

Evaluation of Incidence of Malignancy in Goiter of Thyroid

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Abstract:

Back ground: Thyroid malignancy is the most common endocrine malignancy. Its incidence is on increasing trend in recent years. Thyroid cancer is a cancer that develops from tissues of thyroid gland. It is a disease in which cells grow abnormally and have the potential to spread to other parts of the body. Women are more affected often than men. Asian descents are more commonly affected. It most commonly occurs between ages of 35 to 65 years.

Materials and Methods: The study of 100 cases selected by prospective cohort study technique, patients with goiter undergoing evaluation and admitted in surgical wards of Coimbatore medical college hospital, Coimbatore. during the period from January 2018 to January 2019. Data collection by history taking, clinical examination and operative findings, histopathological report and follow up of cases.

Results: Multi nodular goiter is a risk factor for thyroid malignancy. Patient underwent total thyroidectomy around 84% and 16% of patients in study underwent hemithyroidectomy. Through results and observation of study, Papillary carcinoma was found to be the most common malignancy in our study with incidence of about 15%, following by which it was follicular carcinoma of 4% and anaplastic carcinoma incidence of 2%.

Conclusion: Commonest cause of goiter of thyroid is multi-nodular goiter. Papillary carcinoma is the most common malignancy of thyroid, followed by follicular carcinoma.

Key Word: Goiter, thyroid malignancy, papillary carcinoma, follicular carcinoma.

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I. Introduction

Thyroid malignancy is a relatively rare tumour, but it represents the most frequent form of endocrine malignancy¹. It represents 1% of human neoplasm and its annual incidence is estimated worldwide from 0.5 to 10:100,000 in world population⁴. Thyroid nodule has been reported to be found in 4% to 7% of the population and in 20% to 50% of population by ultrasonography. Multinodular Goitre (MNG) had been traditionally thought to be at low risk malignancy as compared to a solitary nodule however various studies have reported a 7 to 17% incidence of malignancy in goitre³. Thyroid carcinoma most commonly presents as a painless, palpable, solitary thyroid nodule. The clinical presentation usually presents as a solitary nodule in either of the lobes. Any recent rapid increase in size, hard or fixed mass is a suspicious⁴. A lateral neck swelling as a cervical lymph node metastasis may occasionally be the only clinical presentation⁵. Onset of pressure symptoms like hoarseness of voice or dysphagia may suggest malignant infiltration to involve Recurrent Laryngeal Nerve or esophagus. This is especially important to be identified in longstanding swellings of thyroid with endemic or multinodular goitre². A thorough clinical examination, assessment of thyroid function by Thyroid function tests will give a preliminary idea of the possible pathology. The introduction in the 1980s and the subsequent widespread use of ultrasonography and fine-needle aspiration biopsy, along with increased use of diagnostic imaging modalities, such as CT, MRI and PET, has led to increased detection of small thyroid nodules and diagnosis of thyroid cancer at an early stage⁶. Ultrasound study of neck performed by 6Hz probe gives an idea about the site, size, cystic or solid consistency of the nodule and can give a complete assessment of even the non-palpable thyroid gland and the possible presence of lymph node enlargement. Presence of a hard nodule or a lateral neck node is to be followed up by Contrast enhanced Computed tomography of Neck for a better evaluation⁸. Fine Needle Aspiration Cytology is the main stay of pathological assessment. It has a limitation of inability to differentiate between follicular adenoma or Carcinoma. Apart from this FNAC is 75% specific and 96% sensitive for the diagnosis of Well Differentiated Carcinoma of Thyroid Gland. There has been a standardization of FNAC picture by adoption of BETHESDA SYSTEM in 2009⁹. After investigations Patient is treated by Total thyroidectomy and central neck node dissection for all high-risk Papillary Carcinomas, and medullary carcinomas. Follicular neoplasm is dealt by hemithyroidectomy and is followed up with completion thyroidectomy if the histopathology report proves invasive carcinoma¹⁰. Anaplastic carcinoma is managed by radioiodine ablative therapy and Isthmusectomy with tracheostomy is done only in acute respiratory

obstruction with stridor¹¹. Estimation of thyroglobulin as a tumor marker and as a baseline serum marker is important to know the prognosis and also to choose the radioiodine dose for postoperative follow up¹².

II. Material And Methods

Patients with goiter of thyroid undergoing evaluation and admitted in surgical wards in Coimbatore medical college hospital during a period from January 2018 to January 2019, a total of 100subject were for this.

Study design: Prospective observational study.

Study location: Department of General Surgery at Coimbatore Medical College Hospital, Coimbatore, Tamilnadu.

Study duration: January 2018 to January 2019.

Sample size: 100 patients.

Inclusion Criteria:

Patient admitted in surgical wards of Coimbatore medical college hospital with features of goiter.

Exclusion Criteria:

1. Patient below 18 years of age
2. Patient in pregnancy
3. Patient with evidence of thyroid malignancy proven with FNAC/ TRUCUT biopsy

Procedure methodology:

Data collection by history taking, clinical examination and operative findings, histopathological report and follow up of cases.

III. Result

A prospective analysis of 100 cases of goiter of thyroid, admitted in Coimbatore medical college has been made and summarized below:

1. Commonest presentation of goiter is swelling in front of neck.
2. The peak age at presentation in goiter of thyroid is 2nd to 4th decade.
3. Goiter is more common in females.
4. Most of the goiter of thyroid are benign.
5. After evaluation of goiter of thyroid, clinically goiter turned out to be multi-nodular goiter.
6. Around 79% of colloid goiter and 92.3 % of papillary carcinoma were present in females. Follicular carcinoma, lymphoma and thyroiditis are found only in females. Anaplastic carcinoma was found only in Males.
7. The most common malignancy in solitary nodule thyroid is papillary carcinoma, followed by follicular carcinoma.

TABLE NO 1: Distribution of study population according to age group

Age	Frequency	Percentage
<20	2	2
21-30	27	27
31-40	47	47
41-50	16	16
51-60	4	4
>60	4	4
Total	100	100

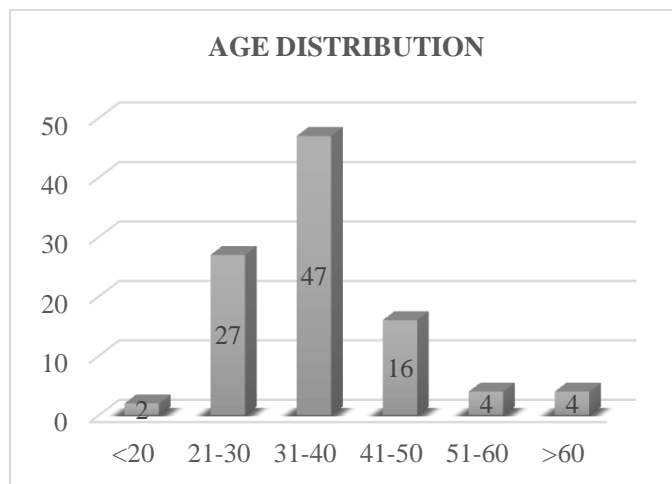


TABLE NO. 2: Distribution of study population according to gender

Gender	Frequency	Percentage
Male	21	21
Female	79	79
Total	100	100

Around 79 % of study population were females

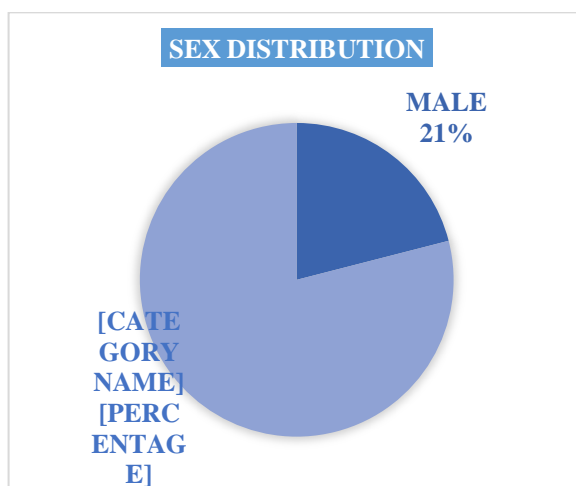


TABLE NO. 3: Distribution of study population according to duration of swelling

Duration	Frequency	Percentage
<6month	1	1
6month-1year	25	25
1year-2years	34	34
2years-3years	31	31
3years-4years	6	6
>4years	3	3
Total	100	100

Around 34 % of study population had symptoms for 1-2 years, and about 31% had symptoms up to 2-3 years.

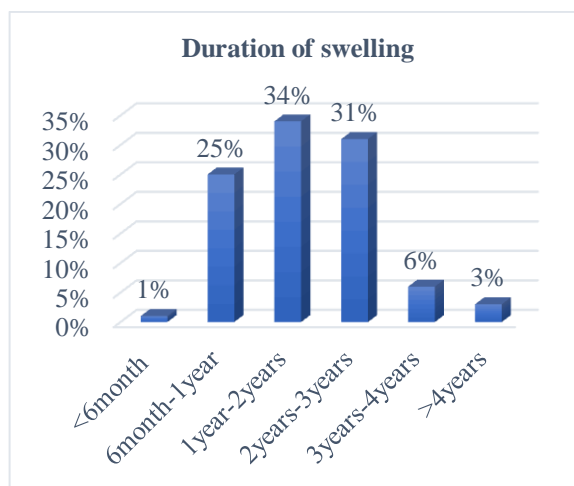


TABLE NO. 4: Distribution of study population according to Final diagnosis

Outcome	Frequency	Percentage
Colloid goiter	71	71
Papillary carcinoma	13	13
Follicular adenoma	8	8
Follicular carcinoma	4	4
Anaplastic carcinoma	2	2
Lymphoma	1	1
Thyroiditis	1	1
Total	100	100

Majority of the study population had colloid goiter (72%), followed by papillary carcinoma (15%) and follicular adenoma (8%)

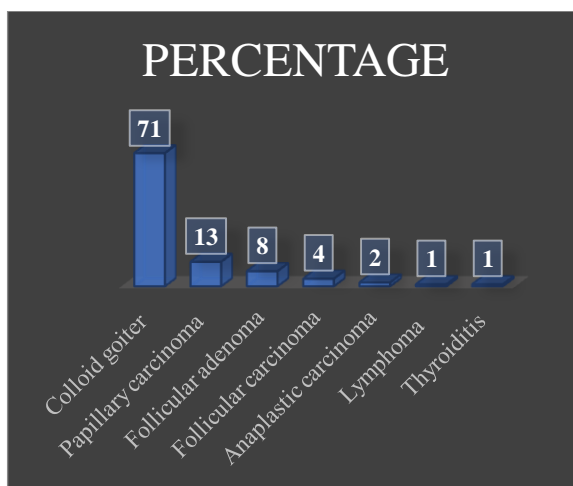


TABLE NO. 5: Association between gender and Final diagnosis

Gender	Colloid goiter	Papillary carcinoma	Follicular adenoma	Follicular carcinoma	anaplastic carcinoma	Lymphoma	Thyroiditis	P value
Male	15	1	3	0	2	0	0	0.038
Female	56	12	5	4	0	1	1	

Around 79% of colloid goiter and 92.3 % of papillary carcinoma were present in females. Follicular carcinoma, lymphoma and thyroiditis are found only in females. Anaplastic carcinoma was found only in Males. The results are statistically significant.

TABLE NO.6: Association between type of nodule and Final diagnosis

Type of nodule	Colloid goiter	Papillary carcinoma	Follicular adenoma	Follicular carcinoma	Anaplastic carcinoma	lymphoma	Thyroiditis	P Value
MNG	57	3	2	4	2	0	1	0.00
Solitary nodule	14	10	6	0	0	1	0	

Around 80% of colloid goiter was multinodular. Around 75 % of follicular adenoma and 77% of papillary carcinoma were solitary. Anaplastic carcinoma, follicular carcinoma and thyroiditis were present only in multinodular goiter. Lymphoma was present as solitary nodule alone. These results are statistically significant.

TABLE NO. 7: Association between age group and Final diagnosis

Age	Colloid goiter	Papillary carcinoma	Follicular adenoma	Follicular carcinoma	Anaplastic carcinoma	lymphoma	Thyroiditis	P Value
<20	2	0	0	0	0	0	0	0.001
21-30	22	2	2	1	0	0	0	
31-40	33	9	3	2	0	0	0	
41-50	9	2	2	1	0	1	1	
51-60	2	0	0	0	2	0	0	
>60	3	0	1	0	0	0	0	

Around 77% of colloid goiter was present in the age group of 21-40 years. All the papillary carcinoma occurred between 31-50 years. Anaplastic carcinoma occurred at 51-60 years. Lymphoma and thyroiditis occurred at 41-50 years. . The results are statistically significant.

TABLE NO. 8: Association between duration of symptoms and Final diagnosis

Duration of symptoms	Colloid goiter	Papillary carcinoma	Follicular adenoma	Follicular carcinoma	Anaplastic carcinoma	lymphoma	Thyroiditis	P Value
<6month	1	0	0	0	0	0	0	0.77
6month-1year	17	3	2	2	1	0	0	
1year-2years	24	4	4	1	1	0	0	
2years-3years	21	6	2	1	0	0	1	
3years-4years	5	0	0	0	0	1	0	
>4years	3	0	0	0	0	0	0	

There is no significant difference between duration of symptoms and the final diagnosis

IV. DISCUSSION

This is prospective study which included around 100 patients who presented with goiter thyroid nodules are relatively more common in general population with more prevalence among women from 21 – 40 years with female predominance of 79%. Study revealed to have more multi nodular goiter than solitary nodular goiter which are discovered by palpation on physical examination. Multi nodular goiter is defined as palpation of multiple discrete nodules over enlarged thyroid gland. Though the etiopathogenesis has not been very clear, multiple causal studies have been done some causal relationship take impairment of hormone synthesis increased sodium clearance from iodine, increased presence of thyroid stimulating Ig’s have been postulated. Multi nodular goiter is a risk factor for thyroid malignancy. Patient underwent total thyroidectomy around 84% and 16% of patients in study underwent hemithyroidectomy. Through results and observation of study, papillary

carcinoma was found to be the most common malignancy in our study with incidence of about 15%, following by which it was follicular carcinoma of 4% and anaplastic carcinoma incidence of 2%. Around 34 % of study population had symptoms for 1-2 years, and about 31% had symptoms up to 2-3 years. Majority of the study population had colloid goiter (72%), followed by papillary carcinoma (15%) and follicular adenoma (8%). Around 79% of colloid goiter and 92.3 % of papillary carcinoma were present in females. Follicular carcinoma, lymphoma and thyroiditis are found only in females. Anaplastic carcinoma was found only in Males. Around 80% of colloid goiter was multinodular. Around 75 % of follicular adenoma and 77% of papillary carcinoma were solitary. Anaplastic carcinoma, follicular carcinoma and thyroiditis were present only in multinodular goiter. Lymphoma was present as solitary nodule alone. Around 77% of colloid goiter was present in the age group of 21-40 years. All the papillary carcinoma occurred between 31-50 years. Anaplastic carcinoma occurred at 51-60 years. Lymphoma and thyroiditis occurred at 41-50 years. There is no significant difference between duration of symptoms and diagnosis.

V. Conclusion

The present study is a prospective analysis of 100 cases of goiter of thyroid, admitted in Coimbatore medical college. Though a large number of patients are required to come to better conclusions, based on the data and results obtained in the present study, the following conclusions can be drawn:

- Goiter of thyroid is more common in females.
- Goiter of thyroid is more common the age group of 20-50years.
- Most of the patients with goiter of thyroid present with swelling alone.
- Incidence of malignancy in female patients presenting with goiter of thyroid Is more when compared to male patients presenting with the same.
- commonest cause of goiter of thyroid is multi-nodular goiter.
- Papillary carcinoma is the most common malignancy of thyroid, by follicular carcinoma.

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