CLINICAL CHARACTERISTICS OF THYROID PAPILLARY CARCINOMA PATIENTS WITH CLT AND EFFECT ON LYMPH NODE METASTASIS

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ABSTRACT

Objective*: To investigate the clinical characteristics of thyroid papillary carcinoma patients with CLT and effect on lymph node metastasis.*

Methods: *Clinical data of 2,133 thyroid papillary carcinoma patients admitted to our hospital from January 2015 to December 2019 were analyzed retrospectively, including 505 cases with CLT. The clinicopathologic data of thyroid papillary carcinoma patients with and without CLT were compared and logistic regression model was used to analyze the independent influencing factors of lymph node metastasis in thyroid papillary carcinoma patients.*

Results: *1) The male proportion, age, lymph node metastasis rate and central lymph node me-tastasis rate of thyroid papillary carcinoma patients with CLT were significantly lower than those without CLT (P<0.05). 2) The results of univariate analysis showed that the incidence of lymph node metastasis in patients who were male, aged < 40, with a long diameter of lymph node >1cm, multiple lesions, capsule invasion and CLT were significantly higher than that of other subgroups (P<0.05). Meanwhile, the incidence of ≥6 lymph node metastases in patients who were male, aged < 40, with a long diameter of lymph node > 1cm, multiple lesions, capsule invasion and CLT were significantly higher than that of other subgroups (P<0.05). 3) Multivariate analysis showed that male, aged <40, long diameter of lymph node >1cm, multiple lesions and capsule invasion were all independent risk factors for lymph node metastasis and ≥6 lymph node metastases (P<0.05). CLT was the independent protective factor for patients with lymph node metastasis (P<0.05).*

Conclusion: *Most patients with thyroid papillary carcinoma with CLT are female, younger and have lower risks of lymph node and central lymph node metastasis; CLT is an independent protective factor for lymph node metastasis*

Keywords: *Chronic lymphocytic thyroiditis, thyroid papillary carcinoma, clinical characteristics, lymph nodes, metastasis.*

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Introduction

Thyroid papillary carcinoma is one of the most common thyroid malignant tumors. In recent years, with the maturity of ultrasonography and FNA technique in physical examinations, its incidence rate and number of cases have been increasing year by year[1]. Some scholars report that a considerable number of thyroid papillary carcinoma patients are accompanied by CLT[2-3], but the proportion of this population in the total population varies greatly among different reports, ranging from 13.0% to 45%.

However, there are relatively few reports on whether thyroid papillary carcinoma patients with CLT have unique clinical characteristics, especially their relationship with lymph node metastasis. For this reason, in this paper, clinical data of 2,133 early thyroid papillary carcinoma patients admitted to our hospital from January 2015 to December 2019 were analyzed retrospectively, with a view to explore the clinical characteristics of thyroid papillary carcinoma patients with CLT and effect on lymph node metastasis. Below, the process will be reported.

Data and method

General data

2,133 early thyroid papillary carcinoma patients admitted to our hospital from January 2015 to December 2019 were included in this study, including 505 cases with CLT.

Inclusion criteria:

• All of the patients had undergone surgeries for the first time;

• The thyroid papillary carcinoma was confirmed by needle biopsy or histopathological test[4].

• At least central lymph node dissection was performed;

• Aged ≥18;

• The clinical data was complete.

Exclusion criteria:

• Other types of thyroid carcinoma;

• With a previous history of neck surgery;

• With surgical contraindications.

The study protocol complied with Declaration of Helsinki and the patients and their families gave informed consent.

Method

Through a review of inpatient records, the patients' gender, age, long diameter of lymph node, number of lesions, capsule invasion and lymph node dissection were recorded. Lymph node metastasis was confirmed by histopathological test.

Statistical method

SPSS20.0 software was selected to analyze the data. Among them, the enumeration data were compared by a χ^2 test or Fisher's exact test and expressed as %. Logistic regression model was used for multivariate analysis. P<0.05 was considered to be statistically significant.

Results

Comparison between thyroid papillary carcinoma patients with and without CLT in terms of clinicopathologic data

The male proportion, age, lymph node metastasis rate and central lymph node metastasis rate of thyroid papillary carcinoma patients with CLT were significantly lower than those without CLT (P<0.05). See Table 1.

Univariate analysis of lymph node metastasis in thyroid papillary carcinoma patients with CLT

The results of univariate analysis showed that the incidence of lymph node metastasis in patients who were male, aged <40, with a long diameter of lymph node >1cm, multiple lesions, capsule invasion and CLT were significantly higher than that of other subgroups (P<0.05). Meanwhile, the incidence of ≥6 lymph node metastases in patients who were male, aged <40, with a long diameter of lymph node >1cm, multiple lesions, capsule invasion and CLT were significantly higher than that of other subgroups (P<0.05). See Table 2.

Index	With CLT (n=505)	Without CLT (n=1628)	*P*
Gender			0.00
M	455	1143	
F	50	485	
Age			0.02
<40 yrs	195	569	
≥40 yrs	310	1059	
Long diameter of lymph node			0.32
≤1cm	356	1174	
>1cm	149	454	
Multiple lesions			0.56
Y	312	1025	
N	193	603	
Capsule invasion			0.88
Y	211	685	
N	294	943	
Lymph node metastasis			0.00
Y	215	828	
N	290	800	
≥6 lymph node metastases			0.29
Y	66	236	
N	439	1392	
Central lymph node metastasis			0.00
Y	207	811	
N	298	817	
Lateral neck lymph node metastasis			0.15
Y	69	192	
N	436	1436	

Table 1: Comparison between thyroid papillary carcinoma patients with and without CLT in terms of clinicopathologic data.

Index	Lymph node metastasis (case)	*P*	≥6 lymph node metastases (case)	*P*
Gender		0.00		0.00
M	716		189	
F	327		114	
Age		0.00		0.00
<40 yrs	484		181	
≥40 yrs	559		122	
Long diameter of lymph node		0.00		0.00
≤1 cm	619		126	
1.1~2 cm	339		128	
>2cm	85		49	
Multiple lesions		0.00		0.00
Y	462		156	
N	581		147	
Capsule invasion		0.00		0.00
Y	509		174	
N	534		129	
With CLT		0.00		0.36
Y	215		67	
N	828		236	

Table 2: Univariate analysis of lymph node metastasis in thyroid papillary carcinoma patients with CLT.

Multivariate analysis of lymph node metastasis in thyroid papillary carcinoma patients with CLT

Multivariate analysis showed that male, aged <40, long diameter of lymph node >1cm, multiple lesions and capsule invasion were all independent risk factors for lymph node metastasis and ≥6 lymph node metastases (P<0.05). CLT was the independent protective factor for patients with lymph node metastasis (P<0.05), but was not related to the occurrence of ≥6 lymph node metastases (P>0.05). See Table 3.

Risk factor	Lymph node metastasis			≥6 lymph node metastases		
	OR	95%CI	*P*	*OR*	95%CI	*P*
Male	1.97	1.31~2.94	0.00	1.73	1.38~2.45	0.00
Aged < 40	2.74	2.15~3.01	0.00	3.26	2.78~4.93	0.00
Long diameter of lymph node						
≤1 cm	1.00	-	-	1.00	-	-
1.1~2 cm	2.02	1.63~4.07	0.00	3.82	2.53~4.90	0.00
>2cm	4.97	2.85~7.14	0.00	8.70	6.53~10.97	0.00
Multiple lesions	1.83	1.77~2.85	0.00	1.49	1.23~2.67	0.00
Capsule invasion	1.46	1.18~1.95	0.00	1.72	1.40~2.25	0.00
With CLT	0.76	0.61~0.93	0.00	1.04	0.75~2.01	0.74

Table 3: Multivariate analysis of lymph node metastasis in thyroid papillary carcinoma patients with CLT.

Discussion

In this study, a total of 2,133 thyroid papillary carcinoma patients were included, including 505 cases with CLT, accounting for 23.68% of the total. Similar to previous reports[5], women had a higher proportion in the patients with CLT in this study, which, in the author's opinion, can be related the higher estrogen level and higher estrogen receptor expression of women. Estrogen was also an important inducer of CLT[6].

Moreover, the age of thyroid papillary carcinoma patients with CLT was significantly lower than that of patients without CLT, which was also consistent with previous reports[7]. However, there was still much debate as to whether thyroid papillary carcinoma with CLT was less invasive. According to the results of this study, there were no statistically significant differences between thyroid papillary carcinoma patients with and without CLT in terms of long diameter of lymph node, multiple lesion ratio and capsule invasion ratio (P>0.05).

Previous studies have showed that thyroid papillary carcinoma patients were prone to lymph node metastasis, with an incidence rate of up to 18%~90%[8]. In the present study, the lymph node metastasis rate of thyroid papillary carcinoma patients with CLT was significantly lower than that of patients without CLT (P<0.05), which coincided with the findings of foreign scholars[9-10]. On the other hand, the inclusion of thyroid papillary carcinoma in previous studies adopted a uniform mode, and the inclusion and exclusion criteria were similar to this study. The central lymph node metastasis rate of patients with CLT was significantly lower than that of patients without CLT (P<0.05), and there was no statistically significant difference between two groups in terms of lateral neck lymph node metastasis rate (P>0.05). Some reports posited that the effect of CLT on the lymph node metastasis risk of thyroid papillary carcinoma patients was closely related to autoimmune response[11-12]. When the two occurred concurrently, a lot of cytotoxic T lymphocytes, macrophages and antibodies, et. can be formed locally in the body, and further enhance the dual effects of killing tumor cells and inhibiting tumor spread.

According to the results of this study, multivariate analysis showed that male, aged <40, long diameter of lymph node >1cm, multiple lesions and capsule invasion were all independent risk factors for lymph node metastasis and ≥6 lymph node metastases (P<0.05). CLT was the independent protective factor for patients with lymph node metastasis (P<0.05), indicating that male, low age, long diameter of lymph node, multiple lesions and capsule invasion had a higher risk of lymph nodes, especially massive lymph node metastasis, and CLT was the only protective factor. The reports of foreign scholars confirmed that the 10-year follow-up survival rate of thyroid papillary carcinoma patients with CLT can be up to 99%, while the survival rate of patients without CLT was only 92%[13]. The author contended that this may be associated with the lower lymph node metastasis risk of thyroid papillary carcinoma patients with CLT. However, CLT had nothing to do with the number of lymph node metastases in thyroid papillary carcinoma patients. ATA guidelines held that if thyroid papillary carcinoma patients had ≥6 lymph node metastases, the longterm recurrence risk would be significantly increased and result in poor prognosis[14]. Our study didn't support that thyroid papillary carcinoma patients with CLT had fewer lymph node metastases. Some of the research findings argued that , thyroid papillary carcinoma patients with CLT tended to have more lymph nodes around the glands, which may be attributed to reactive hyperplasia and enlargement of lymph nodes caused by longterm inflammation[15-16]. The

author suggested that for N0 thyroid papillary carcinoma patients with CLT, we should make a comprehensive assessment before prudently deciding on whether preventive central lymph node dissection should be administered[17-30].

Once we decided to administer central lymph node dissection, in order to guarantee a thorough dissection and lower the recurrence risk, thyroid papillary carcinoma patients with CLT needed to undergo a more careful and comprehensive central lymph node dissection during surgery, to avoid omitting lesions and lower the risk of reoperation.

In summary, most patients with thyroid papillary carcinoma with CLT are female, younger and have lower risks of lymph node and central lymph node metastasis; CLT is an independent protective factor for lymph node metastasis.

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