptoms, but this case illustrates how it may be missed, sometimes for many years, or misdiagnosed as irritable bowel syndrome. In view of the increased prevalence of the condition in patients with autoimmune endocrine disorders, diabetologists and endocrinologists should have a low threshold for considering the diagnosis in their patients. The detection of serum endomyosal antibodies may provide a simple, noninvasive screening test for coeliac disease, but the specificity and sensitivity of this test are not 100% and the definitive test remains histology of the small intestinal mucosa. In summary, coeliac disease should be considered whenever untreated hypothyroidism is associated with diarrhoea.

Final diagnosis

Primary thyroid failure in a patient with coeliac disease associated with iron deficiency anaemia.

Keywords: hypothyroidism; diarrhoea; coeliac disease

Learning points

- the diagnosis of coeliac disease may be overlooked for some time in adults who do not have florid symptoms
- coeliac disease is associated with organ-specific autoimmune conditions including common diseases such as hypothyroidism and type 1 (insulin-dependent) diabetes
- untreated overt thyroid failure causes constipation and the presence of chronic diarrhoea should suggest the coexistence of coeliac disease