

STUDY OF PREVALENCE OF THYROID LESIONS IN COASTAL REGION OF KARNATAKA

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ABSTRACT: BACKGROUND: The enlargement of thyroid gland is a major health concern in many parts of the world. The thyroid gland is affected by a variety of pathologic lesions that are manifested by varied morphologies. Prevalence of thyroid lesions especially goiter in coastal region is to be studied where the prevalence is usually low. **AIM:** This study was carried out to see the different types of thyroid lesions and its prevalence in the coastal region of Karnataka. **MATERIALS AND METHODS:** Lesions of the thyroid gland received for histopathological examination was studied from August 2009 to July 2011 at Department of a medical college. **RESULTS:** One hundred cases of thyroid lesion were studied. Nodular goiter was the commonest non neoplastic thyroid lesions constituting 49 cases. Follicular adenoma was the most common benign neoplasm. Papillary carcinoma was the most common malignant neoplasm. Peak incidence of thyroid lesions being were seen in the 4th decade and were more common in females. **CONCLUSION:** Thyroid nodules which occur spontaneously in 4 to 7% of adult population are source of concern for patients and a diagnostic dilemma for the physicians. The ultimate answer rests with the histopathologic examination of the excised tissue. Our study which was carried out in the coastal region showed goiter as the commonest lesion. Goiter is still prevalent in coastal region

KEY WORDS: Coastal region, Nodular goiter, papillary carcinoma.

INTRODUCTION: The enlargement thyroid gland is a major health concern in many parts of the world. Nodular goiter is the commonest lesion of thyroid gland. Goiter though a worldwide Problem is endemic in mountainous regions of the world. Thyroid lesions are less common in coastal region than in the mountainous regions. This study was carried out to observe the histopathological pattern of thyroid lesions and its prevalence in coastal region of Karnataka. Thyroid gland is the largest of all endocrine glands and because of its superficial location it is amenable to direct physical examination and biopsy. The thyroid gland is affected by a variety of pathologic lesions that are manifested by varied morphologies. Diseases of the thyroid including a vast array of developmental, inflammatory, hyperplastic and neoplastic disorders are exceedingly common in clinical practice. Thyroid lesions are more frequent in women than men. Most tumours of the follicular cells are benign, that is adenomas. Carcinomas represent the most common form of endocrine gland malignancy. Diffuse thyroid lesions are those that are associated with conditions affecting the entire gland such as hyperplasia, thyroiditis and even some malignancies. Nodular lesions comprise those disorders that produce a clinical nodule and consist of non- neoplastic hyperplasia as well as benign and malignant tumors.

MATERIALS AND METHODS: In the present study cases of non- neoplastic and neoplastic lesions of the thyroid gland who presented with swelling in front of the neck for varying period of time with or

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without toxic symptoms or with or without hypothyroid signs and symptoms was studied for the period of 2 years, from August 2009 to July 2011. Specimens included lobectomy, partial thyroidectomy, subtotal thyroidectomy and total thyroidectomy in the department of pathology of a medical college. Paraffin blocked tissue sections were stained with hematoxylin and eosin and studied under light microscopy. Diagnosis was confirmed by histopathological examination.

RESULTS: One hundred cases of thyroid lesions out of total 6200 histopathological specimens received over a period of 2 years. Present study showed 69 cases constituting 69% non neoplastic and 31 neoplastic lesions constituting 31% out of 100 thyroid cases (Table 1).

CONDITIONS	Total	Percentage
Congenital		
Thyroglossal duct cyst (TDC)	2	2
Hyperplasia's		
Colloid goiter (CG)	6	6
Nodular goiter (NG)	49	49
Grave's disease (GD)	2	2
Auto immune thyroiditis		
Lymphocytic thyroiditis (LT)	1	1
Hashimoto's thyroiditis (HT)	9	9
Neoplastic		
Follicular adenoma (FA)	22	22
Follicular carcinoma (FC)	1	1
Hurthle cell adenoma (HA)	1	1
Papillary carcinoma (PC)	6	6
Medullary carcinoma (MC)	1	1
TOTAL THYROID LESIONS	100	100

Table 1: Distribution of Non neoplastic & neoplastic lesions

Nodular goiter was the commonest non neoplastic thyroid lesions constituting 49 cases. Thyroglossal cyst was seen in 2 cases, colloid goiter was seen in 6 cases, graves' disease in 2 cases and inflammatory thyroiditis (Figure 3) in 10 cases. Follicular adenoma (Figure 4) was the most common benign neoplasm constituting 22 cases. 1 case of Hurthle cell adenoma was seen. Papillary carcinoma (Figure 5) was the most common malignant neoplasm constituting 6 cases. One case each of follicular carcinoma & medullary carcinoma (Figure 6) were found. There were 10 males and 59 females affected by non neoplastic lesions.

Most patients with nodular goiter were females accounting for 40 cases out of 49 cases. Cases of thyroglossal duct cyst, Grave's disease and thyroiditis were not seen in males. 5 males and 26 females were affected by neoplastic lesion. Most cases of follicular adenoma were females accounting for 19 out of 22 cases. Among the 5 male cases 3 were reported as follicular adenoma and 2 were reported as papillary carcinoma. Incidence of thyroid lesions in found to be high from 3rd to 6th decade. The peak was during 4th decade (Figure 1 & 2).

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Out of total 100 cases studied, 77 cases showed nodular presentation and 23 cases showed diffuse presentation. In nodular presentation, 36 cases were bilateral 21 affected right lobe and 20 affected left lobe. In diffuse presentation 13 cases were bilateral, 6 showed right involvement & 2 showed left involvement.

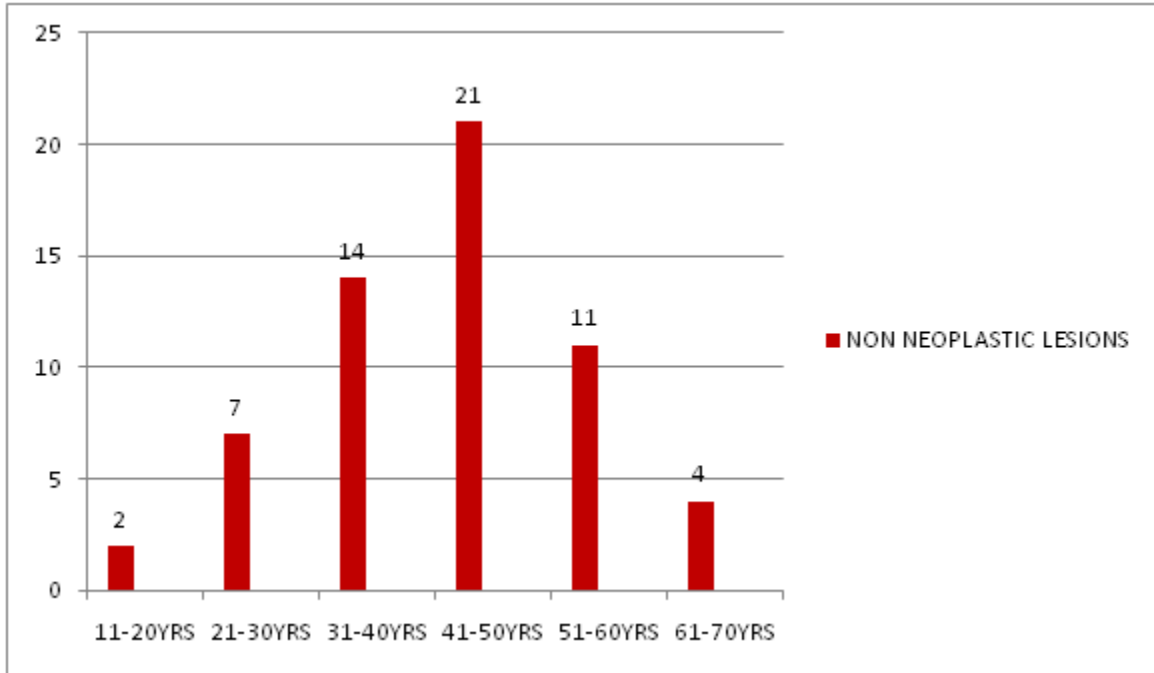


Figure No. 1: Showing Age Distribution of Non neoplastic Thyroid Lesions in Years

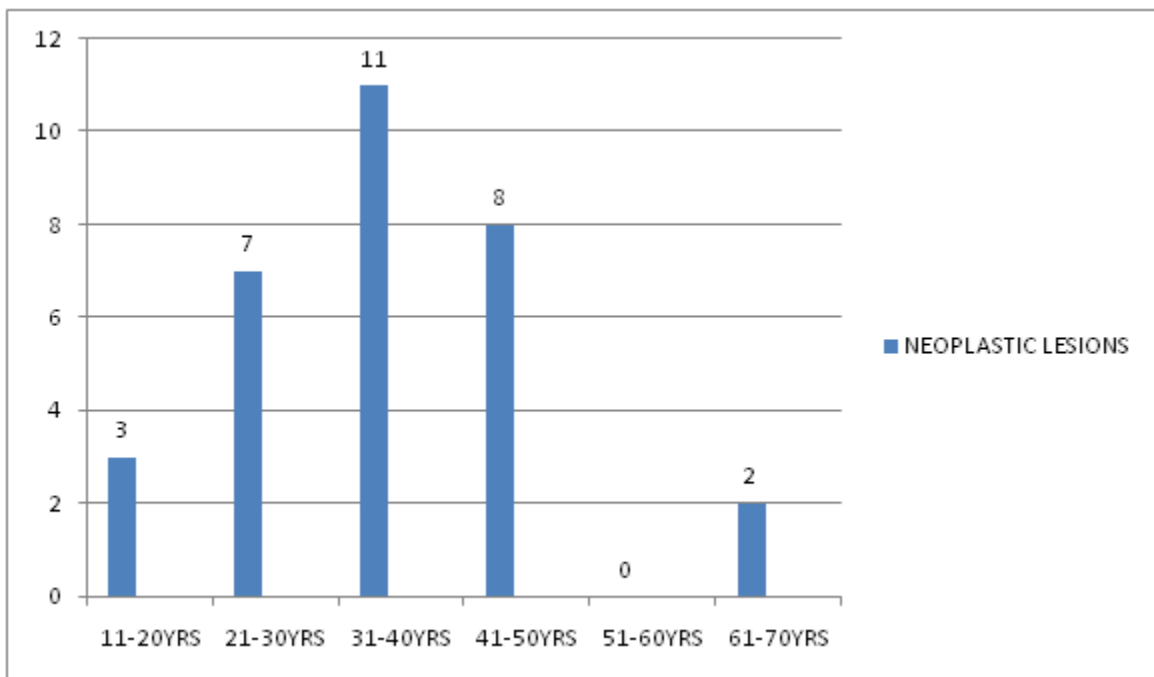


Figure No. 2: Showing Age Distribution of Neoplastic Thyroid Lesions in Years

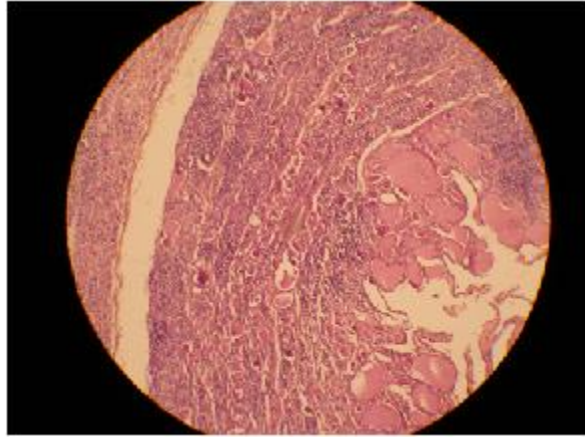


Figure No. 3: MICROPHOTOGRAPH OF HASHIMOTO'S THYROIDITIS (10X)

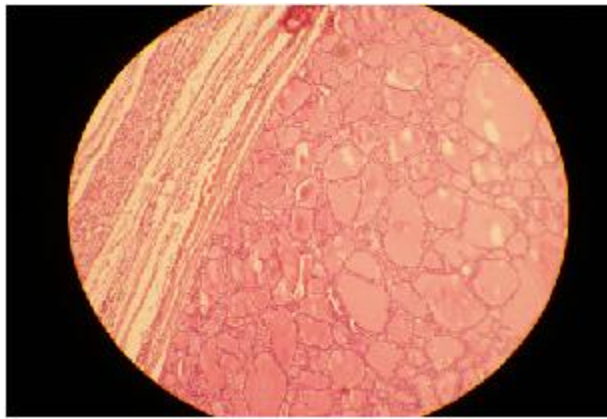


Figure No. 4: MICROPHOTOGRAPH OF FOLLICULAR ADENOMA (10 X)



Figure No. 5: MICROPHOTOGRAPH OF PAPILLARY CARCINOMA (40 X)

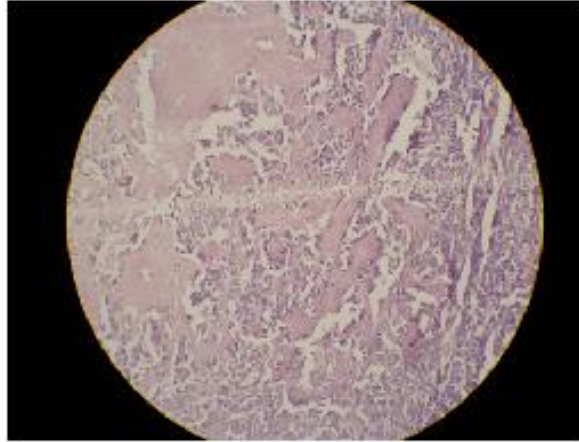


Figure No. 6: MICROPHOTOGRAPH OF MEDULLARY CARCINOMA (40

DISCUSSION: The present study consisted 100 cases of thyroid lesions out of total 6200 histopathological specimens, constituting 1.6% of total cases. The present study of Non neoplastic & neoplastic lesions of thyroid gland was conducted over a period of 2 years. In a total of 100 cases of thyroid lesions non neoplastic lesions constituted 69 cases (69%) and Neoplastic lesions constituted 31 cases (31%).

Age and sex: In the present study, the patients ranged between 3-70 yrs. Majority of them belonged to the 4th decade. Thyroid enlargement was most prevalent between 10-49 years of age and declined after 50 years of age in both sexes was opined by Kilpatrick. ⁽¹⁾ In study done by Arie Berghout et al ⁽²⁾ and Jayaram G ⁽³⁾ the lesions were in the age range of 8.5 – 85 years.

In the present study, females formed the majority (85.50%) of the cases. Sex ratio of M: F:: 1:5.9 was observed. Hennemann. G ⁽⁴⁾ states that goitre was four times more common in females than males and the frequency of thyroid lesions declined beyond 7th decade in both sexes.

Clinical presentations: In the present study, multiple nodules involving both lobes were seen in 38 cases (55.07%) out of 69 non neoplastic lesions. 15 cases (21.7%) were in the right side and 16 cases (23.18%) were seen in left side. The most common presentation of thyroid neoplasms is that of a neck swelling with or without cervical lymphadenopathy of varying duration. Lymph node involvement of malignant neoplasms was 25 % which was similar to study done by Kishore N et al. ⁽⁵⁾

Non neoplastic lesions: In the present study, there were 2 cases of thyroglossal duct cyst. Both were females. The case presented with swelling in the front of neck since 28 yrs was adult female of 50 yrs. Other case presented with swelling in front of the neck since 2 years was a female child aged 3 ½ yrs. Hormonal studies were within normal limits.

Goitrous lesions accounted for 81.15% of non neoplastic lesions of thyroid. This entity comprised of 82.6% of the 57 cases of goiters in the present study, with a peak in 2nd to 5th decades and female preponderance. Clinically, 39 cases presented with nodular enlargement. 10 patients presented with diffuse enlargement of the gland. It gradually increased in size. Few patients

presented with compression symptoms. 3 cases had decreased TSH levels with normal T3, T4 levels. 2 cases had decreased TSH levels with increased T3, T4 levels. 2 cases had decreased TSH levels with normal T3 and increased T4 levels. 2 cases had decreased TSH levels with increased T3 and normal T4 levels.

2 cases of grave's disease formed this category, both the cases were females. One was of 16 yrs and other was 15 yrs old. Both cases clinically presented with diffuse swelling with symptoms of weight loss, increase appetite, excessive sweating and palpitations. TSH levels were decreased with markedly increased T3 and T4 levels. One case had exophthalmus. Ljungberg O, ⁽⁶⁾ opined that this entity is common in middle aged and elderly females. There were 14.49% cases of autoimmune thyroiditis. Hashimoto's thyroiditis constituted majority (90%). All the cases were females with age incidence between 1st and 4th decade. Clinically, multi nodularity was seen in 6 cases and thyroid was diffusely enlarged in 4 cases. 2 cases of Hashimoto's thyroiditis showed decreased TSH levels and increased T3, T4 levels.

Neoplastic lesions: Neoplastic lesions constituted 31 cases out of 100 cases studied.

Follicular adenoma was the most common primary neoplasms of the thyroid. Papillary Carcinoma was the most common malignant neoplasm. Benign Neoplasms formed 74.19% of cases and malignant neoplasms formed 25.81% cases in our study. The maximum number of cases in the present study was seen between 21 years and 50 years. Follicular adenomas were common benign tumor constituting 22% of cases. Follicular adenomas may appear in any age group, but are most common in middle age; they are several times more common in females than in males as it has been observed in the present study and also by Evans HL ⁽⁷⁾ and Ljungberg O ⁽⁸⁾.

Clinically, Follicular adenoma presented as a solitary thyroid nodules. Hormonal studies were within normal limits. Hurthle cell adenoma, classified as a variant of follicular adenoma in the WHO classification of thyroid tumors was seen in 2.94% of cases in the present study. Hurthle cell adenoma occurred in a female aged 18 years. Papillary carcinoma was the most common malignant neoplasm accounting for 6 (75%) out of 8 cases in the present study. Age is one of the most significant prognostic factors in papillary carcinoma of thyroid. Mortality is very rare in patients under the age of 40 years. The fact that most of the papillary carcinomas occur in patients less than 40 years of age, as seen in the present study may explain the better prognosis seen in papillary carcinoma. M: F ratio was 1:2. Clinically, patient presented with nodular swelling of the thyroid gland. Hormonal studies were within normal limits. Lymph node involvement was seen in 3 cases. The classical variant of papillary carcinoma was observed in 5 (83.3%) cases in the present Study one case was of papillary micro carcinoma. 3 cases (50%) out of 6 cases of papillary carcinoma histologically confirmed nodes in the present study, similar observation was seen by carcangiu ML et al. ⁽⁹⁾ Follicular carcinoma constituted 12.5% of malignant neoplasms in the present study. The only one case reported as follicular carcinoma was a female aged 29 years. Clinically, patient presented with diffuse swelling of the thyroid gland. Hormonal studies were within normal limits. The percentage of cases in the present study does not approximates with that of zargar AH et al. ⁽¹⁰⁾ This might be due to the fact that the study of zargar AH et al. was conducted in an iodine deficient area (Kashmir Valley) where the incidence of follicular carcinoma is reported to be high in literature ⁽¹⁰⁾ Medullary carcinoma of the thyroid accounted for 12.5% of malignant neoplasms. Clinically, the case

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presented with a single nodule. Hormonal studies were within normal limits. Similar observations have been reported by Ljungberg O^[8] and Chan JK⁽¹¹⁾

CONCLUSION: In the present study thyroid lesions constituted 1.6% cases out of total 6200 histopathological specimens. Non neoplastic lesions formed majority of case reported. Peak incidence of thyroid lesions was in the 4th decade with female preponderance. Thyroid nodules which occur spontaneously in 4 to 7% of adult population are source of concern for patients and a diagnostic dilemma for the physicians. Although non invasive techniques can provide the clinician with a diagnosis in many patients, often the ultimate answer rests with the histopathologic examination of the excised tissue. Goiter though a worldwide problem is endemic in mountainous regions of the world. Our study which was carried out in the coastal region also showed goiter as the common lesion. Goiter is still prevalent in coastal region.

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