

Analysis of Pathological Features of Thyroid Carcinoma in Dali, Yunnan

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Abstract

Objective: To analyze the developmental characteristics and pathological features of thyroid cancer patients in Dali area, and to provide basis for the prevention and treatment of thyroid cancer.

Methods: The clinical data of thyroid cancer patients admitted to the First Affiliated Hospital of Dali University from 2012 to 2021 were retrospectively analyzed. The pathological characteristics of thyroid cancer were analyzed by SPSS 25.0 and Microsoft Excel 2007 from the aspects of ethnicity, gender and age.

Results: Through the analysis of 635 patients with thyroid cancer, the incidence of thyroid cancer was increasing. More than half of patients were diagnosed by physical examination; There were 101 male patients (46 in han nationality, 40 in Bai nationality, and 14 in other ethnic groups), and the onset peak was 34-49 years old. There were 534 female patients (248 in Han nationality, 189 in Bai Nationality, and 98 in other ethnic groups), and the onset peak was 42-49 years old. Papillary carcinoma is the most common pathologic type of thyroid carcinoma.

Conclusion: In the past 10 years, the number of thyroid patients in Dali area has been increasing year by year, the incidence of papillary carcinoma is the first, the incidence of middle-aged and young female patients is higher than that of male patients, there is a significant difference in the incidence ratio of male and female thyroid cancer in different ethnic groups, but there is no significant difference in the distribution of pathological types in different ethnic groups.

Keywords: Dali area; Thyroid cancer; Clinical data; Development characteristics; Pathological characteristics

Introduction

Thyroid cancer originates from paracolicular or follicular thyroid cells and is the most common malignancy of the endocrine system, and its incidence continues to increase [1]. It accounts for 3.4% of all cancer cases diagnosed annually worldwide. There are about 550,000 thyroid cancer cases annually worldwide, and the global prevalence is 10.2 per 100,000 women and 3.1 per 100,000 men, indicating that women account for about 75% of thyroid cancer cases worldwide, and they are also one of the top ten malignant tumors that women are prone to in China. Increasing diagnostic evidence for thyroid cancer suggests that the disease may now be an epidemic, and that multiple causes may contribute to morbidity [2]. Dali area is a multi-ethnic living area, and the occurrence and development of some diseases have ethnic or regional characteristics. This study collected a systematic review of thyroid cancer cases from the First Affiliated Hospital of Dali University in the past 10 years, and made a preliminary analysis of the incidence trend and pathological characteristics of thyroid cancer in this region.

Data and Methods

Subjects

Through the hospital medical record system to collect Dali university first affiliated hospital of by pathological diagnosis in our hospital at 2012-2021 clinical data of 635 patients with thyroid cancer, including their gender, age, nationality, occupation, course of the distribution of different pathological types and the status quo and statistical analysis.

Research methods

Microsoft Excel software was used to collate and proofread the collected data. SPSS 25.0 software was used for descriptive statistical analysis of the incidence trend, age, gender and histopathological types of thyroid cancer patients, and the composition ratio of different pathological types of thyroid cancer was calculated. Measurement data were expressed by mean soil standard deviation ($\bar{X}\pm S$), comparison between groups was performed by T test, count data was expressed by frequency [n(%), comparison between groups was performed by X test or Fisher's exact probability

method, $P < 0.05$ was considered statistically significant.

Results

Trends in thyroid cancer

The number of thyroid cancer patients admitted to our hospital from January 2012 to December 2021 was analyzed by software, as shown in Figure 1. The figure shows that the number of thyroid cancer patients admitted to our hospital increased from 10 in 2012 to 129 in 2021, and the overall number of patients was on the rise.



Figure 1: Annual distribution of thyroid gland in the 635 cases.

The way that the mass was first detected

The methods of first detection of 635 patients with thyroid cancer confirmed by postoperative pathology were analyzed, as

shown in Figure 2: 370 patients were found by physical examination, accounting for 58%; there were 191 people (30%) who found neck lump unintentionally; seventy-four patients (12%) were diagnosed.

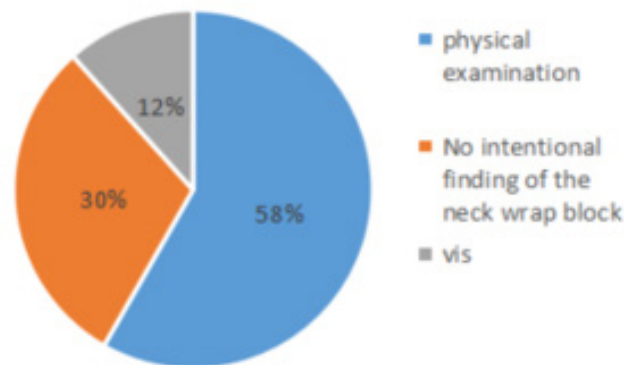


Figure 2: Discovery methods.

Age and gender distribution

A total of 635 patients with thyroid cancer confirmed by postoperative pathology were included in this study. The onset age ranged from 10 to 76 years, with an average onset age of (44.38 ± 11.09) years, and the peak age of onset was 42-49 years. There were 101 males (15.91%) with an average onset age of (39.66 ± 11.64) years; there were 534 females (84.09%) with an

average onset age of (41.24 ± 11.39) years; the male to female ratio was 1:5.29; the male to female ratio was 1:5.39 in Han nationality and 1 in Bai nationality. 4.73. Among other ethnic groups, the male-female ratio is 1:7.00 (Table 1). The peak age of onset was 34 to 49 years in males and 42 to 49 years in females. The incidence of thyroid cancer in women increased rapidly with age from age 10, peaked in the 42-49 age group, and fluctuated thereafter (Figure 3).

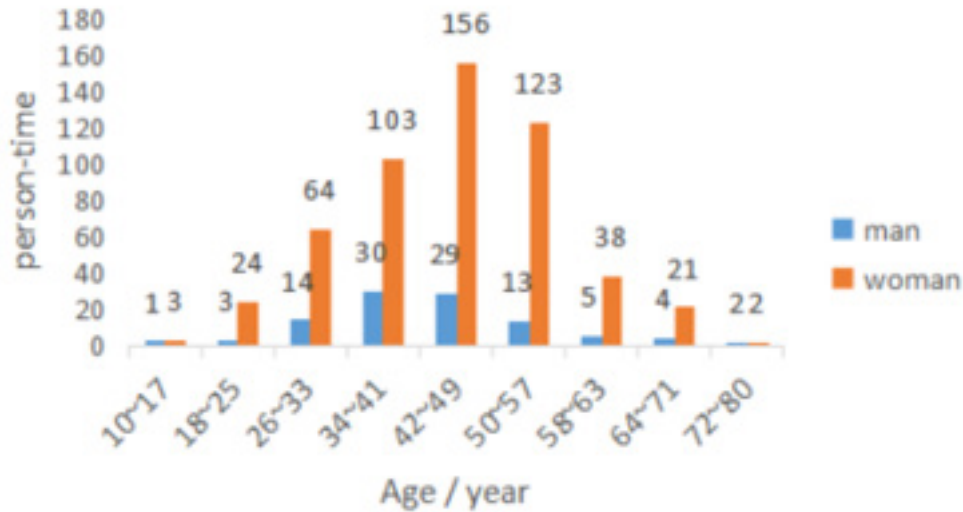


Figure 3: Age and sex distribution of thyroid cancer.

Table 1: Sex distribution of thyroid cancer among different ethnic groups.

	The Han Nationality		The Bai Nationality		Other Ethnic Groups		Amount to
	Man	Woman	Man	Woman	Man	Woman	
2012	2	3	1	2	0	2	10
2013	0	8	1	3	0	0	12
2014	0	4	1	4	1	1	11
2015	5	29	3	22	1	14	74
2016	4	26	1	24	0	14	69
2017	5	18	3	14	3	7	50
2018	3	35	6	24	1	12	81
2019	10	24	8	27	4	17	90
2020	6	52	7	31	1	12	109
2021	11	49	9	38	3	19	129
amount to	46	248	40	189	14	98	635

Occupational

Analysis of 635 patients with thyroid cancer confirmed by postoperative pathology, including 416 manual workers, accounting

for 66%; There are 179 mental workers, accounting for 28%; Forty are self-employed or self-employed, accounting for 6% (Figure 4).

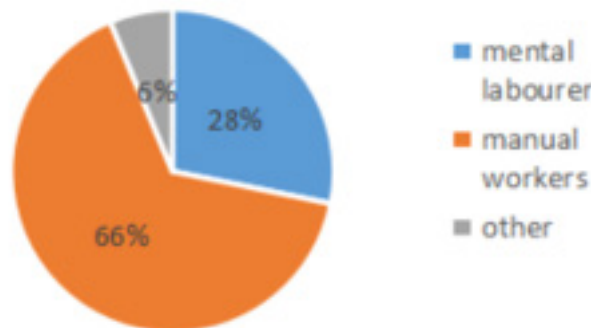


Figure 4: Occupational distribution.

Course of disease and pathological type

Among the 635 patients with thyroid cancer, the shortest duration was 1 day and the longest duration was 30 years. Among them, 462 cases (72.8%) had onset time less than 1 year, 164 cases (25.8%) had onset time between 1 and 9 years, and 9 cases (1.4%) had onset time more than 10 years. Pathological examination revealed that papillary adenocarcinoma ranked first in 612 cases (96.4%), followed by follicular carcinoma in 10 cases

(1.6%), myeloid carcinoma in 7 cases (1.1%), and undifferentiated carcinoma in 6 cases (0.9%) (Figure 5). There were 534 cases of female thyroid carcinoma, including 519 cases of papillary carcinoma (97.2%), 8 cases of follicular carcinoma (1.5%), 4 cases of medullary carcinoma (0.7%), and 3 cases of undifferentiated carcinoma (0.6%). There were 101 male thyroid cancers, including 93 papillary cancers (92.1%), 2 follicular cancers (2.0%), 3 medullary cancers (3.0%), and 3 undifferentiated cancers (2.30%) (Table 2).

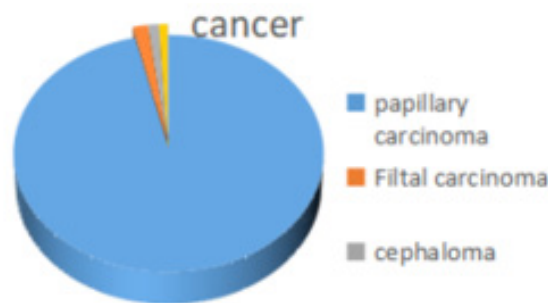


Figure 5: Distribution of the different types of thyroid cancer.

Table 2: Distribution of the different types of thyroid cancer among the different sexes $p < 0.005$.

	Pathology Type			
	Thyroid papillary carcinoma	Follicular carcinoma of thyroid	Medullary carcinoma of thyroid gland	Undifferentiated carcinoma of thyroid gland
man	93	2	3	3
	92.10%	2.00%	3%0	3.00%
woman	519	8	4	3
	97.20%	1.50%	0.70%	0.60%
amount to	612	10	7	6
	96.40%	1.60%	1.10%	0.90%

Ethnic distribution

Among the 635 cases investigated, there were 15 ethnic groups: Han, Bai, Yi, Hui, Lisu, Zhuang, Mosuo, Dulong, A Chang, Dai, Tibetan, Miao, Naxi, Pumi and Tujia, 294 of Han (46.3%), 229 of Bai (36.1%),

and 112 of other ethnic groups (17.6%) (Table 3). The incidence of thyroid cancer types among different ethnic groups. And there was no obvious difference in whether thyroid cancer developed metastasis between different ethnic groups (Table 4).

Table 3: Distribution of thyroid cancer tissue types among different ethnic groups $p > 0.005$.

Type	The Han Nationality	The Bai Nationality	Other Ethnic Groups
nipple	286	220	105
	97.30%	96.10%	93.80%
follicle	5	2	4
	1.70%	0.90%	3.60%
myeloid	2	3	2
	0.70%	1.30%	1.80%
no points	1	4	1
	0.30%	1.70%	0.90%

Table 4: Metastasis of thyroid cancer among different ethnic groups.

	lymphatic Metastasis	
	Yes	Deny
the Han nationality	96	198
the Bai nationality	66	163
other	32	80
amount to	194	441
χ^2, P	1.142, 0.565	

Discussion

The incidence of thyroid cancer has gradually increased in recent years. From 1988 to 2009, the incidence of thyroid cancer in China has increased by 2.36 times, with an average annual increase of 5.92%. Its epidemic trend is geographically different [3]. In China, the incidence of thyroid cancer is higher in the east than in the west, higher in coastal provinces than in inland provinces, higher in cities than in rural areas, and higher in economically developed areas than in economically underdeveloped areas. As a relatively remote province in Yunnan, the incidence of thyroid cancer has also been gradually increasing in recent years [4]. A large number of studies at home and abroad show that the incidence of thyroid cancer may be associated with many factors, including sex, age, residence, iodine intake, obesity, ionizing radiation, and genetic factors [5,6]. Therefore, it is of great significance to fully understand the prevalence status and related risk factors of thyroid cancer for the prevention and treatment of thyroid cancer.

This paper collected 635 patients pathologically diagnosed with thyroid cancer in the period from 2012 of the First Affiliated Hospital of Dali University to 2021, and the number of patients increased year by year in the past 10 years. This may be related to the economic development and population expansion of Dali area in recent years. In response to national policies, the medical level of Dali area has been rapidly developed and improved, the sensitivity of color ultrasound and radiation imaging system has been improved, and the application of fine needle puncture biopsy technology also makes more small cancers with no obvious symptoms are detected, so that the incidence of thyroid cancer continues to increase. And with the improvement of people's economic level, the concept of health has gradually changed imperceptibly, and the number of residents with regular physical examination has gradually increased. Of the 635 thyroid cancer patients collected this time, 58% found the mass for the first time through a physical examination, providing a sufficient basis for subsequent timely treatment. Therefore, it is of great significance to the prevention and treatment of the basic health and treatment of the masses, improve the awareness of disease prevention, and promote the early detection, early diagnosis and early treatment concept of the masses.

The incidence of thyroid cancer varies by sex and age, with a higher incidence in women than in men. The results of the 2000 Five Continents Cancer Incidence Report showed that the incidence was higher in women than in men, with Chinese women 3.38

times higher than men [5]. Among the 635 thyroid cancer patients surveyed in this study, 101 were male patients and 534 female patients, and the ratio of male to female patients was 1:5.29, and the incidence of female patients was significantly higher than that of male patients [6], which was small compared with other studies at home and abroad, and may be related to the small sample size and geographical restrictions collected, and the sample size can be further expanded for analysis and statistics. In this paper, 635 patients with thyroid cancer had an age range of 10-72 years old, an average age of onset of (44.38±11.09 years), a peak age of onset between 32-49 for men, and a peak age of 40-49 years for women, and the number of men and women decreased with age. This is basically consistent with the results of domestic and foreign studies [7-9]. The increase in female patients is much higher than in men, which may be related to the need for thyroxine during pregnancy and lactation in women during childbearing age.

Among the 635 thyroid cancer patients included in this study, 66% accounted for manual workers and mental workers accounted for 28%. The incidence rate of manual workers was much higher than that of mental workers. This result may be due to the different levels of education, economic level, and health awareness accepted by different professions. This is in line with the findings of a Swedish study that a highly educated population may have a comprehensive understanding of thyroid cancer and a better health awareness and reduce thyroid cancer to some extent [10]. Dali is located in a relatively remote area of China. Compared with the economically developed inland areas, the masses have a relatively low degree of cultural education. The economic concept and awareness of regular health examination have not been popularized to the national average level, leading to the majority of manual workers among the incidence of thyroid cancer.

Domestic studies have shown that the pathological types of thyroid cancer in different regions are mainly papillary cancer [11]. Of the 635 thyroid tumor patients, 611 papillary carcinoma, accounted for 96.2% (46.8% of Han nationality, 36.0% of Bai nationality, 17.2% of other ethnic groups), followed by follicular carcinoma, myeloid carcinoma in the third place and the least undifferentiated carcinoma, which is basically consistent with literature reports. This may be related to the increasing improvement of medical technology in recent years, and with the development of ultrasound technology and the application of fine-needle puncture biopsy, the detection rate of papillary thyroid carcinoma has also been improved. In this study, papillary thyroid

carcinoma accounted for 97.2% in women, higher than 92.1% in men, while follicular carcinoma and undifferentiated carcinoma were 2.0%, 3.0%, 3.0% and 3.0% in men, respectively, higher than 1.5%, 0.7% and 0.6% in women, which were statistically significant ($P < 0.05$). This is in line with the findings of a study in Guangdong, where papillary thyroid cancer accounted for higher proportions in women than men and follicular, myeloid, and undifferentiated cancers in men than women [12]. But some studies have also shown that the No. Papillary thyroid carcinoma was higher in women than in men, and follicular, myeloid, and undifferentiated cancers were lower than in men. This may be related to sample size, and needs further understanding and analysis.

Some scholars have found that the incidence of thyroid cancer varies among different ethnic groups [13]. It indicates that the living environment and eating habits in different regions may be related to the occurrence of thyroid tumors. However, some researchers believe that thyroid cancer is not related to ethnic differences [14]. Among the 635 thyroid patients investigated, 294 Han Chinese (46.3%) were included, there were 286 cases (97.3%) of papillary carcinoma, 5 cases of follicular carcinoma (1.7%), 2 cases of medullary carcinoma (0.7%), and 1 case of undifferentiated carcinoma (0.3%); There were 229 cases (36.1%) of Bai ethnic groups, including 220 cases (96.1%) of papillary carcinoma, 2 cases of follicular carcinoma (0.9%), 3 cases of medullary carcinoma (1.3%), and 4 cases of undifferentiated carcinoma (1.7%). No significant differences were also found in the ethnic distribution of subclasses of thyroid cancer. Moreover, through the analysis of the data on the metastasis of thyroid cancer between different ethnic groups, the results show that there is no statistical significance in whether thyroid metastasis occurs between different ethnic groups, suggesting whether the metastasis of the thyroid gland is not related to ethnicity.

As a common malignant tumor in recent years, the incidence of thyroid cancer is increasing year by year. Young and middle-aged women are at the peak of the incidence, and the most common pathological type is papillary cancer. The public's awareness of health examination is being gradually enhanced, and on the other hand, to improve the incidence of thyroid cancer. The state and society should strengthen the health education and medical popularization of young and middle-aged women and people with low education level, improve their awareness of regular physical examination, and early detection and treatment.

Availability of Data and Materials

The dataset used and analyzed, and the materials collected during the current study are available from the corresponding author on reasonable request.

References

- Jemal A, Siegel R, Xu J, Ward E (2010) Cancer statistics, 2010. *CA Cancer J Clin* 60(5): 277-300.
- Li M, Maso LD, Vaccarella S (2020) Global trends in thyroid cancer incidence and the impact of overdiagnosis. *Lancet Diabetes Endocrinol* 8(6): 468-470.
- Baloch ZW, Livolsi VA (2014) Follicular-patterned afflictions of the thyroid gland: Reappraisal of the most discussed entity in endocrine pathology. *Endocr Pathol* 25(1): 12-20.
- Rui L, Yang C, Qingping S, Qiuli Y, Yunfang Z, et al. (2021) Characteristics and temporal trends of incidence and death of thyroid cancer from 2012 to 2016 in Yunnan Province. *Journal of Practical Oncology* 35(06): 489-494.
- Shenglan L, Min Y, Weiwei G (2013) Epidemic status of thyroid cancer and its risk factors. *The Chinese Journal of Preventive Medicine* 14(04): 317-322.
- Pellegriti G, Frasca F, Regalbuto C, Squatrito S, Vigneri R (2013) Worldwide increasing incidence of thyroid cancer: Update on epidemiology and risk factors. *J Cancer Epidemiol* 2013: 965212.
- Shi LY, Liu J, Yu LJ, Lei YM, Leng SX, et al. (2018) Clinic-pathologic features and prognostic analysis of thyroid cancer in the older adult: A seer based study. *J Cancer* 9(15): 2744-2750.
- Wenyi W, Chengthick G, Zumin X, Jianwen L, Xiaodong C, et al. (2019) Clinical characteristics analysis of 854 thyroid cancer patients. *Journal of Clinical Otolaryngology, Head and Neck Surgery* 33(08): 718-721.
- Jiawei S, Xiaojun X, Qiumao C (2013) Analysis of thyroid cancer incidence trends in China. *China* 22(09): 690-693.
- Hemminki K, Li X (2003) Level of education and the risk of cancer in Sweden. *Cancer Epidemiol Biomarkers Prev* 12(8): 796-802.
- Ping P, Ye Qiong S, Xiaomeng J (2017) Changes in the clinical and pathological characteristics of 3,399 thyroid cancer surgery patients, ranging from 1994-2013. *Chinese Journal of Endocrinology and Metabolism* 33(4): 291-295.
- Kai W, Xiaozhou Z, Iru K, Yunbo T (2017) Single center clinical analysis of thyroid malignant tumors in bai population in western Yunnan, China. *Clinical Medicine in China* 24(06): 985-986.
- Lisong Y, Renshun J, Xuemei J (2017) Analysis of the incidence trend of thyroid cancer in Yanbian from 2005 to 2012. *Modern Oncology Medicine* 25(11): 1722-1724.
- Daoyu Y, Yirong J, Xianyue H, Changwei L, Fan H, et al. (2019) Case-control study of risk factors of thyroid cancer in Cangnan County. *Preventive Medicine* 31(04): 385-389.