

FREQUENCY OF MALIGNANT SOLITARY NODULE THYROID AT TERTIARY CARE HOSPITAL

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ABSTRACT

Objective: To determine the frequency of malignant solitary nodule thyroid in relation to age and sex at tertiary care hospital. **Material and methods:** This cross sectional study was conducted at Department of Surgery Nishtar Hospital Multan from January 2018 to June 2018 over the period of 6 months. Total 100 patients of both sexes, age between 10 and 60 years, clinically detected solitary thyroid nodule and hot, warm and cold nodules on radio isotope (TC99) scan were included in the study. All the patients underwent thyroid surgery and sample was sent to laboratory for histopathology. **Results:** Total 100 patients with solitary thyroid nodule were selected. Mean age of the patients was 31.58 ± 4.63 years. Colloid goiters were observed in 34 (34%) patients, followed by Nodular goiter in 26 (26%) patients. There were 20 (20%) patients who had Follicular adenoma. Total 20 patients found malignant of which Papillary CA was noted in 18 (18%) and Follicular CA was noted in 2 (2%). Total 28 (28%) patients were male and 72 (72%) patients were female. **Conclusion:** Results of present study concluded that 20% of solitary thyroid nodules are malignant, malignancy was significantly associated with gender. Papillary carcinoma is the commonest malignancy of Solitary Thyroid nodule.

KEYWORDS: Solitary thyroid nodule, malignancy, carcinoma, benign.

INTRODUCTION

Thyroid nodules are very common entities, though varying in incidence in different geographical regions.^[1] Thyroid nodule is a palpably or radiologically distinct lesion from the surrounding thyroid parenchyma.^[2] The prevalence of palpable nodules in general population is 4-7%.^[3] With the use of imaging techniques, particularly ultrasound, the chance of detection of thyroid nodules has increased many folds.^[4] The recent data suggest that the incidence of thyroid malignancy is increasing over the years.^[5] The occurrence of malignancy is more in solitary thyroid nodules compared to multinodular goiter.^[6] Solitary nodules of thyroid are about four times more common in women than in men.^[7] Overall incidence of malignancy in Solitary Thyroid Nodules ranges from 10% to 30%.^[8] Because of this reason, solitary thyroid nodules have to be treated with high degree of suspicion and plan treatment in a systematic manner.^[9] The preoperative evaluation of thyroid nodules to distinguish between benign and malignant nodules is very important. It helps to avoid unnecessary extensive surgery and potential surgery related adverse effects, such as hypothyroidism, hypocalcemia, and recurrent laryngeal nerve injury. The aim of the present study was to evaluate the incidence of malignancy in

clinically detected Solitary thyroid nodule and to determine the incidence of solitary nodule of thyroid in relation to age and gender.

MATERIAL AND METHODS

This cross sectional study was conducted at Department of Surgery Nishtar Hospital Multan from January 2018 to June 2018 over the period of 6 months. Total 100 patients of both sexes, age between 10 and 60 years, clinically detected solitary thyroid nodule and hot, warm and cold nodules on radio isotope (TC99) scan were included in the study. Patients with thyroid swellings other than solitary nodules clinically and surgically proved multinodular goiter, thyroiditis cases, age below 10 years, pregnant females, those with history of radiation exposure to neck, those patients with family history of thyroid cancers, patients unfit for surgery under anesthesia and patients unwilling for the interventions were excluded from the study.

General physical and clinical examination of all the selected patients was done. All the selected patients were investigated. Apart from routine investigations, all patients had a thyroid profile, fine needle aspiration cytology (FNAC), X-ray of the neck antero-posterior and

lateral views, ultrasound neck, chest X-ray and indirect laryngoscopy were done. In patients presenting with hypo or hyperthyroidism, medical therapy was planned to attain euthyroid state. For the purpose of inclusion in this study, a solitary thyroid nodule is defined as a single swelling involving either lobe or isthmus of the thyroid gland. All the selected patients were underwent thyroid surgery and sample was sent to laboratory for histopathology. Findings was entered in predesigned proforma along with demographic profile of the patients.

All the collected data was entered in SPSS version 20 and analyzed. Mean and SD was calculated for numerical data. Frequency and percentages were calculated for categorical data.

RESULTS

Total 100 patients with solitary thyroid nodule were selected. Mean age of the patients was 31.58±4.63 years. Patients were divided into two age groups i.e. age group 10-35 years and age group 36-60 years. Total 60 (60%) patients belonged to age group 10-35 years and 40 (40%) patients belonged to age group 36-60 years. (Fig. 1) Out of 100 patients with solitary thyroid nodule, total 28 (28%) patients were male and 72 (72%) patients were female. (Fig. 2) After the final histopathology, colloid goiters were observed in 34 (34%) patients, followed by Nodular goiter in 26 (26%) patients. There were 20 (20%) patients who had Follicular adenoma. Total 20 patients found malignant of which Papillary CA was noted in 18 (18%) and Follicular CA was noted in 2 (2%). (Table 1) In age group 10-35 years, out of 60 (60%) patients, malignancy was noted in 14 (23.33%) patients. Out of 40 (40%) patients of age group 36-60 years, malignancy was noted in 6 (15%) patients. Malignancy was insignificantly associated with age group with p value 0.44. (Table 2) Out of 28 (28%) male

patients malignancy was noted in 20 (7.14%) patients. Total 18 (25%) females were found malignant. Malignancy was 0.05. (Table 3) significantly associated with gender with p value.

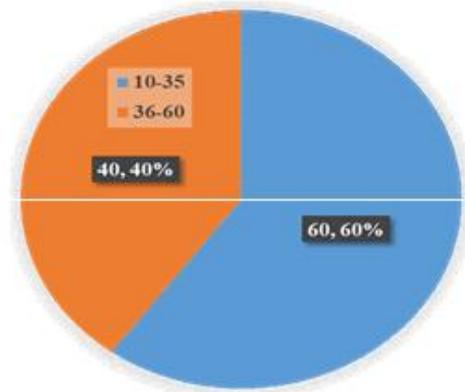


Fig. 1: Age distribution of patients.

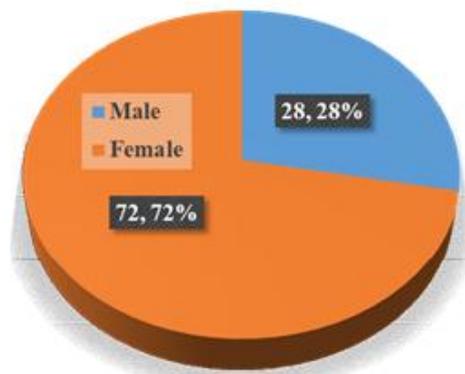


Fig. 2: Gender Distribution.

Table 1: Histopathological findings in solitary thyroid nodule.

Histopathologic diagnosis	Number of patients	%
Benign lesions		
Colloid goitre	34	34
Nodular goitre	26	26
Follicular adenoma	20	20
Malignant lesions		
Papillary CA	18	18
Follicular CA	2	2

Table 2: Association of malignancy with age groups.

Age Group	Malignancy		Total	P value
	Yes (%)	No (%)		
10-35	14 (23.33)	46 (76.67)	60 (60)	0.44
36-60	6 (15)	34 (85)	40 (40)	
Total	20(20)	80(100)	94	

Table 3: Association of malignancy with gender.

Gender	Malignancy		Total	P value
	Yes (%)	No (%)		
Male	2 (7.14)	26 (92.86)	28 (28)	0.05
Female	18 (25)	54 (75)	72 (72)	
Total	20(20)	80(100)	94	

DISCUSSION

Thyroid swellings are common clinical problem throughout the world. These are also common clinical problem in South Asia.^[10] Most of thyroid swellings are multi-nodular, but a good percentage is solitary thyroid nodule.^[11] The solitary or isolated thyroid nodule may be defined as a discrete swelling in an otherwise impalpable gland.^[12] About 70% discrete thyroid swellings are clinically isolated.^[13] Thyroid nodules are common and are present 3-4% of the adult population in the UK and USA. They are 3-4 times more frequent in women than men.^[14] with ultrasound, nodule may be found upto 50% of population over 60 years of age. A nodule may be adenoma, cyst, multi-nodular goiter, thyroiditis and thyroid cancer.^[15] The objective of the present study was to determine the frequency of malignant solitary nodule thyroid in relation to age and sex at territory care hospital.

Mean age of the patients was 31.58±4.63 years and malignant solitary nodule thyroid was noted in 20% patients. In one study by Bazar et al,^[16] majority of the patients i.e. 42.7% were between 31-40 years, mean age was 33.45±6.32 years, 76.6% were female and 23.4% were male. Malignancy in solitary thyroid nodule (on histopathology) shows 15.3% were malignant and 84.7% were benign. Findings of this study are comparable with our study. In present study, total 28 (28%) patients were male and 72 (72%) patients were female.

Out of 28 (28%) male patients malignancy was noted in 20 (7.14%) patients. Total 18 (25%) females were found malignant. Malignancy was significantly associated with gender with p value 0.05. Browse ET al,^[17] showed about 68% of patients were female and 32% were male. It is due to fact that thyroid disorder is female prone, this finding is also in agreement with the current study. In a study by Islam ET al.^[18] conducted in Bangladesh, out of 118 patients, histopathologically nonmalignant were 96 (81.35%) and malignant were 22(18.65%). Among malignant cases, 16 (72.72%) cases were papillary carcinoma, 4 (18.18%) cases were follicular carcinoma and 2(9.1%) cases were medullary carcinoma. In this study out of 118 cases, 38 were male and 80 were female & male to female ratio was 1: 2.11. Khairy et al studied on the surgical and histological data of 172 patients with solitary thyroid nodules who underwent surgery were reviewed. Thirteen point nine percent (13.9%) of patients were found to have malignancy; most of them were papillary type. In one study by Anwar et al,^[20] total of 204 cases were studied in the department of ENT and Head and Neck Surgery, Hayatabad Medical Complex,

Peshawar. The duration of this descriptive study was from June 1, 2008 to May 31, 2010. Patients with nodular goiters were categorized into two categories i.e., Solitary thyroid nodule and multinodular goiter. Surgically resected thyroid specimens were examined histopathologically and malignancy was compared between the groups. The prevalence of malignancy in multinodular goiter was 14.37% and in the solitary thyroid nodules as 24.32%. Papillary carcinoma was the commonest malignancy followed by follicular carcinoma. Hossain et al,^[21] reported frequency of malignancy in solitary thyroid nodule as 28%. In this series most of the patients were females. In a study by Jena et al,^[22] there were 146 cases of clinically detected STN with available ultrasound findings. Fifty-eight (39.7%) clinically detected STNs were reported as malignant. Tai et al,^[23] selected 265 patients with solitary thyroid nodules. All the patients undergo thyroid surgery. According to final Histopathological results 97 (33.6%) patients were malignant and 168 patients were diagnosed with benign lesions.

CONCLUSION

Results of present study concluded that 20% of solitary thyroid nodules are malignant, malignancy was significantly associated with gender. Papillary carcinoma is the commonest malignancy of Solitary Thyroid nodule.

REFERENCES

1. Fernando JR, Raj SE, Kumar AM, Amanda H. Clinical study of incidence of malignancy in solitary nodule of thyroid. *International Journal of Scientific Study*, 2017 Jul 1; 5(4): 232-6.
2. Anil G, Hedge A, Chong FV. Thyroid nodules: risk stratification for malignancy with ultrasound and guided biopsy. *Cancer Imaging*, 2011; 11(1): 209.
3. Dataram B, Arunachalam J, Muthukumaraswamy B. A clinic pathological study of solitary nodule of thyroid. *Into Surge J*, 2017; 4: 2288- 90.
4. Maia FF, Zantut-Wittmann DE. Thyroid nodule management: clinical, ultrasound and cytopathological parameters for predicting malignancy. *Clinics*, 2012 Aug; 67(8): 945-54.
5. Pellegriti G, Frasca F, Regalbutto C, and Squawroot S, Vinery R. Worldwide increasing incidence of thyroid cancer: update on epidemiology and risk factors. *Journal of cancer epidemiology*, 2013; 2013.
6. Shrestha D, Shrestha S. The incidence of thyroid carcinoma in Multinodular goiter: A retrospective study. *JCMS Nepal*, 2014; 10(4): 18-21.

7. Elusory B. The Management of Thyroid Nodules. Turkish archives of otorhinolaryngology, 2015 Dec; 53(4): 173.
8. Fernando JR, Raj SEK, Kumar AM, Amanda H. Clinical Study of Incidence of Malignancy in Solitary Nodule of Thyroid. *Into J Sic Stud*, 2017; 5(4): 232-236.
9. Because of this reason, solitary thyroid nodules have to be treated with high degree of suspicion and plan treatment in a systematic manner.
10. Kathie KS, Suresh SS, Balakrishna MA, Ramesh DB. Study of incidence of malignancy in clinically benign thyroid swelling. *South Asian journal of cancer*, 2015 Jul; 4(3): 151.
11. Lomeli SR, Leboa SO, Ferris RL. Evaluation of a thyroid nodule Otolaryngology clinics of North America, 2010 Apr 1; 43(2): 229-38.
12. Kicker R. A clinical study of solitary nodule thyroid. *Into Surge J*, 2016; 3: 872-5.
13. Mammon AA, Alma Z, Hague R, Has a DM. Study of Pathological Variations of Solitary Thyroid Nodule, 2014; 9.
14. Solymosi T, Lukas Tooth G, Buda L, Gal I. The clinical and pathological presentation of thyroid nodules in children and the comparison with adult population: experience of a single institution. *International journal of endocrinology*, 2016; 2016.
15. Ahmed S, Johnson PT, Horton KM, Lai H, Sheer A, Tsai S, Fishman EK. Prevalence of unsuspected thyroid nodules in adults on contrast enhanced 16- and 64-MDCT of the chest. *World journal of radiology*, 2012 Jul 28; 4(7): 311.
16. Bazar NA, Khan MA. Frequency of Malignancy in solitary thyroid nodule. *PAKISTAN JOURNAL OF MEDICAL & HEALTH SCIENCES*, 2015 Jul 1; 9(3): 983-5.
17. Browse NL. An introduction to the symptoms and signs of surgical disease. 3^r ed. London, ELBS, 1998; 3: 266-8.
18. Islam MR, Ekramuddaula AF, Alma MS, Jabir MS, Hossain MD, Aladdin A. Frequency & pattern of malignancy in solitary thyroid nodule. *Bangladesh Journal of Otorhinolaryngology*, 2009; 15(1): 1-5.
19. Khairy GH. Solitary thyroid nodule: the risk of cancer and the extent of surgical therapy. *East African medical journal*, 2004; 81(9): 459-62.
20. Anwar K, Din G, Zara B, Shahabad I. The Frequency of Malignancy in Nodular Goiter –A Single Center Study. *J Postgrad Med Inset*, 2012; 26(1): 96-101.
21. Hossain MA, Sarkar MZ, Dutta UK, Karim MA, Alma MZ. Frequency of Malignancy in solitary Thyroid nodule and Multi-nodular Goitre. *Bangladesh Journal of Otorhinolaryngology*, 2014; 20(2): 55-9.
22. Jena A, Patna yak R, Prakash J, Sachem A, Suresh V, Lakshmi AY. Malignancy in solitary thyroid nodule: A clinicoradiopathological evaluation. *Indian journal of endocrinology and metabolism*, 2015 Jul; 19(4): 498.
23. Tai JD, Yang JL, Wu SC, Wang BW, Chang CJ. Risk factors for malignancy in patients with solitary thyroid nodules and their impact on the management. *Journal of cancer research and therapeutics*, 2012 Jul 1; 8(3): 379.