

Coexistence of hashimoto's thyroiditis with papillary thyroid carcinoma: a single center experience

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Abstract

Aim: A positive correlation between Hashimoto's thyroiditis (HT) and papillary thyroid cancer (PTC) is determined in studies based on histopathological examination of the thyroidectomy materials, but this correlation is not determined in studies based on Fine Needle Aspiration Biopsy (FNAB). In this study, the histopathologic results of bilateral total thyroidectomy (TT) specimens were studied for outcomes of PTC association with HT and its relationship with clinical and pathological prognostic factors.

Material and Methods: Demographic data, thyroidectomy indications and pathology results of 568 patients with performed TT between April 2009 March 2016 were collected. PTC identified patients, were evaluated in terms of HT association. In these patients, the prognostic factors were evaluated according to coexistence of HT.

Results: The average age of the patients was 48.9 years and M / F ratio was 1: 3.5. HT was detected in 36 patients and PTC in 121 patients by histopathological examinations. PTC incidence in HT group was higher than non-HT group. ($p = 0.025$). HT incidence in PTC group was higher than non-PTC group ($p = 0.025$). When compared in terms of demographic and prognostic data of PTC patients, no statistically significant difference was detected between PTC with and without HT groups.

Conclusion: PTC detection rate in patients with HT, who has indication for thyroidectomy is higher than non-HT patients. HT patients (especially female sex), should be followed closely, in terms of the development of malignant nodules.

Keywords: Hashimoto's Thyroiditis; Papillary Thyroid Cancer; Thyroidectomy.

INTRODUCTION

Hashimoto's thyroiditis (HT) is one of the most common autoimmune thyroid disease and papillary thyroid carcinoma (PTC) is the most common thyroid cancer. The relationship between PTC and HT is still controversial since first described by Dailey et al in 1955 (1). In a literature review, the rate of PTC accompanied with HT is determined as 27.56% in histopathological examination of thyroidectomy specimens and 1.20% in population-based FNAC (2). Lee JH et al, reported that, in case of PTC associated with HT, multifocality is more common, female sex is more frequent, and tumour extra-tiroideal invasion and lymph node metastasis is less than PTC alone, and have better prognosis (3).

In this study, histopathological examination results of thyroidectomy specimens are analyzed to determine the

relationship between HT and PTC, clinical and histopathological properties and the prognostic criteria of PTC with HT versus PTC alone.

MATERIALS and METHODS

We collected the data of TT performed at our institution between April 2009 and March 2016. Lobectomy or lobectomy with isthmus resection cases are excluded from the study. Of the remaining 568 patients demographic data (age, gender) and thyroidectomy indications, and histopathologic examination results of thyroidectomy specimens are documented. The histopathological confirmation of PTC in this group is divided into two groups as PTC with HT and PTC without HT.

Chronic lymphocytic thyroiditis or other lymphocytic thyroiditis are not documented as HT. After than prognostic data (number of tumours, biggest diameter of dominant tumour, presence of extrathyroidal extension, lymph node metastasis, TNM stage) of PTC patients are documented. The indication for TT in the study group was: malignant or indeterminate cytology such as follicular neoplasm, malignancy suspicion, existence of atypical cells in follicular lesions or cosmetic problems due to huge thyroid nodule or goiter.

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Statistical analysis

For statistical analysis, "SPSS for Windows Release 15" program was used. According to the availability comparisons between groups were performed using chi-square and t-test. P value less than 0.05 was considered as statistically significant.

RESULTS

In this period we performed 568 TT. Male/female (127/441) ratio was 1:3,5. Mean age of patients was 48,9 at the time of surgery.

Hashimoto's Thyroiditis was detected in 36 (6.3%), and PTC was detected in 121 (21.3%) patients in histopathological examination of thyroidectomy materials (Table 1). Thyroid cancer incidence in HT group was 44.4%, and 24.1% in non-HT and it was significantly higher (p = 0.007). Likewise, the incidence of PTC in HT group (36.1%) was significantly higher than the incidence of PTC in non-HT group (20.3%) (p = 0.025). And also HT prevalence in PTC group (10.7%) was significantly higher than the prevalence of HT in non-PTC group (5.1%) (p = 0.025).

In the patients that PTC diagnosis is confirmed at histopathological examination of TT specimens' results, when compared in terms of gender, age, tumor size, multicentricity, capsular/lymphovascular invasion, lymph node metastasis, TNM staging, there was no statistically significant difference between PTC with and without HT group (Table 2).

Table1. Histopatological diagnosis of 568 patients

Histopatological Diagnosis	n (%)
Malignancy	144 (25,4)
Papillary Thyroid Cancer	121 (21,3)
Follicular Thyroid Cancer	11 (1,9)
Medullary Thyroid Cancer	3 (0,5)
Anaplastic Thyroid Cancer	3 (0,5)
Other	6 (1)
Benign	424 (74,6)
Total	568 (100)

Table 2. Clinicopathological characteristics of 121 PTC patients with or without HT

	PTC with HT n=13 (%)	PTC without HT n=108	p-value
Age (years)	50,5±17,7	48,9±14,7	0,721
Gender (male:female)	1:12	1:5,35	0,441
Tumour size (cm)	1,58±1,83	1,88±1,83	0,585
≤ 1 cm	8 (61,5)	40 (37,0)	
> 1cm	5 (38,5)	68 (63,0)	
Capsullerinvation	2 (15,4)	45 (41,7)	0,066
Lymphovascularinvasion	2 (15,4)	23 (21,3)	0,619
Multifocality	4 (30,8)	37 (32,3)	0,802
Lenf nodemetastasis	-	21 (19,4)	0,185
TNM stage			0,547
I	11 (84,6)	71 (65,7)	
II-IV	2 (15,4)	37 (34,3)	

DISCUSSION

In our study, PTC incidence in HT group was significantly higher than the incidence of PTC in non-HT group. A strong relationship between HT and PTC is usually detected in studies based on histopathological examination of thyroidectomy specimens (3-9). However, this relationship was not reported in a limited number of studies (10, 11). In large part of the studies based on the cytological examination results of FNAB, it is reported that incidence of PTC is not increased in HT patients and HT is not a risk factor for PTC (12, 13). In a literature review performed at 2013, coexistence of HT with PTC was reported as 27.56% in studies based on histopathologic results of thyroidectomy specimens, and 1.2% in studies based on cytological results of FNAB. They explain this variability as a result of different methods of obtaining specimens and heterogeneity in the population under investigation in terms of ethnic, geographic, and gender differences in included studies. They indicate that the lack of the studies which depends on FNAC results are, absens of definitive pathology and the selection bias for thyroidectomy reports (2).

In our study, we find that some prognostic factors such as tumor size, capsules and lymphovascular invasion, and lymph node metastasis rate was lower in patients PTC with HT group than in PTC without HT group. But it was not statistically significant. Although it is not statistically significant, our study showed that, the TNM staging of PTC patients in HT group had a higher proportion of stage I than the PTC patients in non-HT group. These results were compatible with the literature and these results can be suggestive that the tumor's biological behavior is better in the case of HT or its due to the close follow-up of HT patients for thyroid disorders (3, 6, 9, 14).

In our study, the average age of the PTC patients with HT were higher than the PTC patients without HT. In addition, many studies reported that PTC patients with HT is younger (6, 8). This mismatch, may be due to the small number of PTC patients with HT in our study group. No relationship between the mean age of the PTC patients with HT and without HT was reported by Ju-Han Lee et al. in 2013 (3).

We find that the female/male ratio was higher in PTC patients with HT than without HT patients as reported in literature (3). Hence we can say that the female sex, generate more risk in terms of the development of PTC in patients with HT.

CONCLUSION

As a result, depending on the present study and other published studies, we can say that, HT patients with nodules that require thyroidectomy, has a higer rate of malignancy (especially PTC) than non-HT patients at histopathological examination of thyroidectomy specimens. We also think that HT patients (especially female sex), should be followed closely, in terms of the development of malignant nodules.

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