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A CLINICOPATHOLOGICAL STUDY OF THYROID SWELLING

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ABSTRACT

Patients with a thyroid swelling present with a mass in the midline neck but can have a varied etiology thus posing a diagnostic challenge. Thyroid swellings are responsible for a significant cause of mortality and morbidity in India. Various benign and malignant lesions are usually found in the thyroid. The present study is done from June 2013 to August 2014. The present study is designed to study Histopathology evaluation of thyroid masses. And to study the etiopathogenesis of the thyroid mass. 24 cases of thyroid masses visiting ENT OPD were recorded. The provisional diagnosis was established and further investigations in the form of complete blood counts, Serum T3, T4 and TSH, Indirect or fibreoptic laryngoscopy, ultrasonography neck, computed tomography scanning and fine-needle aspiration cytology were done.

Thyroid lumps were more prevalent in women between the ages of 21 and 40, possibly as a result of increased estrogen predominance during pregnancy and in premenopausal women.

Females made up the majority of patients with thyroid swellings (80 percent). Although malignant thyroid growths were uncommon (20%), malignancy should be sought out in every thyroid nodule since cancers might show as well confined nodules in the thyroid.

To identify the cause of thyroid enlargement, a detailed history and thorough examination of the head, neck, and ENT examination with relevant investigations are required. It is critical to rule out malignancy in every case of thyroid enlargement, as males have a higher frequency of malignant swellings.

ORIGINAL RESEARCH ARTICLE

INTRODUCTION

Patients with a thyroid swelling present with a mass in the midline neck but can have a varied etiology thus posing a diagnostic challenge because errors in diagnosis and/or therapy may have serious consequences. Such patients should be approached systematically and thoroughly to make decisions related to appropriate management. The differential diagnosis of a midline neck mass covers a broad spectrum of diseases and carries implications for treatment as varied as any area of medicine. (1)

Thyroid swellings are responsible for a significant cause of mortality and morbidity in India. Various benign and malignant lesions are usually found in the thyroid. Colloid goiters, simple cysts, Benign adenomas, viral thyroiditis, and autoimmune thyroiditis comprise the common benign and inflammatory lesions of the neck. Malignant lesions of various pathologic types can present as primary as well as rarely metastasis (secondaries) from Kidneys, GI Tract, Lungs, Skin and Breasts. (2)

Age of the patient and gender of the patient are two important factors for consideration of the clinical diagnosis of the thyroid mass. Young adult patients and female patients usually exhibit inflammatory masses more frequently than malignant masses. In contrast in old age adults (above 40 years) and males should always have malignancies. It is possible that any of the etiology for the masses can be found in any age group.(3)

Before any diagnostic procedure, a detailed clinical examination is more important for concluding. The most important components of the physical examination of the head and neck are the inspection and palpation in the local examination. The size of the lesion, movement on deglutition and its relationship (fixation or displacement) to surrounding structures can be determined. Also, palpation for consistency of the mass, the presence of any pulsations or thrills and bruits is important.

The physician should not get distracted by the mass and need not neglect to make a general and systemic examination and also a thorough head and neck evaluation. The capability to perform this examination is what distinguishes the otolaryngologist as the specialist for head and neck disease.

Once a comprehensive history and examination have been performed, one is likely to have a better idea of the etiology of the mass. In some patients, the findings are clear enough to suggest strongly a specific disease entity.

After the initial diagnostic impressions, the next steps in workup include USG and serum T3, T4, and TSH levels. An FNAC is done depending on the results of these tow investigations.(1)

The present study is done from June 2013 to August 2014 in the department of E.N.T., Pravara Rural Hospital, Loni. Total 24 cases of thyroid swellings were recorded by a systematic approach which includes their incidence, site of presentation, age and gender distribution and histopathological diagnosis.

Aims and Objectives

1) To study age and sex distribution of thyroid masses.
2) To study the clinical profile of thyroid masses.
3) To study Histopathology evaluation of thyroid masses.
4) To study etiopathogenesis of the thyroid mass.

Figure 1- Multinodular goitre

Figure 2- Papillary carcinoma of the thyroid

MATERIALS AND METHODS

The present study includes 24 cases of thyroid masses attending the Department of ENT in Pravara rural hospital, Loni between June 2013 and August 2014. This includes all previously undiagnosed and untreated patients with thyroid swelling.

INCLUSION CRITERIA

- Patients presenting with a thyroid swelling.

EXCLUSION CRITERIA

- Patients already receiving treatment.
- Patients with a previously confirmed diagnosis.

Once the appropriate patients presented to the OPD, the patient was admitted and detailed history and findings on examination were recorded in a specific proforma.

The provisional diagnosis was established and further investigations in the form of complete blood counts, Serum T3, T4 and TSH, Indirect or fibreoptic laryngoscopy, ultrasonography neck, computed tomography scanning and fine-needle aspiration cytology were done.

Figure 3 Fibreoptic Laryngoscopy, Nasal Endoscopy, Endoscopy Camera

OBSERVATION

In the present study, 24 cases of thyroid masses visiting ENT OPD of Pravara Rural Hospital, Loni, were recorded. In this study cases of thyroid masses of all ages and both genders were included except those already receiving treatment or with previously confirmed diagnoses.

Table – 1: Age incidence of thyroid swellings

	AGE (YEARS)									
	1-10.	**11-20.**	**21-30**	**31-40**	**41-50**	**51-60**	**61-70**	**71-80**	**81-90**	**TOTAL**
THYROID SWELLINGS										
➢ **BENIGN FOLLICULAR NODULE/ DIFFUSE GOITRE**	0	1	0	1	3	1	3	0	0	9
➢ **BENIGN NEOPLASM**	0	0	2	2	0	0	1	0	0	5
➢ **MULTINODULAR**	0	0	1	1	2	1	0	0	0	5
➢ **MALIGNANT**	0	0	1	0	0	1	2	0	0	4
➢ **THYROIDITIS**	0	0	1	0	0	0	0	0	0	1

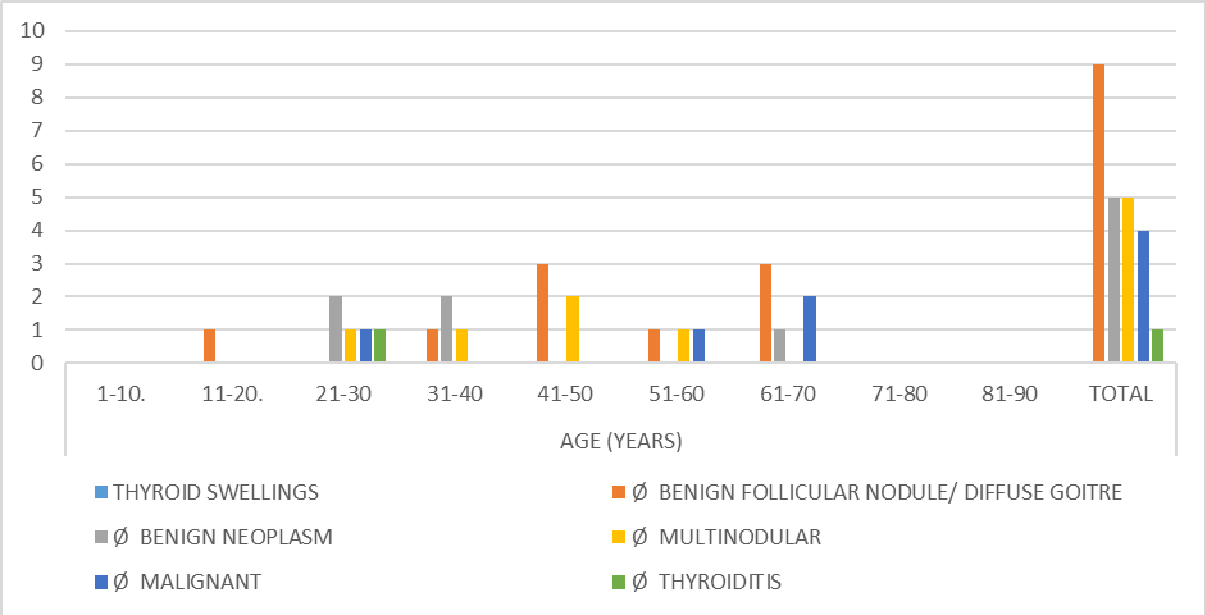

Fig 4: Age-wise distribution of patients

Table – 2: Incidence of different neck masses related to gender

TYPE OF THYROID SWELLINGS	MALE	FEMALE	TOTAL
➢ BENIGN FOLLICULAR NODULE/ DIFFUSE GOITRE	0	9	9
➢ BENIGN NEOPLASMS	1	4	5
➢ MULTINODULAR	2	3	5
➢ MALIGNANT	1	3	4
➢ THYROIDITIS	0	1	1

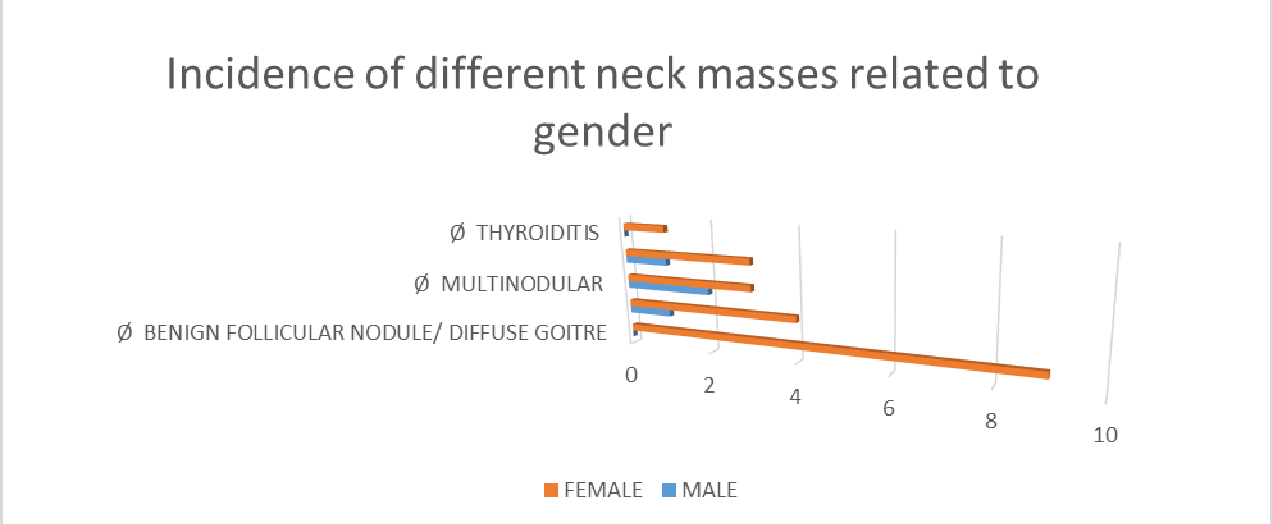

Fig 5: Age-wise distribution of patients

Table – 3: Distribution of neck masses related to site

TYPES OF NECK MASSES	MEDIAN	LATERAL
THYROID MASSES	20	4

Table – 4: Incidence of different neoplastic neck masses

NEOPLASTIC THYROID SWELLINGS	**NO. OF CASES**	
MALIGNANT THYROID SWELLINGS	4	44.4
HURTLE CELL ADENOMA	3	33.3
FOLICULAR ADENOMA	2	22.2
Total		

Table – 5: Incidence of different Non-neoplastic thyroid swellings

NON-NEOPLASTIC THYROID SWELLINGS	**NO. OF CASES**	**PERCENTAGE**
BENIGN FOLLICULAR NODULE/ DIFFUSE GOITRE	9	60
MULTINODULAR GOITRE	5	33.3
THYROIDITIS	1	6.66

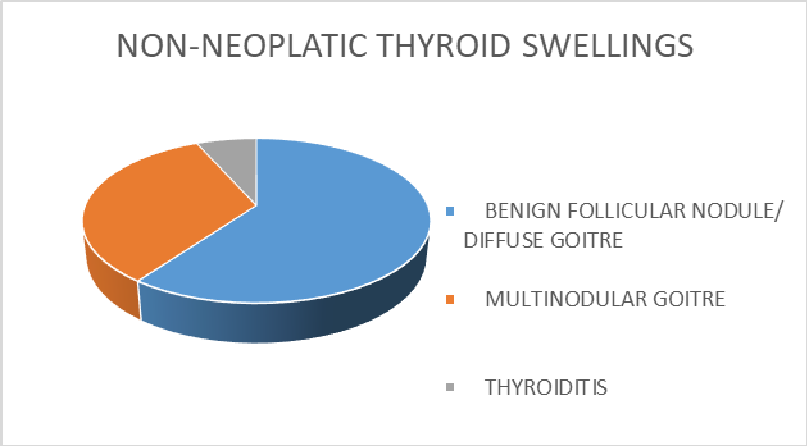

Fig 6: Distribution of non-neoplastic thyroid swelling

Table – 6: Classification of thyroid masses

THYROID MASSES	**MALE**	**FEMALE**	**TOTAL**
BENIGN	3	18	20
MALIGNANT	1	2	4
Total	4	20	24

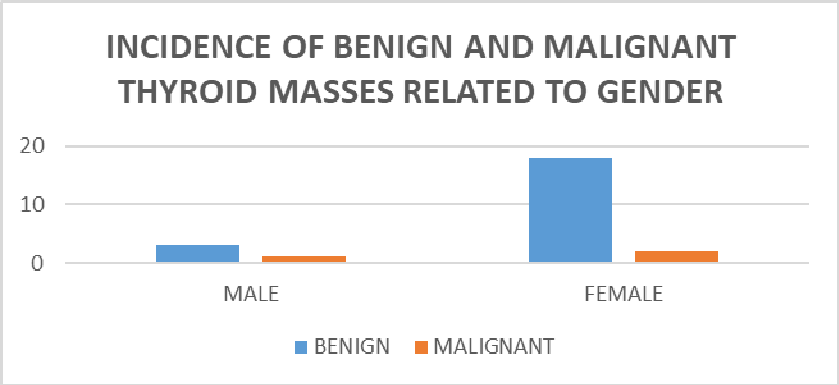

Fig 7: Gender wise distribution of benign and malignant thyroid masses

Table – 7: Histopathological evaluation of malignant thyroid lesions

HISTOPATHOLOGICAL DIAGNOSIS OF MALIGNANT THYROID LESIONS	NO. OF CASES	PERCENTAGE
PAPILLARY CARCINOMA	2	50
ANAPLASTIC CARCINOMA	2	50
Total	4	

DISCUSSION

In the present study, thyroid gland swellings constituted 24% of all swellings. Peak incidence was seen in the age group of 21-40 years with a median age of 45 years. Age incidence was comparable to a study by Tabaqchali et al.[57] 16% of the patients with thyroid swellings were males and 84% of patients were females. Male: Female ratio was 1:5.25. Sex incidence was comparable to a study by Jose RM et al who had a sex incidence of 1:5.1. 83.3% of cases were of benign etiology and 16.6% were malignant.

Shaheen OH studied thyroid swellings and classified goiters into simple goiter, diffuse non-toxic goiter, multinodular non-toxic goiter, diffuse toxic goiter, toxic nodular goiter, and solitary hot or toxic nodule. [4]

Benign neoplasms include papillary and follicular adenoma. Malignant neoplasms are papillary carcinoma, follicular carcinoma, medullary carcinoma, anaplastic carcinoma, and malignant lymphoma. (6)(7)

In our study, thyroid swellings were classified as diffuse goiter and benign follicular nodule, benign and malignant neoplasms, multinodular goiter and thyroiditis. Benign follicular nodule and diffuse goiter constituted 58.33% thyroid swellings, 20.83% cases were of multinodular goiter and 16.66% cases were of thyroid swellings of malignant etiology. 75% of malignant thyroid swellings were present in females. The exact cause of the higher incidence of thyroid swellings in females is not known. But it could be most likely due to high levels of estrogen seen in adolescent girls, pregnant women and premenopausal women. According to Soldin OP et al, high levels of estrogen cause the liver to produce high levels of a protein called "thyroid binding globulin", which binds the thyroid hormone and decreases the amount of thyroid hormone that can be assimilated into and utilized by the cells. (8)

Of the 9 neoplastic masses, 5 were benign and 4 were malignant. All 5 benign

thyroid swellings were adenomas, of which 3 were Hurthle cell adenomas and 2 were follicular adenomas. Adenomas have the potential for malignant transformation, especially Hurthle cell adenomas.

Chen H et al studied 57 patients with Hurthle cell neoplasms, 37 had adenomas and 20 had carcinomas, resulting in a 35% prevalence of malignancy. Patients with adenomas did not differ from those with carcinoma concerning age, sex, or history of head and neck irradiation. However, patients with Hurthle cell carcinomas had significantly larger tumors. (9)

Schreiner FB et al studied malignant neoplasms of the thyroid gland and stated that the frequency of malignant neoplasms in goitrous regions is 2.5 percent to 4 percent of all malignant growths, while in non-goitrous regions it is 0.4 percent to 0.5 percent. Cooper DS et al found Follicular and Hürthle cell thyroid cancers account for about one-fifth of thyroid cancers in the United States. (6,10,11)

Blanco C et al studied 141 patients with malignant neoplasms of the thyroid in East Madrid. The male: female proportion was 1:3.5. The average age of patients at diagnosis was 44.5 years. The most frequent histological variant was papillary thyroid carcinoma (69%). (12)

Of the 4 thyroid swellings of malignant etiology, 2 were papillary carcinomas of the thyroid gland and 2 were anaplastic carcinomas of the thyroid gland. Of these 4 thyroid swellings of malignant etiology, 3 cases were female patients and one male patient. Among females with thyroid swellings, cases of malignant thyroid swellings were 15%, whereas among males the incidence was 25%.

One case was diagnosed as Hashimotos thyroiditis after histopathological examination.

CONCLUSIONS

Thyroid swellings were more common in the age group of 21-40years which may be due to high estrogen dominance related to pregnancy and in premenopausal women.

The majority of patients with thyroid swellings were females (80%). Though thyroid swellings of malignant etiology were uncommon (20%), in every thyroid nodule, malignancy should be ruled out as malignancies can be present as well-circumscribed nodules in the thyroid.

Detailed History with a thorough examination of the head, neck, and ENT examination with necessary investigations is very much essential to diagnose the etiology of a thyroid swelling. It is very important to rule out malignancy in every case of thyroid swelling as a high incidence of malignant swellings was observed in males

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