

CLINICO-PATHOLOGICAL STUDY OF THYROID LESIONS OVER A PERIOD OF ONE YEAR IN A TERTIARY CARE CENTRE

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ABSTRACT

BACKGROUND

Thyroid diseases are one of the common endocrine abnormalities, both in India and worldwide. Diseases of the thyroid are of great importance because they are most amenable to medical or surgical management.

The objectives of this study are 1. to evaluate the age and sex distribution of various thyroid lesions 2. to assess its prevalence and 3. to compare its clinical presentation with histopathology.

MATERIALS AND METHODS

The present study is a descriptive study conducted for a period of one year from Jan 2015 to December 2015, conducted in the Department of Surgery, King George Hospital, Visakhapatnam. Clinical details were recorded as per the proforma. Tissue for H and E sections were fixed in 10% formalin and subjected to routine paraffin embedded processing and stained with Haematoxylin and Eosin.

RESULTS

Out of total 72 cases of thyroid lesions, maximum number of lesions were seen in patients in the age group of 31 - 40 years (n= 21, 29.16%) with females being more commonly affected than males and with male-to-female ratio of 1:11. Most common clinical symptom was midline neck swelling. Out of 72 cases, 56 cases (77.78%) were diagnosed as non-neoplastic and remaining 16 cases (22.22%) as neoplastic.

CONCLUSION

Combined opinion on nature of thyroid lesion should be done based on history, clinical examination and ultrasonographic features. Histopathological diagnosis of thyroid lesions is important for early diagnosis and treatment of neoplastic lesions.

KEY WORDS

Thyroid, Malignancy, Papillary Carcinoma.

HOW TO CITE THIS ARTICLE: Gopal MR, Rao KJ, Sai AR. Clinico-pathological study of thyroid lesions over a period of one year in a tertiary care centre. J. Evolution Med. Dent. Sci. 2018;7(31):3513-3517, DOI: 10.14260/jemds/2018/790

BACKGROUND

Thyroid lesions are fairly common worldwide and are commonly encountered in clinical practice.¹ Thyroid swellings are very superficial, easily visible and display an intriguing range of lesions, widely differing in biological behaviour and are source of concern for the patient and a diagnostic dilemma for physicians.²

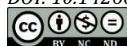
Clinically, apparent thyroid nodules are seen in 4 - 5% of population. Majority of thyroid swellings are non-neoplastic, only < 5% are malignant.³ Thyroid lesions may be developmental, inflammatory, hyperplastic and neoplastic. The surgical excision of the nodule and its histological examination is the only way to differentiate between the more frequent benign and much less frequent malignant nodules.⁴

Accurate diagnosis of thyroid nodule is necessary for appropriate clinical management of patients and to avoid unnecessary surgical interventions.

'Financial or Other Competing Interest': None.
Submission 07-06-2018, Peer Review 13-07-2018,
Acceptance 20-07-2018, Published 30-07-2018.
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DOI: 10.14260/jemds/2018/790



The present study is a clinico-pathological study of thyroid lesions in a tertiary care centre with the main objectives of studying the spectrum of diseases in thyroid swellings along with its histopathology.

MATERIALS AND METHODS

Study Design

The present study is a descriptive study for a period of one year from Jan 2015 to December 2015, conducted in the Department of Surgery, King George Hospital, Visakhapatnam.

Inclusion Criteria

Hemithyroidectomy, subtotal thyroidectomy and total thyroidectomy specimens received for histopathological examination suspected for neoplastic and non-neoplastic lesions of thyroid.

Exclusion Criteria

Recurrent lesions and cases on therapy were excluded from the study.

Study Subjects

In this study, a total of 72 patients with thyroid swellings were taken attending Surgery Department were selected. A complete history of the patient pertaining to complaints were obtained. The clinical details were recorded as per the

proforma along with Ultrasonographic (USG) findings and related investigations were taken into consideration. Fine needle aspiration was done by using non-aspiration technique except for cystic lesions. In case of non-diagnostic aspirates, the procedure was repeated.

Post-operatively, the cases were followed. Specimens were collected in 10% formalin in fresh state and allowed to fix for 24 hours.

Detailed gross examination was done, and bits were given. Paraffin-embedded Haematoxylin and eosin-stained sections were obtained and studied under light microscopy. The tumours were classified based on WHO classification of thyroid tumours.

Data was analysed using SPSS Software Version 13.

RESULTS

In the present study, a total of 72 patients with thyroid swellings were taken for the study for a period of one year from Jan 2015 to December 2015.

The age of the patients ranged from 5 years to 70 years with a mean age of 35 years. Maximum number of lesions were seen in patients in the age group of 31 - 40 years (n= 21, 29.16%) followed by 21 - 30 years (n= 16, 22.22%) and 41-50 years (n= 15, 20.83%) (Table 1).

In the present study, a female predilection was seen. It was observed that 66 (91.66%) cases were females and 6(8.33%) cases were male (Table 2). Male-to-female ratio was noted to be 1: 11. Most common age group affected in females were 31 - 40 years, comprising of 19 cases 26.38% (Table 3).

In the present study, most common clinical symptom was midline neck swelling seen in almost all cases (69 cases - 95.83%) followed by menstrual irregularity (12 cases - 16.66%) and dyspnoea (1 case - 1.38%). Out of 72 cases, 35 (48.61%) patients presented with thyroid swelling involving right lobe followed by 31 patients (43.05%) involving left lobe and 6 patients (8.33%) presented with diffuse thyroid swelling (Table 4).

In the present study, all patients underwent ultrasonography where the majority of patients were reported with colloid goitre (42 cases - 58.33%) followed by multinodular goitre (13 cases - 18.05%), solitary thyroid nodule (9 cases - 12.5%) (Figure 1) and thyroiditis (2 cases - 2.77%) (Table 5).

In the present study, out of total 72 cases 56 cases (77.78%) were diagnosed as non-neoplastic and remaining 16 cases (22.22%) as neoplastic.

In the present study among non-neoplastic lesions, simple colloid goitre 39 cases (69.64%) was found to be the most common followed by multinodular goitre 9 cases (16.07%), Hashimoto’s thyroiditis 7 cases (12.5%) and granulomatous thyroiditis 1 case (1.78%).

In the present study, among neoplastic cases follicular adenoma (8 cases - 50%) was found to be the most common followed by papillary carcinoma (4 cases - 25%), (Figure 2, 3) follicular carcinoma (3 cases - 18.75%) and Medullary carcinoma (1 case - 6.25%) (Figure 4). Ratio of non-neoplastic to neoplastic lesions is 3.5: 1 (Table 6). Out of 42 clinically diagnosed cases of colloid goitre 39 cases were consistent with histopathological diagnosis, 2 cases turned

out to be follicular adenoma and the other as multinodular goitre.

Out of 13 clinically diagnosed cases of multinodular goitre 9 cases correlated with histopathological diagnosis, 2 cases turned out to be Hashimoto’s thyroiditis, one case was follicular adenoma and the other case was papillary carcinoma.

Out of 4 clinically diagnosed cases of solitary thyroid nodule 2 cases turned out to be papillary carcinoma, out of which one was follicular variant of papillary carcinoma, 2 cases turned out to be multinodular goitre.

Out of 5 clinically diagnosed cases of papillary carcinoma, 2 were consistent with the histopathological diagnosis, whereas out of the other 3 deferred cases one case turned out to be multinodular goitre, one was Hashimoto’s thyroiditis and the other turned out to be medullary carcinoma.

Age	No. of Cases	Percentage (%)
0-10	1	1.38
11-20	4	5.55
21-30	16	22.22
31-40	21	29.16
41-50	15	20.83
51-60	14	19.44
61-70	1	1.38
Total	72	100

Table 1. Age Wise distribution of Thyroid Lesions (n= 72)

Sex	No. of Cases	Percentage (%)
Female	66	91.67%
Male	6	8.33%
Total	72	100

Table 2. Sex Wise distribution of Thyroid Lesions (n=72)

Age	Male	Female	Total
0-10	0	1	1
11-20	1	3	4
21-30	1	15	16
31-40	2	19	21
41-50	1	14	15
51-60	1	13	14
61-70	0	1	1
Total	6	66	72

Table 3. Age and Sex distribution of Thyroid Lesions (n=72)

Clinical Symptoms	No. of Cases	(%)
Midline neck swelling	69	95.83%
Menstrual irregularity	12	16.66%
Dyspnoea	1	1.38%
Hoarseness of voice	1	1.38%

Table 4. Clinical Symptoms in Cases with Thyroid Lesions

USG Findings	No. of Cases	(%)
Colloid goitre	42	58.33%
Multinodular goitre	13	18.05%
Solitary thyroid nodule	9	12.5%
Thyroiditis	2	2.77%

Table 5. USG Findings in Thyroid Lesions

Thyroid Lesions	Histopathological Diagnosis	No. of Cases	Percentage of Cases (%)
Non-neoplastic	Simple colloid goitre	39	69.64%
	Multinodular goitre	9	16.07%
	Hashimoto's thyroiditis	7	12.5%
	Granulomatous thyroiditis	1	1.78%
Neoplastic	Follicular adenoma	8	50%
	Papillary carcinoma	4	25%
	Follicular carcinoma	3	18.75%
	Medullary carcinoma	1	6.25%

Table 6. Distribution of Non-Neoplastic and Neoplastic Lesions of Thyroid

Studies	Age Range (Years)	Mean Age
Handa et al ⁶	5 - 80 yrs.	37.69 yrs.
Gupta et al ⁸	22 - 58 yrs.	38.72 yrs.
Sameep et al ⁷	10 - 80 yrs.	38.50 yrs.
Present study	5 - 85 yrs.	35 yrs.

Table 7. Age Range in different studies in comparison with Present Study

Studies	Non-Neoplastic	Neoplastic	Ratio
Sangalli et al ²⁰	3343	2126	1.57: 1
Tabaqchali et al ²¹	145	94	1.54: 1
Uma Handa et al ⁶	54	12	4.5: 1
Present Study	56	16	3.5: 1

Table 8. Distribution of Non-Neoplastic to Neoplastic Lesions in different Studies



Figure 1. Elderly Male with Solitary Nodule Thyroid

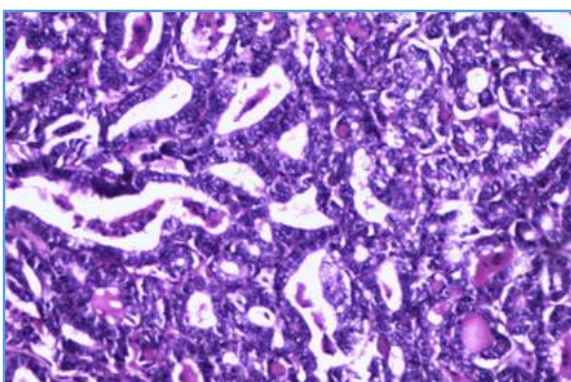


Figure 2. Photomicrograph of Follicular variant of Papillary Carcinoma showing Follicular Arrangement of Tumour Cells with Ground Glass Nuclei (H and E, 100X)

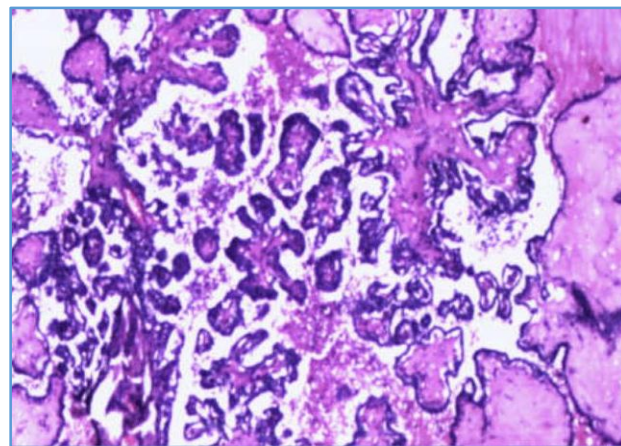


Figure 3. Photomicrograph of Papillary Carcinoma showing Typical Arborizing Papillae with Fibrovascular Core (H and E, 40X)

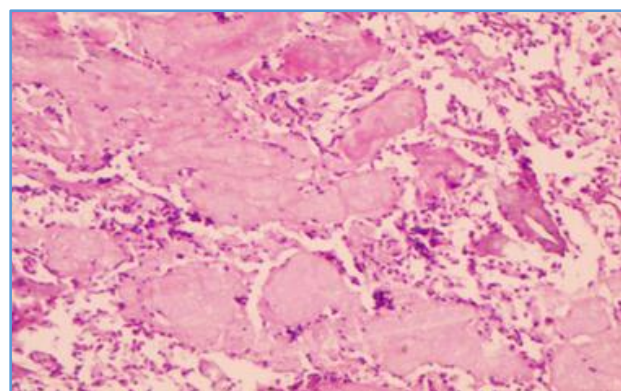


Figure 4. Photomicrograph of Medullary Carcinoma showing Homogeneous Pink Amyloid-Like Material (H and E, 100X)

DISCUSSION

Occurrence of thyroid diseases vary according to different geographical areas, age and sex.⁵ In the present study, an attempt was made to figure out the histopathological pattern of thyroid diseases in those undergoing thyroidectomies along with their clinico-radiological details.

In the present study, the age of the patients ranged from 5 years to 70 years with a mean age of 35 years. This was similar to Handa et al⁶ and Sameep et al,⁷ which showed 5-80 years. The mean age was similar to studies done by Handa et al,⁶ Gupta et al⁸ and Sameep et al⁷ with values of 37.69 years, 38.72 years and 38.50 years respectively (Table 7).

In this study out of total 72 cases, 56 cases (91.66%) were female and 6 cases (8.33%) were male with male: female ratio of 1: 11. This was similar to Handa et al⁶ and Sameep et al,⁷ which showed similar 1:11 ratio. The present study also correlated with the studies conducted by Ghazaleh et al⁹ (16% male and 84% female), Alam et al¹⁰ (13% male and 87% female) and Sathiyamurthy et al¹¹ (20% male and 80% female).

Swelling in the neck was the most common clinical presentation noted in this study, similar to the findings seen in Karthik Kathladka et al¹² (100%) and Hanumanthappa et al¹³ (92%). Local compressive symptoms such as dyspnoea, dysphagia, menstrual irregularities, lymphadenopathy and weight related problems were the other associated symptoms observed. In study conducted by Prakash A et al,¹⁴ thyroid

swelling was in 95.5% cases and Godinho-Matos L et al,¹⁵ the thyroid swelling was present in 100% cases, dyspnoea in 3% cases and hoarseness of voice in 3% cases.

The variability of various lesions could be due to studies being conducted on different population of various countries and variable influences of geographical, environmental, dietary and hereditary factors.

Ultrasonography (USG) is used to establish physical characteristics like size, shape and number of nodules.⁴ In the present study, colloid goitre (42 cases - 58.33%) was the most common finding on USG followed by multinodular goitre comprising of (13 cases - 18.05%). Similar study conducted by Gupta et al,⁴ multinodular goitre (55%) was the most common ultrasonographic finding followed by solitary thyroid nodule (19%).

In the present study, total thyroidectomies included were 36.4% and hemithyroidectomy specimens were 56.7%. Chetan VR et al¹⁶ study noted hemi-thyroidectomies that comprised of 66% compared to just 10% of hemithyroidectomies in Karthik Kathladka et al¹² study. In a study by Mattioli FP et al,¹⁷ subtotal thyroidectomy was shown to be an adequate surgical intervention for MNG. In a review by Masslot et al¹⁸ they preferred total thyroidectomy over subtotal thyroidectomy, as the later procedure may require re-intervention in the long-term follow-up and subsequent surgeries had higher chances of complications like hypoparathyroidism and recurrent laryngeal nerve palsy. Kartikeyan et al¹⁹ study showed that subtotal thyroidectomy has reduced incidence of complications, but increased risk of recurrence. As complications are more common in second-look surgeries, it is preferable to perform total thyroidectomy.

The distribution of non-neoplastic and neoplastic lesions was similar to Uma Handa et al,⁶ but higher compared to studies by Sangalli et al²⁰ and Tabaqchali et al²¹ (Table 8).

Among non-neoplastic lesions colloid goitre was the most common lesion 39 cases (69.64%) followed by multinodular goitre 9 cases (16.07%). Magdalene et al²² noted colloid goitre (42%) was the most common lesion in their studies and Kusum et al²³ as multinodular goitre (73%) followed by adenomatous goitre (8%).

In the present study, benign tumours were more common than malignant tumours. Out of 72 cases, 16 cases were neoplastic. Out of this, 8 cases (50%) were benign tumours and 8 cases (50%) were malignant tumours. This was similar to Uma Handa et al⁶ study, but higher compared to Kessler et al²⁴ and Haberal et al²⁵ studies.

The clinical presentation of benign thyroid swellings has varied benign pathological diagnosis. Follicular adenoma was the most common benign tumour (8 cases - 11.11%) which correlated with studies conducted by Gupta et al⁸ (16%), Silverman et al²⁶ (5.2%) and Sathiyamurthy et al¹¹ (5.45%), but higher than Handa et al⁶ (1.84%).

In the present study, papillary carcinoma was the most common malignant tumour accounting for 4 cases (5.56%). Papillary carcinoma of follicular variant was diagnosed in 1 case (25%), which was similar compared to study conducted by Nart et al²⁷ (15.3%).

Medullary carcinoma was diagnosed in 1 case in a 41-year-old female (0.47%), which was similar to studies conducted by Silverman et al⁹ (0.6%), Handa et al⁶ (0.69%),

Sathiyamurthy et al¹¹ (0.90%), but the incidence was much lower than Nart et al²⁷ (5.4%) and Nggada et al²⁸ (4.3%).

CONCLUSION

Combined opinion on nature of thyroid lesion should be done based on history, clinical examination and ultrasonographic features. Histopathological diagnosis of thyroid lesions is important for early diagnosis and treatment of neoplastic lesions. Thyroidectomy may have both therapeutic and diagnostic value. This study emphasises the need of periodic evaluation in middle-aged female patients with multinodular goitre for early detection of papillary carcinoma. Early diagnosis and excision of lesion will provide comfort for the patient and also decrease the problems arising from malignant lesions.

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