

Frequency of Malignancy in Clinically Palpable Solitary Thyroid Nodule, a two years cross sectional study at Lahore General Hospital, Lahore

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ABSTRACT

A cross sectional study was conducted in the Department of General Surgery Unit-1, Lahore General Hospital, Lahore from January, 2009 to December, 2010. 100 (100%) cases with 78(78%) Female & 22(22%) males, having palpable thyroid nodules, were included in this study with mean age of 31.3±13.8 years. 22(22%) of the patients were having malignancy that were histopathologically proved postoperatively.

Key words: Thyroid nodule, malignancy, frequency, clinically palpable solitary thyroid nodule.

INTRODUCTION

A clinically palpable solitary thyroid nodule is a lump in thyroid gland greater than 1cm^{1 2} the nodules are traditionally classified as hot, warm and cold nodules³. Approximately 80% of the thyroid nodules are cold and 10-14% of these are malignant⁴. Clinical importance of the disease has been recognized since 2700 B.C. Since then workers like Hieronymus Fabricius (1619), Thomas Wharton (1656), Albrecht von Haller (1776), Theodor Kocher (1841-1917) and Theodor Bilroth (1829-1894) have been working at different aspects of goiter. In 1909 Theodor Kocher was awarded noble prize for his work on the physiology, pathology and surgery of thyroid gland⁴.

The major challenge faced by a clinician in clinically palpable thyroid nodule is to determine whether it is benign or malignant. However, certain aspects of history and clinical examination may be suggestive but fine needle aspiration cytology (FNAC) and selective venous sampling shows higher diagnostic reliability. Although FNAC has its own limitations but this simple procedure due to its cost effectiveness and greater sensitivity (95%) has become a gold standard for the preoperative diagnosis of malignancies in clinically palpable solitary thyroid nodule^{7,8}. In Pakistan, 26% of thyroid lesions are neoplastic⁹ and thyroid cancer is responsible for 1.2% of all malignancies. The issue of malignancy in thyroid nodule demands more attention by health workers, policy makers and research scholars as 90% of the thyroid cancer, if diagnosed early and treated properly, are curable^{2,5}.

The purpose of this study is to evaluate the frequency of malignancy in thyroid tumor for their early diagnosis, proper surgery and relevant chemoradiotherapy to reduce the mortality and

morbidity in our society and to compare our results with that of national and international workers.

METHODS AND MATERIALS

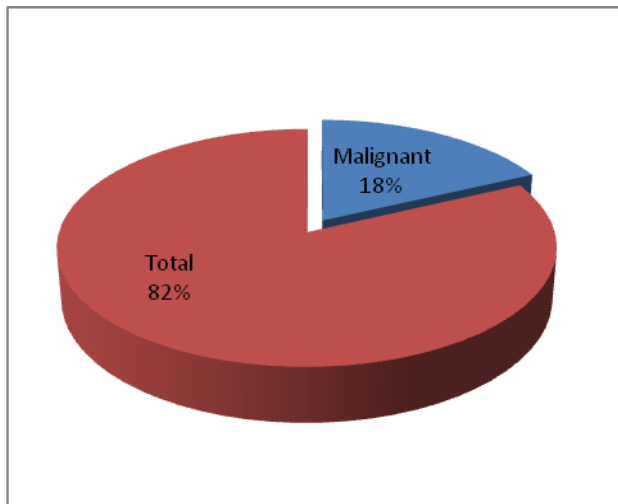
One hundred patients having palpable thyroid nodules fulfilling the inclusion and exclusion criteria were admitted from outpatient department. After taking detailed history, performing clinical examination and required investigations, informed written consent was taken and the patients were submitted for surgery on elective lists. The demographic variables like age, sex and addresses were obtained. Fine needle aspiration cytology was performed in all the patients' prior to admission. Effect modifiers like history of smoking, alcohol intake and exposure to neck radiation were addressed through stratification. Malignancy was confirmed by histopathology. All these information were collected on a specially designed Performa. The sample size was 100 cases, with 9% margin of error, 95% confidence level taking expected percentage of neoplastic lesion (malignancy), i.e. 26%. The data was analyzed by SPSS version 10.

RESULTS

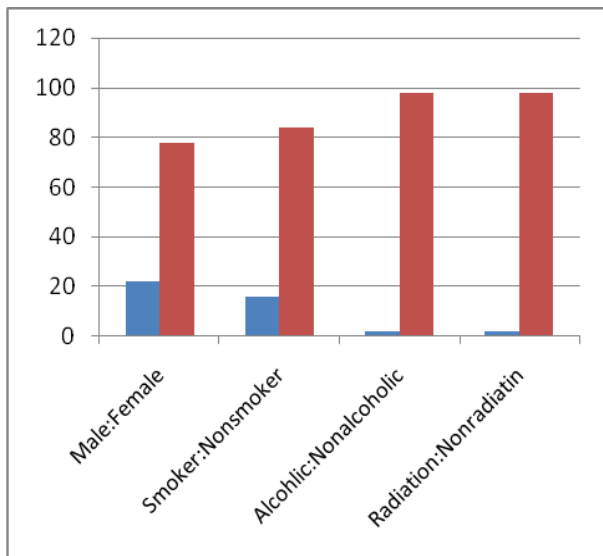
The mean age of the patients was 31.3±13.8 years. There were 23(23%) patients in the age range of 10-20 years, 36(36%) patients in the age range of 21-30 years, (22%) patients in the age range of 31-40 years, (11%) patients in the age range of 41-50 years, (4%) patients in the age range of 51-60 years, (2%) patients in the age range of 61-70 years and (2%) patients in the age range of 71-80 years. Among the 100(100%) cases, 22(22%) were male and 78(78%) females. 16(16%) patients were

smokers, 84 (84%) non smokers, 2(2%) alcoholic and 2(2%) patients with positive history of neck radiation . Postoperatively based on histopathology of the specimen, the frequency of malignancy was observed in (22%) patients. Among the 22% malignant cases 1(4.5%) was smoker and the rest were non smokers. In 78% non malignant cases, 10 were smokers and 68 were non smokers. 1(4.5%) patient was alcoholic, rest of them were non alcoholics. While comparing malignancy present in 22 (22%) patients, 2(9%) had history of neck radiation

Incidence of malignancy



Statistical analysis



DISCUSSION

Thyroid nodules are abnormal growths of cells in the thyroid gland. These growths may be solid or cystic but for a clinician it is more important whether these are benign or malignant³. Although, certain aspects of history and clinical examination may be suggestive of malignancy like, age, sex, dysphagia, dyspnea, history of neck radiation, hard or immobile nodule, larger size and presence of cervical lymph adenopathy on clinical examination⁵ but, only method of confirmation is histopathology of the postoperative specimen. 90% of the thyroid malignancy if diagnosed early and treated properly are curable, therefore more attention towards the subject by the health personal and policy makers, is demanding to avoid the curable casualties^{2,5}.

In our study the mean age of the patients was 31.3±13.8 years. Bukhari et al⁹ in 2008, in his study of 76 cases mentioned a figure of 35.37±12.17 years, Similarly, the same author in another study depicted a range of 35-39 years. Though, some workers mentioned relatively a higher figure like Muhammad A Khadim et al¹⁷ in 2010, and V Tasava et al¹⁴ in 2013, 48.5±0.8 years and of 45.6 years respectively but most of the national and international studies evidenced a comparable figures as that of ours. In our study, There were 22(22%) males and 78(78%) females patients with a female:male ratio of 4:1 showing a female preponderance. Marry JO Welker et al¹⁵ in 2003, mentioned a similar figure in his study and a similar figure of 78% females and 22% males have been mentioned by Bukhari et al⁹ in 2008 in a study of 50 thyroidectomy specimen, Even a bit higher figure have been found in literature in the studies of people like M A Khadim et al¹⁷ in 2010, and in a separate study by Bukhari et al⁹ in 2008, in which all of these workers observed a figure of more than 85% of female patients. Though these figures are not comparable but female preponderance is more obvious. The frequency of the disease in our study remained 22% which is comparable with that of Rasario P W et al¹³ in 2009 who depicted 22.5% malignancy in his series of 151 cases, Bukhari et al⁹ in 2008. in his study noted a figure of 26% in his 50 cases of thyroidectomy. Mihai et al, in 2009¹¹ showed 25%. Similarly the incidence of malignancy seen by Olov Norlén et al¹² in 2014 was 18% but his study was done in patients of paediatric age group. A large number of workers in the world like, Mahar et al¹⁰ in 2006, Marry JO Welker et al¹⁵ in 2003, Mubarak M. Al-Shraim et al²⁰ 2012, V Tasava et al¹⁴ in 2013, D.M. Elaraj et al¹⁹ described a relatively low incidence ranging from 10-16% but this is probably result of difference in their study designs.

COCLUSION

It is concluded from this study that clinically palpable thyroid nodules are common in our population, majority are benign, while 22% are malignant.

REFERENCES

1. Mackenzie EJ, Mortimer RH. Thyroid nodules and thyroid cancer. *Med J Aust* 2004; 180: 242.
2. Khan A, Khan MM, Shah S. Effectiveness of fine needle aspiration cytology in diagnosis of cold thyroid nodules. *J Med Sci* 2005; 13: 148-50.
3. Wong CK, Wheeler MH. Thyroid nodules: rational management. *World J Surg* 2004; 24: 934-41.
4. Roman SA. Endocrine tumors: evaluation of thyroid nodule. *Curr Opin Oncol* 2003; 15: 66-70.
5. Zuberi LM, Yawar A, Islam N, Jabbar A. Clinical presentation of thyroid cancer patients in Pakistan – AKUH Experience. *J Pak Med Assoc* 2004; 54: 526.
6. Roman SA. Endocrine tumors: evaluation of thyroid nodule. *Curr Opin Oncol* 2003; 15: 66-70.
7. Melillo RM, Santoro M, Vecchio G. Differential diagnosis of thyroid nodules using fine needle aspiration cytology and oncogene mutation screening: are we ready? *F1000 Med Rep* 2010; 2: 62.
8. Sreaton NJ, Berman LH, Grant JW. US-guided core needle biopsy of the thyroid gland. *Radiology* 2003; 226: 827-32.
9. Bukhari U, Sadiq S. Histopathological audit of goiter: a study of 998 thyroid lesion. *Pak J Med Sci* 2008; 24: 442-6.
10. Mahar SA, Husain A, Islam N. Fine needle aspiration cytology of thyroid nodule: diagnostic accuracy and pitfalls. *J Ayub Med Coll Abbottabad* 2006; 18: 26-9.
11. Mihai R, Parker AJ, Roskell D, Sadler GP. One in four patients with follicular thyroid cytology (THY3) has a thyroid carcinoma. *Thyroid* 2009; 19: 33-7.
12. Olov Norlén et al, Risk of malignancy for each Bethesda class in pediatric thyroid Nodules, *jpedsurg*.2014.10.046.
13. Rasario P W et al, False-negative rate of cytology in thyroid nodules > 4cm; *Arq Bras Endocrin Metab*. 2009; 53/9
14. V Tasave et al, Evaluation of Incidence of Thyroid Cancer in Patients with Thyroidectomy; *West Indian Medical Journal*, Vol.02, No. 9. Dec.2013.S
15. MARY JO WELKER et al, Thyroid Nodules, *Am Fam Physician*. 2003 Feb 1;67(3):559-567.
16. Daumeri C et al, Prevalence of Thyroid Cancer in Hot Nodule; *Annals of Chir* 1998; 52(5), 444-448
17. Mohammed A. Kadhim et al, The frequency of thyroid carcinoma a in patients with solitary and multiple nodules utilizing ultrasound guided fine needle aspiration cytology (FNAC): A prospective study (Thyroid carcinoma and U/S guided FNA); *Fac Med Baghdad* 2010; Vol. 52, No. 2
18. L M Zubairy et al, Clinical Presentation of Thyroid Cancer in Pakistan, Agha Khan Hospital Experience; *JPMA* Oct. 2004, 54-56
19. D.M. Elaraj, Section of Endocrine Surgery, Northwestern University Feinberg School of Medicine, 676 N. St. Clair St, Suite 650, Chicago, IL 60611, USA
20. Mubarak M. Al-Shraim et al, Assessment of malignancy rate in thyroid nodules according to the Bethesda system of fine-needle aspiration; *Saudi Med J* 2012; Vol. 33 (2).