

Introduction

- The most common cause of goiter and acquired hypothyroidism is hashimoto thyroiditis (HT) in children and adolescents especially in regions where endemic iodine deficiency is not found (1). Although the prevalence of hashimoto thyroiditis varies from region to region, it was reported to be 3% in children aged between 6 and 18 years and the female/male ratio was 2/1
- Celiac disease (CD) is a proximal intestinal disease which develops against gluten which is a vegetable protein found in wheat, barley, rye and in a small extent in oat in individuals with genetic predisposition. The clinical picture in celiac disease ranges from asymptomatic state to severe malabsorption and it has been reported that 33–67% of all patients are asymptomatic at the time of diagnosis
- It is known that cellular and humoral response are involved in the etiopathogenesis of hashimoto thyroiditis and it is associated with the other autoimmune diseases

Aim

The aim of this study was to evaluate clinical and laboratory findings and determine the prevalence of celiac disease (CD) in children with Hashimoto thyroiditis (HT).

Materials and Methods

Inclusion criteria;

- The data of **114 patients** aged between **6.0 and 17.9 years** who presented to our clinic between **2005 and 2014** with the diagnosis of HT (euthyroid, subclinical hypothyroidism, overt hypothyroidism) were **enrolled in the study**.
- The data of a **total of 80 patients** with positive anti-thyroid antibodies who were aged between 6 and 17.9 years **were retrospectively studied**.
- Age, gender, complaints at the time of presentation, family history of thyroid disorders, clinical and laboratory findings were recorded.
- The levels of thyrotropin, free thyroxin, thyroid autoantibodies (thyroid peroxidase and thyroglobulin antibodies), immunoglobulin A (IgA), anti-tissue transglutaminase antibodies (IgA-tTG), and thyroid ultrasonography findings were enrolled.

Exclusion criteria;

The subjects whose file records included deficient data (dTG-IgA and serum IgA levels could not be found in the file records of 28 subjects), who received a diagnosis of subclinical hypothyroidism (four subjects), who had selective IgA deficiency (one subject) and/or partial IgA deficiency (one subject) were excluded from the study

Results

- Total 80 subjects [65 females (81.2%) and 15 males (18.8%)] were included and 72,5% of the subjects were adolescents in this study.
- The mean age at the time of diagnosis was 10.6±3.4 years.
- The mean body weight SDS, height SDS and BMI SDS were 0.59±1.17, 0.30±1.13 and 0.40±1.17, respectively).
- Goiter was observed on examination in 37 (46.2%) and a familial history of thyroid disease was present in 38 (47.5%) of the subjects
- The complaints at presentation are summarized in [Table 1](#).
- At the initial presentation the mean thyroid hormone levels and antibody titers were found to be as follows;
 - ❖ fT4: 0.96±0.27 ng/dL
 - ❖ TSH: 17.5±32.0 µIU/mL
 - ❖ anti-TPO: 505.4±425.4 IU/mL
 - ❖ anti-TG: 423.9±825.8 IU/mL
- Anti-TPO was positive in 100% of the subjects included in the study and anti-TG was positive in 82.5%.
- At the time of diagnosis,
 - ❖ 53.8% of the subjects (n=43) had euthyroidism,
 - ❖ 28.7% (n=23) of the subjects had subclinical hypothyroidism
 - ❖ 17.5% (n=14) of the subjects had overt hypothyroidism
- The distributions of age, gender and goiter (according to thyroid USG and physical examination) by thyroid functions at presentation are shown in [Table 2](#).
- dTG-IgA was found to be positive in one subject (1.25%) who was found to have the complaints of abdominal pain, loss of appetite and abdominal distension in the follow-up and diagnosis confirmed with intestinal biopsy.

Table 1. Presenting complaints of the subjects who were diagnosed with Hashimoto thyroiditis

Complaint	Number	%	Complaint	Number	%
Swelling in the neck	24	30	Cramp	7	8.8
Increased weight	20	25	Easy nail spitting	6	7.5
Weakness	19	23.8	Tingling in the feet	6	7.5
Intolerance to cold	11	13.8	Hair loss	3	3.8
Dry hair	10	12.5	Swelling in the hands	3	3.8
Constipation	10	12.5	Nervousness	4	5
Dry skin	9	11.3	Dyspnea	2	2.5
Loss of appetite	8	10	Coarse voice	1	1.3
Decreased academic success	8	10			

Table 2. Comparison of the age, gender, puberty and goiter frequency of the subjects by thyroid function status

	Overt hypothyroidism (n=14)	Subclinical hypothyroidism (n=23)	Euthyroidism (n=43)	P
Mean age (years)	9.17±2.84 ^a	9.18±2.70 ^b	11.76±3.46 ^{ab}	0.02**
Gender				
Female (81.3%)	10 (%71.4)	18 (%78.3)	37 (%86.1)	0.209*
Male (18.7%)	4 (%28.6)	5 (%21.7)	6 (%13.9)	
Presence of puberty				
Pubertal (72.5%)	8 (%57.1)	14 (%60.9)	36 (%83.7)	0.052*
Prepubertal (37.5%)	6 (%42.9)	9 (%39.1)	7 (%16.3)	
Presence of goiter				
Physical examination				
Goiter present (46.2%)	7 (%50)	10 (%43.5)	20 (%46.5)	0.927*
Goiter absent (53.8%)	7 (%50)	13 (%36.5)	23 (%53.5)	
USG finding				
Goiter present (40%)	8 (%57.1)	10 (%43.5)	14 (%35.0)	0.342*
Goiter absent (60%)	6 (%42.9)	13 (%46.5)	9 (%65.0)	

Discussion-Conclusion

In this study, it was found that

- the most common complaints at presentation in subjects with a diagnosis of HT included goiter (29.8%), weakness (23.8%) and increased weight 25%)
- the frequency of CD was 1.25% (1/80). Although a higher frequency of CD was found in our subjects compared to the frequency in healthy children, studies with a much higher number of subjects are needed to justify screening of CD in subjects with HT