

A Prospective Study on Incidence of Thyrotoxicosis And Malignancy in Multinodular Goitre in Central Tamilnadu Population

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Abstract: The thyroid gland is an endocrine organ, normally impalpable and its main function is regulation of basal metabolic rate. It stimulates somatic and psychic growth. Diseases of thyroid gland especially multinodular goiter is prevalent in India. Our prospective study planned to calculate the incidence of thyrotoxicosis and malignancy in multinodular goitre in central Tamilnadu population, and the results tabulated which shows a significant risk of malignancy in MNG.

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I. Introduction

The thyroid gland is an endocrine organ, normally impalpable and its main function is regulation of basal metabolic rate. It stimulates somatic and psychic growth. Diseases of thyroid gland especially multinodular goiter is prevalent in India. We planned to conduct a prospective study of incidence of thyrotoxicosis and malignancy in MNG in central Tamilnadu over a period of five years (2012-2017) in our tertiary care speciality hospital..

Aims And Objectives:

To find the incidence of thyrotoxicosis and malignancy in multinodular goitre in central Tamilnadu.

Materials And Methods:

Study Type: Observational study

Study Design: Non randomized prospective study

Study Group: Over five years, 50 patients with multi nodular goitre attending the General surgery department of GMK medical college and hospital, Salem were considered as data source. Individuals who fulfilled the inclusive and exclusive criteria were enrolled in the study.

Inclusion criteria:

1. Age : of any age group
2. Both males and females
3. Multinodular goitre clinically

Exclusion criteria:

1. Not willing to give consent
2. Hypothyroidism

Study method instituted:

50 patients with multinodular goitre presenting to General surgery department were included in this study. All these patients were regularly followed over a period of five years. Clinical , biochemical, radiological, and histological assessment were made on a frequent basis. Blood T3,T4,TSH,ultrasound thyroid, CT neck, FNAC thyroid were done regularly and results were documented , analysed and tabulated as per statistical package.

Ethical Clearance : obtained from Institutional Ethical Committee.

Follow up:

Bimonthly follow up was done in all patients for a period of 5 years

II. Results

Table(1) age and gender distribution of study population.

Gender	Frequency	Percentage
Male	6	12%
Female	44	88%
Total	50	100%
Age Classification:		
Adolescent	1	2%
Adults	29	58%
Elders	19	38%
Oldage	1	2%
Total	50	100%

From the above table , it is clearly noted that females(88%) were more affected than males (12%). From their age categorization, adults in the age group between 20 years to 50 years constituted nearly 2/3 rd (58%) of the study. Elders between 50 yearsto 65 years constituted 38% of the study. Adolescents contributed only 2% of the total study population.

Figure 01: Age and Gender Distribution of the Study Population

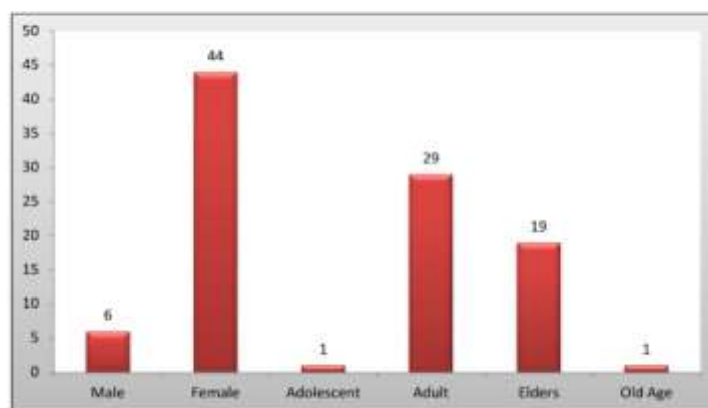


Table 2: Distribution of the duration of the disease in studypopulation

Duration Of The Disease (In Years)	Frequency	Percentage
< 1 Year	25	50%
1-5 Years	20	40%
5-10 Years	1	2%
>10 Years	4	8%
Total	50	100%

Half of the patients came to seek medical attention within one year of appearance of symptoms. 40% sought treatment between 1 to 5 years of symptoms. One tenth consulted after experiencing the symptoms for a period between 5 to 10 years (2%) and greater than 10 years (8%).

Table 3: Mean age and duration of disease :-

Statistics	Age In Years	Duration Of Disease (Years)
Mean	45.18	2.068
Standard Deviation	13.448	3.3891
Minimum	19	0.1
Maximum	70	15.0

This table shows that the mean age of the studied population was 45.18. The average duration of the disease was 2.06 years with earliest symptomatic complaint experienced at 20 days (0.1 years) and later being 15 years.

Table 4: Thyroid profile of the study population:

Tsh	Frequency	Percentage
Abnormal (Thyrotoxicosis)	16	32%
Normal	34	68%
Total	50	100%

More than 2/3rd (68%) of patients had a normal thyroid profile characterized by normal TSH.

Table 5: Fine needle aspiration cytology findings of study population.

S.No	Pathology	Frequency	Percentage
1.	Colloid Goitre	23	46%
2.	Colloid Nodular Goitre	15	30%
3.	Follicular Neoplasm	3	6%
4.	Hashimoto Thyroiditis	5	10%
5.	Nodular Goitre	3	6%
6.	Papillary Carcinoma	1	2%
7.	Total	50	100%

FNAC of the thyroid revealed that in almost half (46%) of the patients , colloid goitre was seen, colloid nodular pattern was seen in 30% and carcinoma was observed in 8% of the patients. Total thyroidectomy were performed in all these cases after bringing the patients to euthyroid state.

Table 6: Histopathological examination report (HPE) of all the studied cases:

HPE REPOPRT		FREQUENCY	PERCENTAGE
BENIGN	MNG	44	88%
	FOLLICULAR ADENOMA	1	2%
MALIGNANT	FOLLICULAR CARCINOMA	1	2%
	PAPILLARY CARCINOMA	4	8%

A benign nature of disease was observed in 90% of patients , while 10 % reported malignant nature of the thyroid swelling.

III. Discussion

Thyroid carcinoma represents the most frequent form of cancer of endocrine glands⁽¹⁾ . Also a retrospective study concluded that the risk of malignancy in MNG has not to be underestimated and Gandolfietal⁽¹⁾ ascertained that presence of multinodulargoitre is a risk factor for thyroid carcinoma. Cercic et al⁽²⁾ concluded that the incidence of malignancy was 9 to 10.58% in both toxic and non toxic multinodular goiters. Multinodulargoitre is best defined as the clinical palpation of distinct multiple nodules in the enlarged thyroid gland. MNG has been long thought to be the lowest risk of malignancy but recent studies show that risk of malignancy in MNG is high. Benzarti et al⁽³⁾ found a 9.5% incidence of malignancy in MNG, but Prades et al⁽⁴⁾ reported 12.2% incidence of malignancy in his study. Our study reports 10% malignant incidence in MNG with a preponderance of papillary carcinoma.

Our study showing preponderance of papillary carcinoma in MNG is consistent with previous study by Koh KB et al⁽⁵⁾ and Hanumanthappa et al⁽⁶⁾. Barker DJ etal reported an annual incidence of thyrotoxicosis varying from 9.7 to 49.2 per 100,000 in his study in Lancet⁽⁷⁾. Our study reports 32% of thyrotoxicosis in MNG in central Tamilnadu population.

IV. Conclusion

Our study concludes that the risk of malignancy in multinodulargoitre is not very low as it is generally thought , but incidence is very significant . Henceforth, all patients with multinodulargoitre , have to be followed frequently and very closely for malignancy screening.

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