

Incidence of Thyroid Cancer in Thyroid Swellings

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ABSTRACT

Objective: To reduce the incidence of thyroid cancer among thyroid swelling, underwent thyroidectomies and to compare FNAC and histopathology reports.

Study Design: Retrospective case series study.

Place and Duration of Study: This study was conducted at the Department of General Surgery, Shaikh Zayed Hospital, Lahore from January 2018 to January 2021.

Materials and Methods: One hundred and fifty cases were included of thyroid swelling. Histopathological and FNAC reports were considered to get incidence of benign and malignant cases among thyroid swellings.

Results: Thyroid swelling patients were from 10-80 years and mean age was 39.3 years. 118 (78.66%) were females and 32 (21.33%) were males with 3.68:1 female to male ratio. Among 150 cases 142 cases were cytologically benign and 8 were malignant on FNAC based Bethesda category. On histopathology same results were observed as 142 cases benign and 8 cases were malignant (6 were female and 2 were males). However among benign lesions 95.77% were MNG on histopathological examination and 91.54% on FNAC and among malignant 75% (6 out of 8) were papillary thyroid CA.

Conclusion: In this study no difference is observed between FNAC and histopathological examination, but histopathology of the specimen gives incidence of thyroid malignancy. Incidence of thyroid malignancy is 5.33% among thyroid swellings.

Key Words: Thyroid cancer, FNAC, Histopathology

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INTRODUCTION

Thyroid malignancies reported rate is approximately 1%.¹ Thyroid cancer is second most common malignancy after breast cancer in Saudi Arabia², while third one in UAE³ and 4th in Filipino women.⁴ During the past three years dramatically incidence of thyroid has been increased with highest incidence in women.⁵ Pakistan Punjab especially the southern belt is an endemic zone for iodine deficiency and most common etiology of thyroid CA is iodine deficiency. Follicular cancer is more common in iodine deficient areas.⁶ Age standardization variations are present among different regions of the world like 0.8-0.5 for males and 1.9-19.4 for females per 100000 population.

In US the risk of developing thyroid CA is 1:120 for females while death rate is approximately 1 in 1700.

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Most common presentation is of neck swelling, moving on deglutination. TSH levels, USG neck and FNAC are routine investigations for thyroid swelling. Histopathological examination is mandatory tool for final diagnosis.⁷ Rugu and Joham Vent showed that surgical biopsy are the essential tools in 1870.¹ Leyden in 1883 laid the foundation of FNAC method for thyroid swelling², but first diagnostic value of FNAC reported by Martin and Ellis in 1930.³ Limitations of FNAC in detecting different etiologies of thyroid swelling are ranging from inadequate sample, faulty sampling techniques, less knowledge regarding the pathology and overlapping of cytological features of benign and malignant ones.⁴ For thyroid malignancies the sensitivity and specificity and accuracy of FNAC is 52.6%, 86.6% and 79.1% respectively. Due to lack of cancer registry and population-based studies in Pakistan it is difficult to determine the incidence of thyroid CA but thyroid cancers are in rising trends.⁶ It is all due to awareness about the disease and its treatment.⁷

To generate epidemiological hypothesis and for etiology of cancer geographical distribution of cancer is of great value. Information like this is much more valuable for global comparisons to be made. To find incidence of benign and malignant lesions in thyroid swelling on histopathology after thyroidectomy.

MATERIALS AND METHODS

This descriptive retrospective cross-sectional study was conducted in Shaikh Zayed Hospital Lahore Punjab from January 2018 to January 2021. Patients were selected through non purposes sampling technique. Patients were selected while considering inclusion and exclusion criteria. Patients of all ages with thyroid swelling and having normal thyroid function tests undergoing thyroidectomies were include and patients who refused to surgery, hyperthyroid or hypothyroid and have in-operable thyroid swellings and weren't fit for surgery were excluded from this study. Those who fulfill the inclusion criteria were thoroughly examined, investigated through USG, FNAC thyroid scan and CT scan where needed along with routine baseline investigations. Samples after thyroidectomies done by senior consultants were sent for histopathology which were too examined there by senior histopathologists. Data was fed and analyzed by using SPSS v23.

RESULTS

Patients of 10 to 80 years with mean age of 39.3 years are in this study. Female to male ratio is 3.68:1 which shows thyroid lesions were more common among females. Out of 150 cases on FNAC 142 cases were benign and 08 cases were malignant and among benign lesions multinodular goiter (130) was more common and among malignant papillary cancer is 4% and follicular is 1.33%.

Table No.1: Sex distribution of patients (n=150)

Sex	No.	%
Male	32	21.33%
Female	118	78.66%
Female to male ratio	3.68:1	

Table No.2: Incidence of benign to malignant lesion

Benign	142	94.66%
Malignant	08	5.33%
Ratio	1:0.05	

Table No.3: Classification of FNAC lesion

Classification	FNAC lesions (n=150)	
	Category	n=150
Benign (n=142)	Multinodular/ Colloid goiter	130 (86.66%)
	Benign colloid cystic lesion	10 (6.66%)
	Thyroiditis	2 (1.33%)
Malignant (n=8)	Carcinoma	08 (5.33%)
	Papillary	06
	Follicular	02

After histopathological examination of thyroidectomies specimen it is concluded that multinodular goiter were 136 cases, 05 cases of colloid cyst and one case of thyroiditis and malignant were 08 cases. Among

malignant cases 75% was papillary cancer and follicular CA is 25%. The incidence of benign to malignant cases was 1:0.05 as benign cases are 142 and malignant cases are 08.

Table No.4: Histopathological diagnosis

Histopathological diagnosis	No. (n=150)
Benign	142
Multi-Nodular/Colloid goiter	136(90.66%)
Hashimoto's thyroiditis	00
Benign follicular adenoma	01(0.66%)
Colloid cyst	5(3.33%)
Malignant	08
Papillary	06(4%)
Follicular	02(1.33%)

DISCUSSION

In endocrine malignancies thyroid cancers are the most common ones. Lymphomas of thyroid are uncommon and other rare malignancies are the non-epithelial ones.⁸ Over 30 years incidence of thyroid cancer increased remarkably in United States⁹ and it is believed that this is true incidence but with the advent of new diagnostic tools such as fine needle aspiration with biopsy and ultrasonography increased the diagnostic incidence of this disease.^{10,11} Males were 21.33% (32 patients) and females were 78.66% (118 patients). Female to male ratio calculated were 3.68:1.

Frequencies of thyroid cancer varied in different regions of the world, in our region papillary canceris common (75%) malignant lesion. From USA Meir¹² and Hay et al showed a frequency of 90% of papillary CA, some other studies done in Iran¹³, Yemen and Lahore¹⁴ reported a frequency of 69.9%, 93.8% and 57.9% respectively. 39.3 years is the mean age of our patients presented slightly comparable with Shah et al¹⁵ showing 36.8 years. 118 (78.66%) were predominancy is observed in females 75% as compared to 25% male, with ratio of 3.68:1 which is strengthen by other several studies^{13,14,16} showing same results 2.4:1, 4:1, 3:1. Mostly patients are in third and fourth decade of life with quite similar results by Ahmad et al¹⁴ Follicular cancer in our study is of 25% (2 cases) quite higher as compared to other studies showing 21.5%, 10% and 4.5% due to inter-observer variations and of small number of cases of follicular CA by Abdullah et al¹⁷, Hundahl et al¹⁸ and Abu Eshy et al respectively. Increase in thyroid especially papillary cancer of about 15 fold is observed in South Korea in a study done from 1993 to 2011.¹⁹ Limitation of FNAC observed are false negative and false positive results, its accuracy observed by Skider 90% and sensitivity of 68.75%²⁰ in another study done by Bloch on comparison of FNAC and Histopathology showed accuracy of 91.6%.²¹

CONCLUSION

Our study observed that 5.33% thyroid swellings present as malignant ones. So histopathological

examination of all the thyroidectomies sample should be done in spite of relying on pre op FNAC and ultrasonographic evidence of suspicious swellings.

Author's Contribution:

Concept & Design of Study: Muhammad Aamir Jameel
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