

The Thyroid in Behcet's Disease: Hormonal and Ultrasonographic Findings

Behçet Hastalığında Tiroid: Hormonal ve Ultrasonografik Değerlendirme

Reyhan Ersoy, Osman Ersoy*, Semih Tatlıcan**,
Özlem Yayar***, Mehmet Gümüş****, Bekir Çakır

Ankara Atatürk Education and Research Hospital, Department of Endocrinology and Metabolism,, Ankara, Turkey

*Hacettepe University, Faculty of Medicine, Department of Gastroenterology, Ankara, Turkey

**Ankara Diskapı Education and Research Hospital, Department of Dermatology, Ankara, Turkey

***Ankara Atatürk Education and Research Hospital, Department of Radiology, Ankara, Turkey

Abstract

Objective: Behcet's Disease (BD) is accepted as a systemic vasculitis of unknown etiology that affects vessels of different type, size and localization. The thyroid gland, being a highly vascular organ, may be involved in clinical spectrum of BD. We aimed to investigate the involvement of thyroid in BD.

Material and Method: A total of 50 patients, diagnosed BD and 50 healthy controls with no known disease were included in the study. The study group was evaluated by clinical examination, thyroid function tests, thyroid autoantibodies and thyroid ultrasonography.

Result: There was no difference between the groups in respect to thyroid function tests, autoantibodies and thyroid volumes ($p > 0.05$).

Conclusion: Thyroid pathology does not seem to be included in the clinical spectrum of BD. *Turk Jem 2007; 11: 70-2*

Key words: Behçet Disease, thyroid, vasculitis

Özet

Amaç: Behçet Hastalığı (BH) nedeni bilinmeyen, farklı özellikte damarları etkileyebilen, sistemik bir vaskülitir. Vaskülarizasyonu yoğun bir organ olarak tiroid glandı Behçet Hastalığı klinik spektrumu içinde yer alabilir. Çalışmamızda BH' da tiroid glandının bazal hormonal durumunu ve ultrasonografik bulgularını değerlendirmeyi amaçladık.

Gereç ve Yöntem: 50 Behçet hastası ve 50 sağlıklı gönüllü çalışmaya alındı. Çalışma grubu klinik muayene, tiroid ultrasonografisi, tiroid fonksiyon testleri, gerekirse tiroid sintigrafisi ve TİİAB ile değerlendirildi.

Bulgular: Gruplar arasında tiroid fonksiyon testleri, otoantikör düzeyleri ve tiroid volümleri arasında farklılık izlenmedi ($p > 0.05$).

Sonuç: Tiroid patolojisi BH' nın klinik spektrumuna dahil görülmemektedir. *Turk Jem 2007; 11: 70-2*

Key words: Behçet Hastalığı, tiroid, vaskülit

Introduction

Behcet's Disease (BD) is an inflammatory disorder of unknown etiology, which is characterized by recurrent oral and genital aphthous ulcers, eye inflammation, skin lesions of erythema nodosum, and acneiform eruptions. Joints, central nervous system, large vessels and gastrointestinal tract are also frequently involved (1). BD is considered an autoimmune disorder because of the common denominator of vasculitis in most patients. The thyroid gland,

being a highly vascular organ, may also be considered to be involved in clinical spectrum of BD. In literature, there is little knowledge about the thyroid diseases in BD (2). Our study investigated the involvement of thyroid in BD.

Material and Methods

Patients and Controls

Consecutive patients with Behcet's disease attending out-patient clinic of Dermatology, were screened for the study using diagnos-

tic criteria as proposed by the International Study Group for BD (1). Patients with a history of clinical evidence of thyroid disease, Cushing disease, pregnancy or taking bromocryptine, somatostatin, oral contraceptives, lithium, antithyroid medication, interferon, perchlorate or sulphonamides; and patients who had undergone radiological examination with iodine- contrast material within the last three days, had a history of iodine- containing medication within the last seven days, or had thyroid surgery were excluded. The general characteristics of the patients are shown in Table 1. All patients were evaluated by clinical examination, thyroid function tests, thyroid ultrasonography, and thyroid scintigraphy (if necessary) for thyroid disease.

As the control group, 50 age and gender matched healthy individuals with no known diseases were included. Their clinical examinations, thyroid function tests and ultrasonographic evaluations of thyroid were normal.

Evaluation of thyroid gland

Thyroid gland was examined by the same author and scored according to World Health Organization (WHO) criteria: Grade 0, no palpable or visible goiter; Grade 1, wide thyroid (IA, only palpable but not visible when neck is normal positions; IB, palpable and visible when neck is in hyperextension); Grade 2, palpable and visible when neck is in normal positions; Grade 3, large goiter visible from a distance. Those are the criteria laid down by the WHO and used routinely to score goiters.

Thyroid function tests

Serum samples were taken from the patients and controls for thyroid function tests in order to measure thyroid hormone levels [free T3 (FT3), free T4 (FT4) and TSH] by Abbot- Architect machine using chemiluminescence method. Serum Thyroglobulin (Tg), thyroid peroxidase antibody (Anti-TPO Ab) and Thyroglobulin antibody (Anti-Tg Ab) levels were measured by commercial kits using radioimmunoassay method.

Ultrasonography of thyroid

Siemens Sonoline SL-1 with 7.5 MHz linear probe was used for ultrasonography evaluation of thyroid. The patient laid in a supine

position with his/ her neck in hyperextension, and the skin was coated with acoustic material. The thyroid gland was scanned in three dimensions. The thickness, width (in transverse plan), and length (in longitudinal plan) of each lobe were measured by longitudinal and transverse scans. Volume for each lobe was calculated using the following formula (3);

$$\text{Volume (mL)} = \pi/6 \times \text{width} \times \text{thickness} \times \text{length}$$

Total volume was determined by summation of lobe volumes, excluding the isthmus. Thyroid nodule/ nodules were defined if present.

Thyroid scintigraphy

Thyroid scintigraphy was performed on the patients who had either thyroid function disorder or in whom nodule/ nodules had been detected by a prior clinical examination or thyroid ultrasonography. Technetium (Tc) 99m pertechnetate was used for isotopic evaluation of thyroid gland. Thyroid scintigraphy was taken using pinhole collimator gamma camera 20-40 minutes after i.v. injection of 5 mCi Tc 99m pertechnetate to the patients.

Statistics

Statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS) 10.0 software package program. Data were analyzed by definitive statistics (mean ± standard deviation, maximum, minimum, percentage). Data between groups were compared with independent sample t test and Fisher's exact chi-square test. P values less than 0.05 were considered statistically significant.

Results

Patient's characteristics are shown in Table 1. There were 23 female and 27 male patients having mean age 37.5 ± 12.3 years (16- 65 years). The mean follow up time was 31 ± 18 months (12- 72 months).

In examinations of thyroid gland, 37 of 50 patients had Grade 0, 8 had Grade IA, 4 had Grade IB, 1 had Grade II. The results of study are summarized in Table 2. Thyroid function tests were within normal limits in both patients and controls. There was not statistically significant difference between two groups (p>0.05).

Anti TPO Ab and Anti Tg Ab were positive in two Behçet's patients. There was no statistically significant difference between patients and control groups in Anti TPO Ab and Anti Tg Ab levels (p>0.05). In addition to that, a significant relationship was not detected between disease activity and positive thyroid auto- antibodies also.

When patient and control groups were compared for thyroid volumes, the difference was not statistically significant (p>0.05).

Table 1. General characteristics of Behçet's Patients

Age, (years)	37.5 ± 12.3 (16- 65)
Female/ male (F/M) ratio	23 / 27
F/M in active phase	12 / 18
Mean duration of the disease, (months)	31 ± 18 (12- 72)
HLA B5 (+), %	90
Recurrent oral ulcers, %	100
Eye lesions, %	28
Genital ulcers and skin lesions, %	98
Arthralgia, %	40
Deep vein thrombosis, %	0
Positive pathology test, %	96
Colchicines use/ number of patients	33 / 50
Nodular or multinodular thyroid	3/50
FNAB results	
Benign	3/3
Malign	-
Suspicious	-
Insufficient	-

Table 2. Ultrasonography and laboratory findings in study group

	Patients (n= 50)	Controls (n= 50)	p
FT3 (pg/mL)	3.12 ± 1.3	3.42 ± 1.5	0.828
FT4 (ng/ dL)	1.14 ± 0.97	1.22 ± 0.88	0.891
TSH (µU/mL)	2.25 ± 0.78	2.12 ± 0.83	0.776
Thyroglobulin (ng/ mL)	13.07 ± 4.27	11.94 ± 4.56	0.734
Anti TPO Ab (U/ml)	24.51 ± 8.45	22.43 ± 7.31	0.635
Anti Tg Ab (IU/ml)	16.82 ± 9.32	14.11 ± 6.27	0.662
Thyroid volume (mL)	16.45 ± 3.05	17.31 ± 3.58	0.849

In ultrasonography, there were one multinodular goiter, two nodular goiters and four diffuse hyperplasia, among Behçet's patients. All nodules were evaluated as hypoactive by scintigraphy so that ultrasonography guided fine needle aspiration biopsy (FNBA) was performed to the nodules, which were reported benign histologically. Pustula formation was not detected at FNBA sites in follow-up period.

Discussion

There was only one study investigating the relationship between BD and thyroid disease in literature. Aksu et al. compared the thyroid function tests in 48 patients with BD and 25 healthy controls demonstrating no statistically significant difference. In the study, Anti TPO Ab and Anti Tg Ab were found positive in five patients. However, no significant relationship was observed between disease activity and incidence of thyroid autoantibodies (2) just like in our results except evaluated thyroid volumes. Comparison of thyroid volumes between patient and control groups showed no difference. In addition to that, patient and control groups displayed no difference when compared for Anti TPO Ab and Anti Tg Ab levels. Anti TPO and Anti Tg antibodies were found in only 4% of our patients, thus excluding a relevant role for these autoantibodies in the pathogenesis of thyroidal involvement in BD.

BD is a multisystem disease with unknown etiology since Professor Hulusi Behçet described the disease in 1937; many theories concerning the etiopathology have been suggested (4). Bacteria and viruses have been suspected as the causative agents, but without clear-cut evidence (5). Today, BD is accepted an autoimmune disorder because of the most probable underlying basis for the lesions is believed to be vasculitis (6,7). Vasculitis and its conse-

quences may be the primary manifestation of a disease (e.g., BD); alternatively, vasculitis may be a secondary component of another primary disease (8). The thyroid gland, as a highly vascular organ, may also be considered to be involved in clinical spectrum of BD. However, unlike most autoimmune diseases, nuclear, thyroid and gastric autoantibodies are not found in greater proportion in BD than in the normal population. According to our study, thyroid pathology does not seem to be included in the spectrum of BD. It is probably associated with blood flow of thyroid and the lack of measuring of blood flow of inferior thyroidal artery might be the possible limitation of the present study.

References

1. International Study Group for Behçet's Disease: Criteria for diagnosis of Behçet's disease. *Lancet* 1990; 335: 1078-80
2. Aksu K, Oksel F, Keser G, et al. Thyroid functions in Behçet's disease. *Clin Endocrinol* 1999; 50: 405-7.
3. Gomez JM, Marawall FJ, Gomez N, et al. Pituitary- thyroid axis, thyroid volume and leptin in healthy adults. *Horm Metab Res* 2002; 34: 67-71.
4. Behçet H. Über rezidivierende aphthöse, durch ein Virus verursachte Geschwüre am Mund, am Auge und an den Genitalien. *Dermatol Wochenschr* 1937; 105:1152.
5. Lehner T. The role of heat shock protein, microbial and autoimmune agents in the etiology of Behçet's Disease. *Int Rev Immunol* 1997; 14: 21-32.
6. Lehner T, Batchelor JR, Challacombe SJ, et al. An immunogenetic basis for the tissue involvement in Behçet's syndrome. *Immunology* 1979; 37: 875-900.
7. Osormagan G, Saylan T, Azizlerli G, et al. Reevaluation of the pathergy test in Behçet's Disease. *Acta Dermatol Venerol* 1991; 71:75-6.
8. Fauci AS. The vasculitis syndrome; in KJ Isselbacher, E Braunwald, JD Wilson, JB Martin, AS Fauci, DL Kasper (eds): *Harrison's Principles of Internal Medicine*, 13th ed. McGraw Hill, Inc 1994; 1670-1.