

# Thyroid cancer incidence in thyroidectomies carried out in Sivas

## Sivas'ta yapılan tiroidektomilerde tiroid kanseri sıklığı

Meriç Emre Bostancı<sup>1</sup>, \*Birkan Bozkurt<sup>1</sup>, Mustafa Atabey<sup>1</sup>, Mehmet İlker Özel<sup>1</sup>, Sinan Soylu<sup>1</sup>, Atilla Kurt<sup>1</sup>, Şahende Alagöz<sup>2</sup>

<sup>1</sup>Department of General Surgery, Cumhuriyet University School of Medicine, Sivas, Turkey

<sup>2</sup>Department of Pathology, Cumhuriyet University School of Medicine, Sivas, Turkey

**Corresponding author:** Dr. Birkan Bozkurt, Genel Cerrahi Anabilim Dalı, Cumhuriyet Üniversitesi Tıp Fakültesi, TR-58140 Sivas, Türkiye

**E-mail:** birkan.bozkurt@gmail.com

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### SUMMARY

**Objective:** Thyroid cancers are the most common malignancy of the endocrine organs. The purpose of this study is to research the thyroid cancer incidence in the thyroidectomies carried out in the province of Sivas and cancer types.

**Methods:** The pathology reports regarding the thyroidectomy operations carried out in the General Surgery Clinic of the School of Medicine, Cumhuriyet University between January 2008 and January 2014 were retrospectively scanned from the archive. The postoperative histopathological findings, belonging to totally 521 cases operated within six years, were evaluated.

**Results:** 122 (23.41%) of the total 521 cases were men and 399 (76.58%) were women. The youngest patient was 15 and the oldest patient was 84 years old, and also mean age of the patients was  $49.02 \pm 13.48$ . The followings were detected in the histopathological examination; nodular hyperplasia in 272 (52.2%) cases, diffuse hyperplasia in 32 (6.1%) cases, lymphocytic thyroiditis in 22 (4.2%) cases, association of nodular hyperplasia and lymphocytic thyroiditis in 30 (5.8%) cases and also thyroid neoplasm in 151 (29%) cases. 9 (5.9%) of 151 neoplasm cases were benign and 142 (94.0%) were malign. As the cancer type, the followings were detected; papillary carcinoma in 133 (25.5%) cases, follicular carcinoma in 3 (0.6%) cases, medullary carcinoma in 2 (0.4%) cases and anaplastic carcinoma in 3 (0.6%) cases, metastases in 1 (0.2%) case. The well differentiated tumour of uncertain malignant potential was detected in 14 (2.7%) cases.

**Conclusion:** The cancer incidence in thyroidectomies carried out in the province of Sivas was recorded as 27.3% and the papillary thyroid carcinoma was the most common carcinoma.

**Keywords:** Thyroidectomy, thyroid cancer

### ÖZET

**Amaç:** Tiroid kanserleri endokrin organların en sık görülen malignitesidir. Bu çalışmanın amacı Sivas ilinde yapılan tiroidektomilerde tiroid kanseri sıklığını ve kanser tiplerini araştırmaktır.

**Yöntem:** Ocak 2008- Ocak 2014 yılları arasında Cumhuriyet Üniversitesi Tıp Fakültesi Genel Cerrahi kliniğinde yapılan tiroidektomi operasyonlarına ait patoloji raporları retrospektif olarak arşivden tarandı. Altı yıl içerisinde opere edilen toplam 521 olguya ait postoperatif histopatolojik bulgular değerlendirildi.

**Bulgular:** Toplam 521 olgunun 122'si (%23,41) erkek, 399'u (%76,58) kadımdı. En genç hasta 15 en yaşlı hasta 84 yaşında olup yaş ortalaması  $49,02 \pm 13,48$  idi. Histopatolojik incelemede 272 (%52,2) olguda nodüler hiperplazi, 32 (%6,1) olguda diffüz hiperplazi, 22(%4,2) olguda lenfositik tiroidit, 30 olguda(%5,8)nodüler hiperplazi ve lenfositik tiroidit birlikteliği, 151 (%29) olguda ise tiroid tümörü saptandı. 151 tümör olgusunun 9'u (%5.9) benign, 142'si (%94,0) malign idi. Kanser tipi olarak 133 (%25,5) olguda papiller karsinom, 3 (%0,6) olguda folliküler karsinom, 2 (%0,4) olguda medüller karsinom ve 3 (%0,6) olguda anaplastik karsinom,1 (%0,2) olguda metastaz saptandı.14 (%2,7) olguda malign potansiyeli bilinmeyen iyi diferensiyel tümör saptandı.

**Sonuç:** Sivas ilinde yapılan tiroidektomilerde tiroid kanseri sıklığı %27,3 olup, en sık papiller tiroid karsinomu görülmektedir.

**Anahtar sözcükler:** Tiroidektomi, tiroid kanseri

## INTRODUCTION

The most common endocrine malignancy is the thyroid cancers<sup>1-3</sup>. It constitutes approximately 1% of all types of cancers and approximately 0.2% of the cancer-related deaths<sup>4, 5</sup>. However, its incidence has been increasing faster than the other malignancies in recent years. The followings have a major role in its aetiology; genetic factors, radiotherapy implementation to head-neck, iodine deficiency, nuclear reactor accidents and hormonal factors<sup>6, 7</sup>. Thyroid cancers are encountered 3-4 times more frequent in women than men<sup>8</sup>. The prevalence is high in the areas where the goitre is endemic. Histologically, mostly papillary carcinomas (60-80%), less follicular carcinoma (15-20%), medullary carcinoma (5-10%) and anaplastic carcinomas (5-10%) are observed<sup>8</sup>. The malignancy limits covers a wide spectrum from those, having the low malignity potential such as the papillary carcinoma to those, having quite high malignancy such as anaplastic carcinoma<sup>8, 9</sup>. The purpose of this study is to research the thyroid cancer incidence in the Thyroidectomies carried out in the province of Sivas and cancer types.

## MATERIAL AND METHODS

The pathology reports belonging to 521 cases which the thyroidectomy made between January 2008 and January 2013 in the School of Medicine, Cumhuriyet University and were received diagnosis in the pathology department were retrospectively scanned from the archive. Age, sex and histopathological diagnoses belonging to the cases were obtained from the pathology reports. The figure, percent, average and standard variations relating to the data were obtained.

## RESULTS

A total of 521 patients with thyroid malignancy or different types of goiter underwent thyroidectomy. 122 (23.41%) of the total 521 cases were men and 399 (76.58%) were women. The youngest patient was 15 and the oldest patient was

84 years old, and also the average of age was  $49.02 \pm 13.48$ . The followings were detected in the histopathological examination; nodular hyperplasia in 272 (52.2%) cases, diffuse hyperplasia in 32 (6.1%) cases, lymphocytic thyroiditis in 22 (4.2%) cases, association of nodular hyperplasia and lymphocytic thyroiditis in 30 (5.8%) cases and also thyroid neoplasm in 151 (29%) cases (Table 1). As the cancer type, the followings were detected; papillary carcinoma in 133 (25.5%) cases, follicular carcinoma in 3 (0.6%) cases, medullary carcinoma in 2 (0.4%) cases and anaplastic carcinoma in 3 (0.6%) cases, metastases in 1 (0.2%) case (Table 2, 3). The well differentiated tumour of uncertain malignant potential was detected in 14 (2.7%) cases.

**Table 1: Numerical Distribution of the benign lesions examined.**

Nodular hyperplasia	272 (52.2%)
Diffuse hyperplasia	32 (6.1%)
Lymphocytic thyroiditis	22 (4.2%)
Follicular adenoma	9 (1.72)
Nodular hyperplasia+lymphocytic thyroiditis	30 (5.8%)
<b>Total</b>	<b>365</b>

**Table 2: Numerical Distribution of the malign lesions examined.**

Papillary carcinoma	133 (25.5%)
Follicular carcinoma	3 (0.6%)
Medullary carcinoma	2 (0.4%)
Anaplastic carcinoma	3 (0.6%)
Metastases	1 (0.2%)
<b>Total</b>	<b>142</b>

**Table 3: Distribution of the malign lesions examined by sex.**

	Woman	Man	Total
Papillary carcinoma	102	31	133
Follicular carcinoma	2	1	3
Medullary carcinoma	1	1	2
Anaplastic carcinoma	3	-	3
Metastases	-	1	1
<b>Total</b>	<b>108</b>	<b>34</b>	<b>142</b>

## DISCUSSION

In many cases, such as benign adenoma, multinodular goitre, and thyroiditis, thyroid nodules can be seen. 70.1% benign and 27.3% malignant diagnosis of 521 cases were taken in our study. The well differentiated tumour of uncertain malignant potential was detected in 14

The nodular goitre is the most frequently encountered situation within the thyroid pathologies<sup>11, 12</sup>. The nodular goitre shows regional variations in the society but it varies between 4% and 7%. This ratio reaches up to 23% in men and 46% in women in proportion to age<sup>13, 14</sup>. The nodular hyperplasia diagnosis of 272 (52.2%) of 521 cases were taken in our study and 211 of them were women and 61 of them were men.

Diffuse Hyperplasia (diffuse non-toxic goitre, simple goitre) is the diffuse enlargement of thyroid gland not containing nodularity<sup>15</sup>. It is seen epidemically in the regions having iodine deficiency and sporadically in people with thyroid hormone synthesis disorders<sup>15</sup>. Our country is one of the endemic regions. The simple goitre and multi-nodular goitre are the diseases, having continuity with each other. The thyroid gland is completely monitored as major in the simple goitre. The lymphocytic thyroiditis is the autoimmune thyroid disease, in which the lymphocytic infiltration, forming diffuse or nodular hyperactivity, germinal centre and infiltrating follicular<sup>15</sup>. The diffuse hyperplasia was detected in 32 (6.1%) cases and the lymphocytic thyroiditis was detected in 22 (4.2%) cases in our study. Follicular adenomas are the most common benign tumour of the thyroid<sup>15</sup>. They are the solitary lesions composed of the microscopically encapsulated follicular cells which show, uniform pattern. Although the terms of nodule and adenoma are often used interchangeably, this is not correct. While a pathologically detected specific, new and benign neoplasm is discussed in adenoma, there may be carcinoma, normal gland lobule or any follicular lesion in nodule. The follicular adenoma detection frequency was reported as 4.9-13% in the studies conducted<sup>16</sup>. 9 (1.7%) of 521 cases received follicular

(2.7%) cases. Besides this, the thyroid cancers are encountered 4 times more frequent in women than men. It is more common under middle-aged and old persons<sup>10</sup>. In line with the literature, 108 (76.0%) of 142 cases are women and 34 (23.9%) are men.

adenoma diagnosis in our study. The thyroid cancers are the most common malignancy of the endocrine organs and the incidence is 4.1% in the USA and 0.5-15% in Canada<sup>8</sup>. Most of these cancers are well differentiated and at a low rate, undifferentiated (anaplastic) carcinoma is observed<sup>15</sup>. The incidence of thyroid cancer varies between 3% and 16% in the thyroidectomies made for the thyroid's benign diseases<sup>12, 17</sup>. However, there are some studies arguing that this ratio is above 30%<sup>18</sup>.

The thyroid cancer incidence was 27.3% in the cases operated because of the thyroid nodule in our study, this ratio was detected as higher than those reported in the literature. This can be explained by the fact that one of the hospitals of the reference center in region. The most common thyroid cancer with the best prognoses is the papillary thyroid cancer. It is originated from the follicle cells. It is seen most commonly on 3rd and 4th decades in women. Man/Woman ratio varies between 2/1 and 4/1 in the papillary thyroid carcinoma<sup>4, 5, 19</sup>. There are sub-types such as follicular, tall cell, diffuse sclerosant variant and it doesn't change the basic approach in treatment but has little differences. The papillary carcinoma constitutes 70-80% of thyroid malignancy<sup>10</sup>. The papillary carcinoma cases constitute 93% of the malignant tumours in our study. The second common malignant tumour of the thyroid is the carcinoma<sup>10</sup>. They constitute 5-10% of all kind of thyroid cancers<sup>11</sup>. The iodine deficiency is the common type observed in the endemic regions and nodular goitre ground and peaks 4th and 5th decades at late ages compared to the papillary cancer<sup>11</sup>. It has two types; invasive and common invasive<sup>10</sup>. This type's most important difference than the papillary thyroid cancer is that it can make blood-borne organ metastasis without making lymph node

metastasis. It is observed more frequently in women and its prognosis is worse than the papillary carcinoma<sup>10</sup>. 10-year survival is about 90%. 3 (0.6%) of 521 cases received follicular carcinoma diagnosis and detected as the second common thyroid cancer together with the anaplastic cancer. The medullary carcinoma is evolved from parafollicular C cells of thyroid generating calcitonin. It is typically unilateral. This is the single tumour containing amyloid in the thyroid cancer types. The existence of amyloid in tumour's stroma is diagnostic. It constitutes 5-10% of the thyroid malignancies. It is generally seen in the people more than 40 years old and almost always solitary. There are sporadic and familial forms. The sporadic forms constitute 90% of the cases. The medullary thyroid cancer may be connected with multiple endocrine neoplasia. 2 (0.4%) of the malign cases examined in our study received medullary carcinoma diagnosis.

The Poorly differentiated carcinoma is the malignant tumour of thyroid which shows the limited follicular cell differentiation located among the differentiated (follicular and papillary carcinomas) and undifferentiated (anaplastic) carcinomas as morphologic and biologic behaviour. The lung and bone metastases are common as well as the lymph node metastases during the diagnosis<sup>20</sup>. The anaplastic carcinomas can form from thyroid follicular epithelium as de novo or with the dedifferentiation of the developed thyroid carcinoma cell. It has a quite aggressive course<sup>21</sup>. Generally, it made invasions to the surrounding tissues during the diagnosis. Anaplastic thyroid carcinoma is the 3rd common type with the ratio of 1.6% after the papillary and follicular carcinomas<sup>22</sup>, 3 (0.6%) of the 142 cases received anaplastic carcinoma diagnosis in our study.

In conclusions; finally, the thyroid cancer incidence in thyroidectomies carried out in the province of Sivas was recorded as 27.3% and the papillary thyroid carcinoma is the most common carcinoma.

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