

Research Article

Analysis of incidence of multinodular goiter and follicular carcinoma of thyroid in Pakistan

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[Received: 13/02/2019; Accepted: 14/03/2019; Published: 15/03/2019]

ABSTRACT

Introduction: Clinical thyroid cancer is uncommon, with an estimated incidence in various parts of the world of 0.5 to 10 cases per 100,000 persons. It accounts roughly for about 0.5% of all cancers in men and 1.5% of all cancers in women. **Aims and objectives:** The main objective of the study is to analyze the incidence of multinodular goiter and follicular carcinoma of thyroid in Pakistan. **Material and methods:** This cross sectional study was conducted in Yusra General Hospital during 2018. This study was done with the permission of ethical committee of hospital. The data was collected from 50 patients of both genders. Demographic information of patients, clinical features and tissue biopsy results were extracted. All the selected patients underwent ultrasonography and fine needle aspiration cytology in cases with a suspicious nodule rapidly growing hard, irregular nodule which was detected on clinical examination and on ultrasound. **Results:** The data were collected from 50 patients of both genders. The female predominated the male in the ratio of 7.5:2.5. The most common presenting symptom was swelling in front of neck, which moved with swallowing. In 85(85%) patients the swelling which was of thyroid origin was benign, while in 15 (15%) patient it was malignant. Out of all malignant tumors the papillary carcinoma was on the top with a percentage of 10%. **Conclusion:** It is concluded that the risk of malignancy in multinodular goitre is not as low as it was thought before and that it is quite significant and is mostly of the papillary type.

Key words: Cancer, Thyroid, Incidence, Patients

INTRODUCTION

Clinical thyroid cancer is uncommon, with an estimated incidence in various parts of the world of 0.5 to 10 cases per 100,000 persons. It accounts roughly for about 0.5% of all cancers in men and 1.5% of all cancers in women. It is however the most common endocrine tumor and may present either as a solitary nodule in the setting of an entirely normal thyroid gland or, as a dominant nodule in the setting of a multinodular goiter [1]. Thyroid carcinoma is the commonest endocrine

malignancy and accounts for approximately 1% of all malignancies. Approximately 34000 new cases are diagnosed each year in USA [2]. Majority of diagnosed patients are women making thyroid carcinoma as the seventh most common female malignancy [3]. Outcome in thyroid carcinoma is very variable ranging from clinically insignificant disease to a very aggressive disease. Overall the prognosis of thyroid carcinoma is good with an excellent disease free survival. Hundahl SA et al

reported ten year relative survival rate based on total cohort of 53,856 patients in USA of 93% for papillary and 85% for follicular carcinomas [4]. The incidence of thyroid carcinoma is increasing but some of it is due to early detection secondary to appropriate management of thyroid nodules [5].

Thyroid carcinoma arises from thyroid follicular cells (Papillary, follicular and anaplastic) or from other cells within the thyroid gland like lymphocytes (primary thyroid lymphoma) or neuroendocrine C cells (medullary thyroid carcinoma) [6]. Papillary and follicular carcinomas are considered differentiated carcinomas and are often managed similarly despite many differences between the two [7]. Papillary thyroid carcinoma accounts for the majority 80-90% while follicular 5-10% and anaplastic carcinomas are rare at 1-2%. In Pakistan among thyroid carcinomas papillary is the commonest ranging from 69-71% followed by follicular carcinomas from 11.6-13%.

In Pakistan thyroid cancer is responsible for 1.2% cases of all malignant tumors. Previous reports from this region show papillary thyroid cancer to constitute 57 to 89% of all thyroid malignancies. The female to male ratio in this part of the world is noted to be between 2.5 to 4:1, which is comparable to international data [8]. No information is available regarding its mode of presentation and clinical characteristics in Pakistan.

Aims and objectives

The main objective of the study is to analyze the incidence of multinodular goiter and follicular carcinoma of thyroid in Pakistan.

MATERIAL AND METHODS

This cross sectional study was conducted in Yusra General Hospital during 2018. This study was done with the permission of ethical committee of hospital. The data was collected from 50 patients of both genders. Demographic information of patients, clinical features and tissue biopsy results were extracted. All the selected patients underwent ultrasonography and fine needle aspiration cytology in cases with a suspicious nodule rapidly growing hard, irregular nodule which was detected on clinical examination and on ultrasound. All the patients were offered surgery as treatment based on diagnostic work up equivocal from various investigation. After the surgery all the thyroid specimens were sent for histopathology evaluation. All pre-operative and post-operative findings were recorded in detail in a standard format and results were evaluated.

Statistical analysis

The sensitivity, specificity, positive predictive value and negative predictive value in diagnosing each category were calculated. The cases with diagnostic discrepancies were reviewed and the possible causes of diagnostic errors analyzed.

RESULTS

The data were collected from 50 patients of both genders. The female predominated the male in the ratio of 7.5:2.5. The most common presenting symptom was swelling in front of neck, which moved with swallowing.

In 85(85%) patients the swelling which was of thyroid origin was benign, while in 15 (15%) patient it was malignant.

The type of malignancy on histopathology reports are shown in Table 2.

Out of all malignant tumors the papillary carcinoma was on the top with a percentage of 10%.

Table 01: Gender wise distribution of selected patients

Gender	No. of patients (%)
Male	25
Female	75

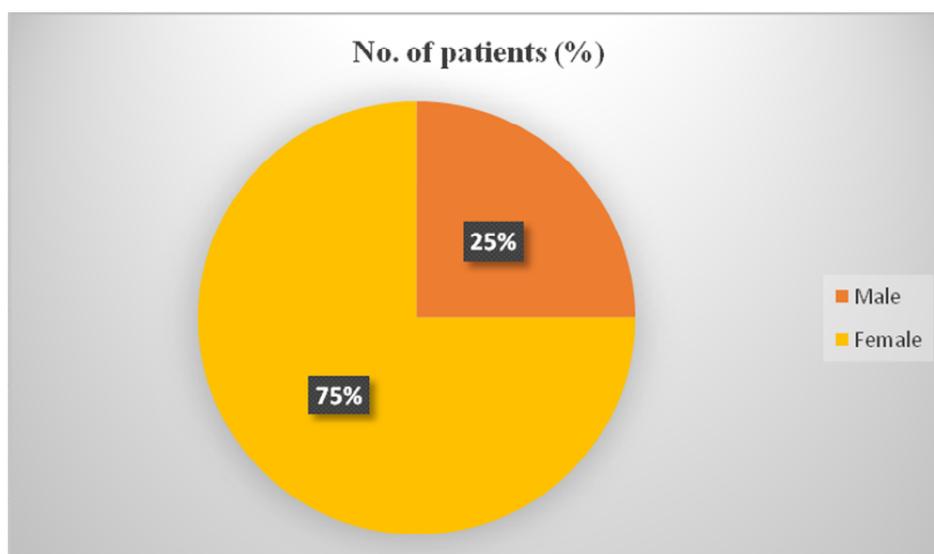


Table 02: Histopathological analysis of selected patients

Type of Malignancy	No. of patients & %ages
Papillary	10 (66.6%)
Follicular	4 (25.6%)
Medullary	1 (6.66%)

DISCUSSION

Thyroid carcinoma usually presents as an asymptomatic painless nodule or a mass in the neck detected by the patient or health care professionals or as an incident thyroid nodule during increasingly widespread use of cross-sectional imaging of head and neck region. Since thyroid nodules may be present in up to 76% of unselected females using ultrasound and only less than 5-10% of these nodules are malignant, the challenge is to diagnose and treat malignant thyroid nodules in a sea of benign nodules [9]. Certain features which increase the likelihood of a nodule to be malignant are local pressure symptoms, vocal cord paralysis, associated lymphadenopathy, rapid growth, male gender, family history and history of radiation exposure [10].

The investigation of a thyroid nodule or mass includes ordering a thyroid function test which is universally normal. Some authors have shown positive correlation of TSH level with thyroid malignancy within the normal TSH

range. Ultrasound is a useful tool that characterizes a mass or a nodule and various ultrasound characteristics help in raising the suspicion of malignancy like hypoechogenicity, microcalcification, absent halo, irregular margins and increased vascularity [11]. Presence of lymphadenopathy on ultrasound, also gives an idea about the extent of spread of thyroid carcinoma locally. Elastography is a new development in ultrasound for predicting malignancy in thyroid nodules [12].

Follicular carcinoma was the second common type of thyroid malignancy in this study (29%). This is almost consistent with the finding obtained from Rawalpindi, Pakistan (25%). But different studies indicated that the proportions of FTC is in between 10-20%. This high proportion is probably due to high incidence of iodine deficiency goiter in the study area. Hence iodine deficiency goiter is suggested to cause follicular carcinoma [8]. Hurthle cell carcinoma, which is a subtype of follicular carcinoma, also diagnosed in one (1.6%) patient having the age of 55 years. In line with this finding other study done in Romania also reported

that HCC accounts 1.6% of the total type of TM [13] and the diseases is more likely occur in older patients.

CONCLUSION

It is concluded that the risk of malignancy in multinodular goitre is not as low as it was thought before and that it is quite significant and is mostly of the papillary type.

REFERENCES

1. Shah SH, Muzaffar S, Soomro IN, et al. Morphological patterns and frequency of thyroid tumors. *J Pak Med Assoc* 1999;49:131-3.
2. Al-Salamah SM, Khalid K, Bismar HA. Incidence of differentiated cancer in nodular goiter. *Saudi Med J* 2002;23:947-52.
3. Mulaudi TV, Ramdial PK, Madiba TE, et al. Thyroid carcinoma at King Edward VIII Hospital, Durban, South Africa. *East Africa Med J* 2001;78:252-5.
4. Gharib H. Changing concepts in the diagnosis and management of thyroid nodules. *EndocrinolMetabClin N Am* 1997;26:777-800.
5. Mortensen JD, Woolner LB, Bennett WA. Gross and microscopic findings in clinically normal thyroid glands. *J ClinEndocrinolMetab* 1955;15:1270.
6. McCall A, Jarosz H, Lawrence AM, et al. The incidence of thyroid carcinoma in solitary cold nodule and in multinodular goiter. *Surgery* 1986;100:1128.
7. Franklyn JA, Daykin J, Young J, et al. Fine needle aspiration cytology in diffuse multinodular goiter compared to solitary thyroid nodules. *BMJ* 1993;307:240.
8. Davies L, Welch H. Increasing incidence of thyroid cancer In the United States. *JAMA*. 2006;295(18):2164–2167.
9. Ferlay J, Bray F, Pisani P. Cancer incidence, mortality and prevalence worldwide. *Globocan*. 2000;1:1–25.
10. Ramona C, Adela B, Angela B. Thyroid cancer profile in Mures County (Romania): a 20 years study. *Rom j morpholembryol*. 2012;53(4):1007–1012.
11. Champa S, Tariq W, Imrana Z, Abdul S. Histopathological pattern of diagnoses in patients undergoing thyroid operations. *Rawal Med J*. 2009;34:14–16.
12. Hanumanthappa M, Gopinathan S, Rithin S, Guruprasad R, Gautham S, Ashit S, Bhargav S, Naren S. Incidence of malignancy in multi-nodular goiter: a prospective study at a tertiary academic centre. *J ClinDiagn Res*. 2012;6(2):267–270.
13. Pier Paolo G, Antonio F, Maurizio R, Flavia R, Orietta R, Corrado R, Alberto T. The incidence of thyroid carcinoma in multinodular goiter: retrospective analysis. *Acta Bio MedicaAteneoParmense*. 2004;75:114–117.