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Case Report

Type 1 Diabetes Mellitus Associated with Autoimmune Thyroid Disease, Celiac Disease and Facial Asymmetry

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ABSTRACT

Patients with type 1 diabetes mellitus are at a great risk of developing other autoimmune diseases.Ten -year-old girl was brought to our clinic with complaints of polydipsia, polyuria and weight loss and was diagnosed as diabetic ketoacidosis due to autoimmune type 1 DM. On physical examination, on the left side of her face mild facial asymmetry was noticed. She had the asymmetry since the birth. Elevated thyroid antibodies associated with diffuse goiter and hypothyroidism led to the diagnosis of autoimmune thyroid disease, and elevated antiendomysial antibodies, anti-gliadin antibodies and abnormal intestinal biopsy findings led to the diagnosis of celiac disease . To our knowledge, this is the first report on a child with a combination type 1 diabetes mellitus, autoimmune thyroid disease, celiac disease and facial asymmetry. Further research is clearly required both to study associations between autoimmune diseases and facial asymmetry and the link between autoimmune diseases and facial asymmetry.

Key words: *Type 1 diabetes mellitus, autoimmune thyroid disease, coeliac disease, facial asymmetry*

Otoimmün Troid, Çölyak Hastalığı ve Fasiyal Asimetri ile İlişkili Tip 1 Diabetes Mellitus

ÖZET

Tip 1 diabetes mellitus (DM) lu hastalar diğer otoimmün hastalıklara yatkınlık açısından büyük bir risk altındadır.10 yaşındaki kız hasta polidipsi, poliüri ve kilo kaybı şikayetleri ile kliniğimize başvurdu ve diabetik ketoasidoz tanısı aldı. Hastaya insülin tedavisi başlandı. Diffüz guatr , hipotiroidi ve artmış tiroid antikorları ile otoimmün tiroid hastalığı (AITD) tanısını; yükselmiş antiendomisyum antikoru (EMA), anti-gliadin antikor (AGA) ve anormal barsak biyopsi bulguları ile çölyak hastalığı tanısını aldı.Hastaya L-tiroksin tedavisi ve glutensiz diyet başlandı. Hastanın yüzünün sol tarafında hafif bir asimetri vardı. Bildiğimiz kadarıyla, bu yazıda ilk defa tip 1 DM, AITD, CD ve sol yüz asimetrisinin birlikte olduğu bir hasta sunulmaktadır. Otoimmün hastalıklar ve fasiyal asimetri arasındaki ilişkiyi incelemek için ileri araştırmalar gereklidir.

Anahtar Kelimeler: *Tip 1 diabetes mellitus, otoimmün troid hastalığı, çölyak hastalığı, fasiyal asimetri*

INTRODUCTION

Type 1 diabetes mellitus (T1DM) is an autoimmune disease. Type 1 diabetes mellitus can be associated with other autoimmune disorders such as celiac disease (CD) and autoimmune thyroid disease (AITD). Recent studies regarding CD and T1DM have indicated that the frequency of this association can vary from 1.7% to 16% (1,2). The frequency of AITD in patients with T1DM is reported to vary from 3.9% to 40% in different populations (3).In our country AITD was detected in 31.5%, and CD in 7.8% of T1D patients (6). Asymmetry syndromes are Beckwith-Wiedemann syndrome, Proteus syndrome, Hemihyperplasia multiple lipomatosis syndrome (HHML),Cowden/Bannayan-Riley-Ruvalcaba syndrome (BRRS) (8). Here we describe a child with a combination of T1DM, AITD, CD and left facial asymmetry.

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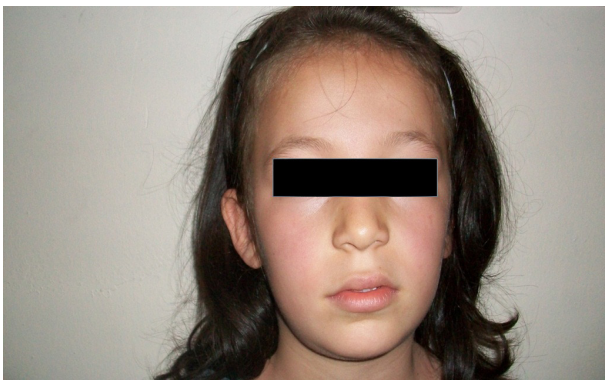

***Figure**. Facial asymmetry on the left side of her face*

CASE

A 10-year-old girl was admitted to the hospital with complaints of polyuria, polydipsia, decreased appetite, weight loss of 5 kg for a few weeks, and nervousness. She was born at term by normal vaginal delivery (birth weight 3500 g) from a healthy mother as first children of the family. There was no consanguinity between the parents. No family history of diabetes was reported. Physical examination at the time of admission revealed a temperature of 36.7°C, a pulse of 66 beats perminute, a respiratory rate of 24 per minute, and a blood pressure of 110/70 mmHg. The patient's height was 161 cm (-0.01 SDS) and her weight was 40 kg (-2.85 SDS). Calculated body mass index was 15.6 kg/m2 (-2,7 SDS).

She was at pubertal Tanner stage 3. The patient had a remarkable, grade 2b thyromegaly on and she had left side facial asymmetry (Figure 1). She had the asymmetry since the birth. Blood gas analysis showed a pH of 6.7 and HCO_3 2.8 mmol/L. The diagnosis of diabetic ketoacidosis was made, and after appropriate fluid-electrolyte and insulin therapy, multiple dose (4 times daily) insulin injection treatment (1 U/kg/day) was started. Glycosylated haemoglobin A1c was 14. Pancreatic autoantibodies [Islet cell autoantibodies (ICA), glutamic acid decarboxylase antibodies (antiGAD) and anti-insulin autoantibodies (AIA)] were positive. Hormone analyzes was obtained. Thyroid stimulating hormone (TSH), free T4, anti microsomal antibody (TMAB), thyroglobulin antibody (anti-TG) was 64,7 µIU/ml, 0,6 ng/dl, 289,6 IU/ml, <20 IU/ml respectively. Thyroid ultrasonography revealed enlarged thyroid gland, hypoechogenicity and no increase in vascularization, diagnosis of AITD (Hashimoto thyroiditis) was established, and L-thyroxine replacement treatment was started at a dose of 100 µg/m2/day. Anti-gliadin antibodies(AGA) and antiendomysial antibodies (EMA) were checked; EMA, and AGA antibodies were found positive (+3) in the serum, small bowel biopsy was performed, which revealed villous atrophy. Gluten sensitive enteropathy diagnosis was made and gluten-free diet was started.

The patient denied any prior history of medical, surgical problems, or any family history of hemihyperplasia. There was no evidence of asymmetry of the body trunk and limbs or any subcutaneous/cutaneous lesions noted. No abnormality was noted in her speaking, vision, and hearing. For evaluation of facial asymmetry cranial tomography and abdominal magnetic resonance imaging was performed and reported as normal. So that she was diagnosed as nonsyndromic facial asymmetry.

DISCUSSION

Autoimmune disorders such as AITD and CD are relatively common in diabetic children.Autoimmune thyroid disease is the most frequent autoimmune disease associated with type 1 DM. The screening and diagnosis of AITD are based on the assessment of TSH and autoantibodies to thyroid (4). Many patients with type 1 DM are euthyroid at the time of diagnosis of AITD. However, overt or subclinical hypothyroidism was reported in 17-58% of diabetic patients with positive thyroid autoantibodies (5). In our patient; TSH was high, free T4 was low , anti microsomal antibody (TMAB) was positive ,thyroid gland was enlarged ,no increase in vascularization so thyroid autoimmunity was detected.

Coeliac disease (CD) can also be associated with type 1 DM, and in most cases it is present in its subclinical form. At the onset of type 1 diabetes, the prevalence of coeliac disease has been reported between %7. 8 (6). Tissue transglutaminase autoantibodies and EMA are the most sensitive and specific markers of coeliac disease. The assessment of anti-gliadin autoantibodies (AGA) can also be used, but their sensitivity and specificity depends on the type and purification of antigen. Investigations have been focused on the effect of administering a gluten-free diet based on a diagnosis of CD on the metabolic control of diabetes (4). Gluten-free diet to lead to weight gain, decrease clinical symptoms ,normalization of histology, reduction in the number of

hypoglycemic episodes (7). In our patient anti-gliadin and anti-endomysial IgA antibodies were found positive (+3). Small bowel biopsy was performed, which revealed villous atrophy. Gluten-free diet was started. Therefore the combination of type 1 DM, AITD and CD, autoimmun polyglandular syndrome was suspected. Calcium homeostasis, recurren candidiasis and hypothalamic pituiter adrenal axis were cheched and determined normal.

Asymmetry syndromes include a heterogeneous group of disorders with overgrowth of one or more limbs or body parts as a predominant finding and includes disease entities such as Beckwith-Wiedemann syndrome, Proteus syndrome, Hemihyperplasia multiple lipomatosis syndrome (HHML),Cowden/Bannayan-Riley-Ruvalcaba syndrome (BRRS) among others (8). Beckwith-Wiedemann syndrome is the most well known hemihyperplasia syndrome and is associated with anomalies such as macroglossia, abdominal wall defects,hypoglycemia, and increased risk of embryonal tumors. Proteus syndrome is a rare, highly variable hamartomatous syndrome which is clinically diagnosed if the patient satisfies the necessary diagnostic criteria of disproportionate overgrowth, connective tissue nevi, dysregulated adipose tissue, and vascular malformation (9). Hemihyperplasia multiple lipomatosis syndrome syndrome shows moderate abnormalities of hemihyperplasia with multiple lipomas. Cowden/Bannayan-Riley-Ruvalcaba syndrome is characterized by macrocephaly, mild mental retardation, cutaneous lipomas, or hemangiomas, while pigmented macules of the glans penis and the onset is noted at birth or shortly thereafter. Cowden syndrome is an adult-onset condition with mucocutaneous signs and increased risk of cancer (10,11). Among the disease entities of the hemihyperplasia syndromes listed above our case did not show cutaneous, epidermal nevi or capillary, venous, and lymphatic malformation, any sign of mental retardation.

In conclusion, as also proposed in the literature, we suggest that patients with T1D should be investigated annually for antibodies related to CD and AITD, regardless of presence or absence of symptoms. This report attempts to add another unusual combination of facial asymmetry T1DM, AITD, CD, which is not yet been discussed in the literature.

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