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## HISTOPATHOLOGICAL STUDY OF THYROID LESIONS

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### ABSTRACT

Thyroid gland disorders of various types; congenital , infectious, autoimmune, benign and malignant lesions. In the present study we have focused on all the disorders with special reference to age, sex, etiology, etiopathogenesis, complication and pathological diagnostic part of thyroid lesions. This study helps in the detection of thyroid lesions in the early diagnosis, treatment and assessment of prognosis of thyroid gland disorders.

**KEY WORDS:** Thyroid disorders, etiology, complication, diagnosis and histopathology.



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## INTRODUCTION

The thyroid is an endocrine gland situated in the anterior aspect of the root of the neck. Wharton (1856), suggested that the gland was there to round out and beautify the neck by filling the vacant spaces about the larynx. Thyroid gland secretes active hormones influencing diversity of metabolic processes. Manifestations of thyroid disease usually include alteration in the hormone secretion and enlargement of thyroid (goiter). The former results in the syndrome of hypothyroidism or hyperthyroidism. The later goitrous enlargement may occur in various pathological processes including hyperplasia or benign and malignant neoplasia. Nodular enlargement of thyroid raises a diagnostic problem to all physicians, surgeons and the pathologists. The major diagnostic concern is about benign and malignant nature of the nodule. The incidence of various thyroid disorders shows a striking variation both on a national and regional basis, the incidence shows marked variation when endemic and non endemic areas are compared. Epidemiological factors have been studied and apart from the known factors, such as age, sex, diet, drugs, radiation and geographic region, some unknown factors also may be significant. Many abnormalities reflect on genetic and environmental factors. Disorders of thyroid comprise a group of commonly encountered endocrinologic disease and has been estimated that there about 200 million, people worldwide with goiter.

In recent years many advances have place. Use of radioisotope and immunopatological technique have increased our understanding of pathophysiology of thyroid disorders and has contributed to precise diagnosis many of these techniques are beyond the scope of most of the institutions, and the diagnosis is arrived at histopathological, clinicopathological and traditional laboratory investigations. The thyroid enlargement can spring from variety of causes like nodular goiter, thyroiditis and benign and malignant tumours of thyroid. Angiography, ultrasonography,

computerized tomography, thermography, fluorescent scanning and thyroglobulin assay have all been recent procedures applied to diagnosis of thyroid lesions. Scintiscanning is used for demonstration of radioactive iodine  $I^{131}$  uptake for differentiation of functioning and nonfunctioning thyroid neoplasms immunohistochemistry is used in the diagnosis of thyroid cancer, as differentiated thyroid cancer containing thyroglobulin and microsomal antigen cross-reacting with antibodies to normal thyroid antigen and identifying metastatic deposit. The present work is carried out to study histopathological features of all inflammatory benign and malignant lesions of thyroid gland. We have discussed in details incidence of thyroid gland lesions with respect to age, sex and gross and microscopic features of all lesions of thyroid.

## MATERIALS AND METHODS

The present histopathological study of lesions of undertaken at department of pathology, M. R. College Gulbarga. The study included '68' cases of thyroid lesions over a period, very recently of 3 years. (Included congenital abnormalities such as thyroglossal cyst and ectopic thyroid lesion). These cases included different lesion of thyroid received for histopathological study. the nature of specimen received were either total thyroidectomy, Hemithyroidectomy, subtotal thyroidectomy, excision of nodule and biopsy. All the clinical information required for study was obtained from clinical records and from requisition forms. (Routine haematological investigation, urine analysis and X-ray neck and chest were carried out wherever required). All operative specimen's were received for gross and histopathological examination.

### *Histopathological study*

The Section of thyroid gland was fixed in 10% formalin. after dehydration process in alcohol, clearing in Xylo the tissue was embedded in paraffin. 5 micron thick paraffin section was

stained with hematoxylin and eosin. Special stains like congo red was done for one case of medullary carcinoma with amyloid. We classified

thyroid lesions with Ackerman's Classification of thyroid lesions with some modification as follows:-

## **NEOPLASTIC LESIONS**

### **Epithelial tumours**

#### **Benign**

Follicular adenoma

#### **Malignant**

Follicular carcinoma

Papillary carcinoma

Medullary carcinoma

Anaplastic Carcinoma

#### **Non epithelial tumours**

Benign

Malignant

### **Malignant Lymphoma**

## **NON NEOPLASTIC LESIONS**

### **Hyperplasia**

#### **Goiter**

Nodular goiter

Multinodular goiter

Diffuse goiter

#### **Thyroiditis**

Acute thyroiditis

DeQuervains thyroiditis

Other granulomatous inflammations

Auto immune thyroiditis (lymphocytic and hashimoto's)

Riedel's thyroiditis

#### **Congenital lesions**

Thyroglossal cyst

Ectopic thyroid

## **RESULTS**

After studying histopathological lesions of thyroid gland over a period of 3 years: the following observations were made. During this period of three years, we received surgical specimens, out of these specimens 68 were reported as lesions of thyroid gland. Thus, in the present study, the lesions of thyroid gland constituted an incidence of 0.80% of all surgical specimens. Table No. 9 shows year wise incidence of lesions of thyroid gland in relation to all surgical specimens.

**Table No. 9**

Year	No. of Surgical specimens	Thyroid gland lesions	% of thyroid cases
2011	3069	26	0.85%
2012	2713	15	0.55%
2013	2729	27	0.99%
Total	8511	68	0.80%

Of the total 68 cases of thyroid, were 28 non-neoplastic lesions thyroid and 40 neoplastic lesions of thyroid. Table No. 10 Shows relative frequency of non malignant and malignant lesions of thyroid.

**Table No. 9**

Type of lesions	Total No.	percentage
Non malignant lesions	56	82.35%
Malignant lesions	12	17.65%
Total	68	100.00%

As seen in the table, Non malignant lesions were frequently encountered than the malignant ones and incidence of Non malignant lesions is nearly four times more than malignant lesions.

Table No. 11 shows frequency of individual thyroid lesion.

**Table No. 11**

Type of lesion	Total No.	Percentage
Neoplastic lesions	40	58.82%
1. Epithelial tumours	40	58.82%
A) Benign	28	41.18%
Follicular adenoma	28	41.18%
B) Malignant	12	17.65%
1. Follicular carcinoma	01	1.47%
2. Papillary carcinoma	09	13.24
3. Medullary carcinoma	01	1.47%
4. Undifferentiated (anaplastic carcinoma)	01	1.47%
Non neoplastic lesion	28	41.18%
1. Adenomatoidgoitre	01	1.47%
2. Colloid goitre	10	14.71%
3. Multinodulargoitre	10	14.71%
4. Hashimoto's thyroiditis	02	2.94%
5. Thyroglossal cyst	01	1.47%
6. Thyroid cyst	03	4.41%
7. Ectopic thyroid	01	1.47%
<b>Total</b>	<b>68</b>	<b>100%</b>

It is evident from the table that follicular adenoma was most common lesion in the present study, which accounted 41.18% for of the cases. Thyroglossal cyst (1.47%). Thyroid cyst (43.41%), goitre (30.98%), Hashimoto's thyroiditis (2.94%) and ectopic thyroid (1.47%) were other types of non neoplastic lesions observed. Among the neoplastic lesions the follicular adenoma was most common lesion with an incidence of 41.18% of all the lesions of thyroid. The papillary carcinoma having higher incidence of 13.24%.

**Table No. 12**  
Shows relative frequency of non neoplastic lesions of thyroid.

Type of lesions	Total No.	percentage
Non malignant lesions	56	82.35%
Malignant lesions	12	17.65%

Type of lesions	Total No. of Cases	Percentage
Andeomatoigoitre	01	03.57%
Colloid goitre	10	35.7%
Multinodulargoitre	10	35.7%
Hashimoto's thyroiditis	02	7.14%
Thyroglossal cyst	01	03.57%
Thyroid cyst	03	10.71%
Ectopic thyroid	01	03.57%
<b>Total non neoplasticlesins</b>	<b>28</b>	<b>100%</b>

In the present studygoitre was commonest non-neoplastic lesion 74.97% followed by thyroid cyst 10.71%, thyroglossalcyt 3.57%, Hashimoto's thyroiditis 7.14% and ectopic thyroid 3.57%.

Table No. 13 shows relative frequency of various neoplastic lesions of thyroid. Enrollment in local colleges, 2005

**Table No.13**

Type of lesions	Total No. cases	Percentage
Benign	28	70%
Follicular adenoma	28	70%
Malignant	12	30%
Follicular carcinoma	01	02.5%
Papillary carcinoma	09	22.5%
Medullary carcinoma	01	02.5%
Anaplastic carcinoma	01	02.5%
<b>Total</b>	<b>40</b>	<b>100%</b>

Amongst 40 Neoplastic lesions, follicular adenoma was most frequently encountered with 20 cases, thus accounting for 70% incidence. In malignant lesions most common lesion was papillary carcinoma accounting for 22.5%, incidence followed by medullary carcinoma 2.5%, follicular carcinoma 2.5% and anaplastic carcinoma 2.5%.

#### ***The frequency of malignant lesions of thyroid***

Amongst 12 malignant lesions papillary carcinoma were frequently encountered that is 9 cases, thus accounting for 75% incidence, medullary cases. Out of total 68 cases in this study, there were 12 cases of throi malignancies thus incidence is 17.65% of all lesions of thyroid gland.

Table No. 14 shows relative frequency of malignant lesions of thyroid.

**Table No. 14**

Type of lesions	Total No.	Percentage
Follicular carcinoma	01	8.3%
Papillary carcinoma	09	75%
Medullary carcinoma	01	8.3%
Anaplastic carcinoma	01	8.3%
<b>Total</b>	<b>12</b>	<b>100%</b>

Type of lesion	Total No. of cases	Age group in decades (years)						Age range in years	Average age in years
		01-10	11-20	21-30	31-40	41-50	51-60		
Follicular adenoma	28	-	01	10	10	6	01	18-60	36.93
Follicular carcinoma	01	-	-	-	-	-	01	60	60
Papillary carcinoma	09	-	-	01	05	02	01	28-60	34.9
Medullary carcinoma	01	-	-	-	-	-	01	60	60
Anaplastic carcinoma	01	-	-	-	-	-	01	52	52
Goitre	21	-	-	06	12	02	01	26-58	34.7
Hashimoto's thyroiditis	02	-	-	-	01	01	-	35-42	38.5
Thyroglossal cyst	01	-	-	01	-	-	-	25	25
Thyroid cyst	03	-	-	02	01	-	-	25-31	28
Ectopic thyroid	01	-	-	01	-	-	-	30	30
<b>Total (Percentage)</b>	<b>68(100)</b>	<b>0(0)</b>	<b>1.(1.47)</b>	<b>21(30.88)</b>	<b>29(42.65)</b>	<b>11(16.17)</b>	<b>6(8.82)</b>		

As noted from Table No. 15, in the present study the maximum incidence of thyroid lesions was noted in 4<sup>th</sup> decade. The youngest patient was of 18 years of age, while oldest one was 60 years old.

**Table No. 16**  
**sex incidence of various lesions of thyroid.**

Type of lesions	Female No.(%)	Male No.(%)	F/M Ratio
C) Benign			
Follicular adenoma	24	04	6:1
D) Malignant			
Follicular carcinoma	01	00	1:0
Papillary carcinoma	08	01	8:1
Medullary carcinoma	00	01	0:1
Anaplastic carcinoma	01	00	1:0
Non neoplastic lesion	16	05	3.2:1
Goiter			
Hashimoto's thyroiditis	02	00	2:0
Thyroglossal cyst	01	00	1:0
Thyroid cyst	03	00	3:0
	01	00	1:0
Ectopic thyroid			
<b>Total</b>	<b>57(83.82%)</b>	<b>11(16.18%)</b>	<b>5.18:1</b>

It can be inferred from Table No.16, that overall female predominance was noted in the present study with fm ratio of 5:18:1 for all the thyroid lesions. Neoplastic lesions also show predominance of females, with highest f:m ratio of 8:1 in papillary carcinoma and 1:0 for anaplastic carcinoma, 0:1 in medullary carcinoma and 1:0 for anaplastic carcinoma. Non neoplastic lesions also showed female preponderance.

## NEOPLASTIC LESIONS

### 1) Epithelial tumours

#### A) Benign

There were 28 cases of benign epithelial tumours, all were follicular adenomas.

#### Follicular adenoma

##### Incidence

Follicular adenoma was the commonest tumour in our study. There were 28 cases of follicular adenoma which comprises 41.18% of all thyroid lesions.

### **Age incidence**

In the present study, the maximum incidence of follicular adenoma was observed in the 3<sup>rd</sup> and 4<sup>th</sup> decade. The youngest patient was 18 years old, while the oldest was of 60 years. The mean age was 36.93 years.

### **Sex incidence**

Of the 28 patients 24 were females (85.71%) and 4 were males (14.3%) thus there was a female predominance with a F:M ratio of 6:1.

### **Gross Features**

The masses showed smooth external surface. The diameter of follicular adenoma ranged from 2 to 6 cm. on cut section, all of the cases revealed gray white appearance, one case showed grossly haemorrhages and one showed cystic degeneration.

### **Microscopic features**

Showed 16 cases of microfollicular, 7 cases of macrofollicular type followed by 4 simple, and 1 hurthle cell type.

## **B) Malignant epithelial tumours**

### **1. Follicular carcinoma**

#### **Incidence**

There was single case of follicular carcinoma which comprised 1.47% of all thyroid lesions, 2.5% of neoplastic lesions and 8.33% of all the malignant lesions of thyroid. The case was female aged 60 years.

#### **Gross**

Specimen measures 4x3x2 cm. the specimen showed irregular external surface. On cut section case revealed grey white areas with areas haemorrhages.

#### **Microscopic features**

Case showed capsular invasion.

### **2. Papillary carcinoma**

It is most frequent malignant lesion encountered in the present study.

#### **Incidence**

There were 9 cases of papillary carcinoma comprising 13.24% of all thyroid lesions, 22.5% of neoplastic and 75% of malignant lesions.

#### **Age Incidence**

In the present study the maximum incidence of papillary carcinoma was observed in 4<sup>th</sup> decade. The youngest patient was 28 years old. While oldest one was of 60 years age. The mean age was 34.9 years.

#### **Sex Incidence**

Of the 9 patients 8 were females (88.89%) and 1 was male (11.11%). Thus, there was female predominance with a F:M ratio of 8:1.

### **Gross**

The tumours size ranged from the largest specimen measured 6x4x4 cm where as smallest measured 3 x 2 x 1cm. Most of the specimens showed smooth external surface. On cut section all the cases revealed firm homogenous grayish white appearance .one case shows papillary excrescences.

### **Microscopic features**

3 cases were of encapsulated variant, 1 case of encapsulated follicular variant, 1 case associated with Hashimoto's thyroiditis and 2 cases were of follicular variant of papillary carcinoma. There was a predominantly follicular pattern with typical ground glass nuclei. One case showed, foreign body granuloma. In 2 cases psammoma bodies were present. In two cases there were areas of hemorrhages, calcification and cystic degeneration. In one case clusters of haemosiderophages was noted.

### **3. Anaplastic carcinoma**

In present study there was single case of anaplastic carcinoma aged 52 years female.

### **Incidence**

One case of anaplastic carcinoma was seen , which comprised 1.47%, of all thyroid lesions, 2.5% of neoplastic, 8.33% of all the malignant of thyroid.

### **Gross**

Tumour measured 3x2.5 x0.3 cms. On cut section showed gray white mass.

### **Microscopic features**

Case of anaplastic carcinoma was spindle cell variant.

Medullary carcinoma :- in the present study out of 12 malignant tumours of thyroid 1 was of medullary carcinoma .

### **Incidence**

There was 1 case of medullary carcinoma with comprised 1.47% of all lesions of thyroid, 2.5% of neoplastic and 8.33% of malignant lesions of thyroid . Patient was a 60years old male as against females noted in other malignant tumors.

### **Gross**

The tumour measured 6 x 5 x 4 cms. On cut section the case revealed firm homogenous gray white appearance.

### **Microscopic features**

shows trabecular arrangement of round to polygonal cell with granular amphophilic cytoplasm & peripheral nucleus, in hyalinized collagenous stroma. Also seen was foci of calcification. On congo red stain, amyloid deposits was seen.

## **NON NEOPLASTIC LESIONS**

### **GOITER**

In our present study of 68 cases of thyroid lesions, 21 cases of goiter were found , 10 were of diffuse goiter (colloid goiter), 10 cases of multinodular goiter and one of adenomatoid goiter.

**Incidence**

There were 21 cases of goiter which comprised 30.89% of all lesions of thyroid and 74.97% of non neoplastic lesions of thyroid.

**Age incidence**

In the present study maximum number of goiter patients were observed in 4<sup>th</sup> decade followed by 3<sup>rd</sup>, 5<sup>th</sup> and 6<sup>th</sup> decade. the youngest patient was 26 years old while oldest one aged 58 years.

Table No.17 shows age distribution of diffuse goiter and multinodular goiter.

**Table No. 17**

Age in years	Diffuse goiter	Multinodular goiter
0-10	-	-
11-20	-	-
21-30	04	02
31-40	06	06
41-50	-	01
51-60	-	01
<b>Total</b>	<b>10</b>	<b>10</b>

Patient with adenomatoid goiter was 44 years old, female. In the present series peak age incidence of diffuse goiter is in 4<sup>th</sup> decade and then 3<sup>rd</sup> decade, 4<sup>th</sup> decade for multinodular goiter.

**Sex Incidence**

Of the 21 patients 16 (76.19%) were females and 5(23.8%) were males. Thus there was female predominance with F:M ratio 3.2:1.

Table No. 18 shows sex incidence, multinodular and adenomatoid goiter.

**Table No. 18**

Type of goiter	Female	Male	F:M Ratio
Diffuse colloid	06	04	3:2
Multinodular	09	01	9:1
Adenomatoid goiter	01	00	1:0
<b>Total</b>	<b>16</b>	<b>05</b>	<b>3.2:1</b>

In present study diffuse, multinodular and adenomatoid goiter showed female preponderance.

**Gross**

The largest specimen measured 7 x 5 x 4 cm where as smallest measured 3 x 1 x 1 cm. On cut section, 10 cases (47.6%) showed multiple nodules and 10 cases 947.6%) showed diffuse goiter.

**Microscopy**

Showed thyroid with follicles of varying sizes lined by a single layer of flattened to cuboidal epithelium and containing colloid. The follicles were separated into lobules by fibrous septae. The intervening stroma showed mononuclear cell infiltration. Areas of ossification was seen in one case. In 35% of

the cases fibrosis was noted. Area of hyalinization was seen in 20% of cases. Haemosiderophages were noted in 26% of cases.

### ***Thyroiditis***

#### ***Hashimoto's thyroiditis***

##### ***Incidence***

There was 2 cases of hashimoto's thyroiditis which comprised 2.94% of all lesions of thyroid and 7.14 % of non neoplastic lesion of thyroid . hashimoto's thyroiditis was also seen in case of papillary carcinoma which is tabulated under papillary carcinoma

##### ***Age Incidence***

In present study Hashimoto's thyroiditis patients were 35 years and 42 years old.

##### ***Sex Incidence***

Both patients were females F:M ratio is 2:0

##### ***Gross***

The largest specimen measures 4 x 3 x 2 cm and smallest measures 2 x 2 x 2.5 cm.

##### ***Microscopy***

Showed thyroid with destruction of follicles with dense and diffuse infiltration by lymphocytes was seen, which in areas were forming lymphoid follicles with prominent germinal centres. Hurthle cell change of follicular epithelium was noted plasma cell infiltration was also seen.

### ***CONGENITAL LESIONS***

#### ***Thyroglossal cyst***

##### ***Incidence***

There was a single case of thyroglossal cyst which comprised 1.47% of all lesion of thyroid and 3.57% of nonneoplastic lesions of thyroid .thecasewas female aged 25 years presenting with cystic lesion measuring 2 cm diameter.

##### ***Gross***

The cyst was 2 cm in diameter.

##### ***Microscopy***

Showed thyroid with a fibrocollagenous cyst wall lined by stratified squamous epithelium. The fibrocollagenous loose connective tissue, wall of the cyst shows presence of thyroid follicles were lined by cuboidal epithelium containing colloid.

#### ***Thyroid cyst***

##### ***Incidence***

There were 3 cases of thyroid cyst which comprise 4.41% of all lesions of thyroid and 10.71% of non neoplastic lesions of thyroid.

##### ***Age /Sex Incidence***

3 cases aged 25,28 and 31 years old were noted & all were females .

##### ***Gross***

Cyst ranged from 0.5 cm to 15 cm diameter.

### **Microscopic**

Showed thyroid with thickened fibrocollagenous cyst wall by cuboidal epithelium extensive haemorrhages, granulation tissue , inflammatory infiltrates and thyroid follicles with colloid were seen.

### **Ectopic thyroid (lingual thyroid )**

#### **Incidence**

In our present study single case of ectopic (lingual) thyroid was noted which comprised 1.47% of all lesions of thyroid and 3.57% of non neoplastic lesions patient was 30 years female and clinically presented with growth over posterior one third of tongue.

#### **Gross**

Specimen was single nodular piece of tissue measuring 2.5 x 2.2 x2 cms partly covered one side by tongue mucosa .on cut section shows dark brown appearance.

### **Microscopic features**

Showed tissue covered by stratified squamous epithelium. The subepithelial tissue showed a well encapsulated mass composed of follicles of varying size lined by cuboidal to flattened epithelium. The lumen filled with colloid .The intervening stroma shows mononuclear cell infiltration.

## **DISCUSSION**

The present study of 68 lesions of thyroid gland was carried out in three years in the Department of Pathology. M.R. Medical College Gulbarga. The study was undertaken in an attempt to evaluate thyroid gland lesions histopathology.

#### **Incidence**

In the present study there were total 68 cases of thyroid and the total number of biopsies reported during the same period were 8511, so the incidence of thyroid lesions was 0.80% of all the surgical biopsies.

#### **Age incidence**

In the present study the maximum number of thyroid lesions were seen between 31- 40 yrs age group.

#### **Sex incidence**

In the present study female preponderance was observed in al lesions of thyroid with f:m ratio 5.18:1. This might be due to geographical variation in relation with etiological factors.

### **Incidence of non neoplastic and neoplastic lesions of thyroid**

In the present study out of 68 cases of thyroid lesions there were 28 (41.18%) cases of non neoplastic lesions of thyroid and 40 (58.82%) neoplastic

### **Incidence of goiter, benign and malignant lesions**

In the present study, out of 68 cases of thyroid lesions there were 21 (30.89%) cases of goiter, 28 cases (41.18%) of benign lesion (follicular adenoma) and 12 (17.65%) cases of malignancy.

### **Neoplastic lesions**

The present study included 40 neoplastic lesions of thyroid gland. Out of 40 thyroid neoplasms 28 (70%) were benign and 12 (30%) were malignant. Sarker et al{1} depicted carcinoma of thyroid gland is relatively rare disease and constitutes less than 1% of all malignancies. More incidence of benign lesions of thyroid was seen over malignant lesions. Geographical variation and small number of cases studied in the present study should be noted.

### **Follicular adenoma**

#### **Incidence**

In the present study out of 68 cases of thyroid lesions 28 cases (41.18%) of follicular adenoma were present.

#### **Age incidence**

In the present average of for follicular adenoma is 36.93 years. The findings from present study correlate with study of Fenn et al{2} and Rosai et al{3} in present study maximum 10 cases were observed in 21-30 age group and also in 31-40 age group.

#### **Sex incidence**

In present study, female to male ratio is 6:1 which is higher as compared with other authors which may be because of geographical variation and small number of cases studied. In the present study, fetal (microfollicular) subtype of follicular adenoma was most commonest type. Our findings are comparable with findings of Rao et al{4}. However colloid subtype is most common in the study of Coeffey et al{5} Amin and purandare {6}, Thomas et al {7} and Arora et al {8}.

### **Malignant lesions**

#### **Incidence**

In present study incidence of malignant lesions in all thyroid lesions is 17.65%. this incidence correlates with Rao et al {9} 14.9%.

#### **Age incidence**

In the present study of 12 malignant lesions, maximum cases (5) were seen in 4<sup>th</sup> decade. similar findings are observed by Kishore et al {10} and Burn et al {11}. Hemmer Schroff et al {12} and Woolner et al {13} observed a maximum number of patients of thyroid malignant in 5<sup>th</sup>, 6<sup>th</sup> and 7<sup>th</sup> decade as compared to 4<sup>th</sup> decade.

#### **Sex incidence**

Out of 12 cases of malignant lesion of thyroid there were 10 females and 2 males with F : M ratio 5:1.

In the present study incidence is nearer to the study of Burn et al {11} (that is 3:1). Similarly, Yeole et al {14} also depicted the same F:M ratio 3:1

### **Incidence of various malignant neoplasm**

In the present study incidence of follicular carcinoma 8.33%, papillary carcinoma 75%, anaplastic carcinoma 8.33% and medullary carcinoma 8.33%.

In the present study it was observed that the most common histological type of malignant tumour was papillary carcinoma.

### ***Follicular carcinoma***

In present study of 12 cases of malignant lesions of thyroid there was only 1 case of follicular carcinoma which comprises 8.33% of all malignant lesions of thyroid.

### ***Age incidence***

In the present study age of the patient is 60 years, our findings were comparable with Sarker et al {15}.

Hemmer et al {12} showed higher average age incidence (i.e 56 years and 71 years respectively for follicular carcinoma).

### ***Sex incidence***

In the present series, the patient is female.

In our study female predominance was noted. Similar findings were observed all other series.

In present series our findings are comparable with Evans et al {16} (F:M ratios is 2:1).

### ***Papillary carcinoma***

#### ***Incidence***

In present series papillary carcinoma is most commonest malignant lesion with 9 which comprises 75% of all the malignant lesions of thyroid .

Incidence of papillary carcinoma in our study is 75% of malignant lesions. Our findings correlate with study of Chellum et al 69.11% {17} and Cady et al 80% {18}.

### ***Age incidence***

In the present series ,we found average age of papillary carcinoma to be 34.9 years which is comparable with Williams et al 34 years {19} and Zargar et al 35.38 years {20}.

### ***Sex incidence***

In present study , there were 8 female and 1 male, with F:M ratio of 8:1.

In present series there was marked female predominance which is comparable with series of Minjing et al {21}

In present study ,there were two cases of follicular variant papillary carcinoma, 3 cases of encapsulated variant ,1 case of encapsulated follicular variant and 1 cases associated with Hashimoto's thyroiditis.

### ***Medullary carcinoma***

#### ***Incidence***

In present series there was a single case of medullary carcinoma which comprised 8.33% of all malignant lesions.

In present study incidence of medullary carcinoma (8.33%) was comparable with Sarker et al 9% (1992){1} and Wig et al 9.37% (1980){22}.

### ***Age incidence***

Age incidence of medullary carcinoma in present study is 60 years which is close to study by Gililand et al {23} at 50.5 years.

### ***Sex incidence***

In present study, it was Male patient as compared to female patient in other malignancies.

### **Anaplastic carcinoma**

#### **Incidence**

In present study there was one case of anaplastic carcinoma which comprises 8.33% of malignant lesions among all malignant tumours of thyroid.

In the present series incidence of anaplastic carcinoma is 8.33% which is comparable with Chellum et al 7.9% {17}.

#### **Age incidence**

In present study age incidence of anaplastic carcinoma is 52 years ,in which is comparable with Belfore et al 53.2 years {24}.

#### **Sex incidence**

In present study, there was single case of female patient

### **Non neoplastic lesions**

#### **Goiter**

##### **Incidence**

In the present study of 68ases of thyroid lesions, goiter is second most common lesion noticed, with 21 cases 30.89%.

Our finding are comparable with Chellum et al 31.9% {17},thus goiter is most common finding in the lesions of thyroid gland.

##### **Age incidence**

In the present study of 21 cases (30.89%) of goiter maximum number of cases (12) were present in 4<sup>th</sup> decade.

From above table our finding are comparble with findings of Bhansali et al {25} that is 4<sup>th</sup>decade .

##### **Sex incidence**

In the present study there were 16 females and 5 males with F:M ratio of 3.2:1

Table No. 19 shows comparative F:M ratio in goiter, studied by different authors.

**Table No. 19**

Author	Year	F:M ratio
Bhansali et al {25}	1973	3.06:1
Mahthew et al {26}	1997	5.4:1
Lyerly et al{27}	1997	4:1
Norman et al{28}	1998	6:1
Present study	2004	3.2:1

Our finding of female to male ratio 3.2:1 is comparable with Bhansali et al 3.06:1 {26}.

#### **Incidence**

In the present series of 21 cases, 10 cases (47.62%) were of diffuse (colloid) goiter, 10 cases of multinodular (47.62%) and one case of adenomatiod goiter (4.76%) were seen.

Multinodular goiter and diffuse goiter are the commonest type of goiter in the present series. Similar high incidence of multinodular goiter and diffuse goiter is observed by Budhraj et al {29} .

In the present series out of 21 cases of goiter maximum 12 were present in 4<sup>th</sup> decade. Similar findings were observed at Bhansali et al {26}.

In the present series, maximum incidence of diffuse goiter and multinodular goiter was observed in 4<sup>th</sup> decade.

### **Sex incidence**

In present study, of 21 cases of goiter there were 16 female and 5 male .of 10 cases of diffuse (colloid) goiter 6 female and 4 male. 10 cases of multinodular goiter 9 female and 1 male and 1 case of adenomatoid goiter, female.

In the present study diffuse and multinodular showed female preponderance. Similar female preponderance was observed by Bhansali et al {26}.

### **Hashimoto's thyroiditis**

#### **Incidence**

In our present study 2 cases were of Hashimoto's thyroiditis which comprised 2.94% of all lesions of thyroid.

In present series incidence is 2.94% as against the findings of Chellum et al 1.29% {17}.

#### **Age incidence**

In present study average age incidence of Hashimoto's thyroiditis is 38.5 years, which is close to Rao et al 36.6 years (1979){9}. Both the patients were females.

### **Thyroglossal cyst**

#### **Incidence**

In our present study there was single case of thyroglossal cyst which comprised 1.47% of all lesions of thyroid.

#### **Age incidence**

In the present study of 68 cases, there was 1 case of thyroglossal cyst. Case was present in 3<sup>rd</sup> decade.

Grant et al {30} stated that, thyroglossal tract abnormalities are frequently encountered in childhood but may be observed any time between infancy and old age. Similar findings were present in our study.

#### **Sex incidence**

In our study, it was female patient as against Grant et al {30} who depicted that thyroglossal cyst in female and males were equally affected.

### **Thyroid cyst**

#### **Incidence**

In our present study there were cases of thyroid cyst which comprises 4.41% of all lesions of thyroid.

#### **Age incidence**

In present study of 68 cases there were 3 cases of thyroid cysts. 2 cases were present in 3<sup>rd</sup> decade and one cases in 4<sup>th</sup> decade.

Chellum et al {17} showed that thyroid cyst were common in 3<sup>rd</sup> and 4<sup>th</sup> decade similar to present study.

### **Sex incidence**

In our study all three cases were females.

### **Ectopic thyroid (Lingual)**

#### **Incidence**

In our study of 68 cases of thyroid lesions, there was single case of lingual thyroid which comprises 1.47% of all lesions of thyroid. Incidence in Rao et al was 0.65% {9}

### **Age and Sex incidence**

In our study there was only 1 case of Lingual thyroid of 30 years old female patient. In most instances, the diagnosis is made during adolescence and its preponderance has been noted by Juan Rosai et al {3}

## **CONCLUSIONS**

- 1) Total of 68 cases were noted in total 3 years.
- 2) Percentage of surgical biopsy material in relation to thyroid was 0.80%.
- 3) 28 cases (41.18%) of non neoplastic lesion of thyroid gland & 40 (58.82%) caes of neoplastic lesions of thyroid gland were noted.
- 4) Thyroid disease was common in 3<sup>rd</sup> to 4<sup>th</sup> decade .youngest patient was 18 years and oldest 60 years.
- 5) Sex incidence showed female preponderance with 57 females and 11 males F:M ratio being 5.18:1.
- 6) Non neoplastic lesions of thyroid were seen in 28 cases. Goitre accounted for maximum number of cases with 21 cases (30.89%). Multinodular goitre accounted for 10 cases, Diffuse Goitre accounted for 10 cases and single case of Adenomatoid Goitre. Youngest was 26 years female and oldest 58 years female. Average being 34.7 years. F:M ratio was 3.2:1.
- 7) 3 cases of thyroid cyst were identified, 2 in 3<sup>rd</sup> decade and 1 in 4<sup>th</sup> decade. All being females.
- 8) Hashimoto's thyroiditis was the only inflammatory lesion in series of 68 cases. 2 cases of 35 and 42 years were noted, both being females.
- 9) In congenital lesions, one case of thyroglossal cyst and one case of lingual thyroid were identified, both being females.
- 10) Analysis of neoplastic lesions showed 28 cases of follicular adenoma, incidence being 41.18%. Maximum cases were in 3<sup>rd</sup> and 4<sup>th</sup> decade. Average age was 36.93 years F:M ratio is 6:1.
- 11) In thyroid malignancy lesions 12 cases were noted, 10 females and 2 male, incidence was 17.65%. Majority of patient were in 4<sup>th</sup> decade, youngest being 28 years And oldest 60 years, with female preponderance. Papillary carcinoma was most commonest malignant thyroid lesion and accounted for 13.24% (9 cases).single case of follicular carcinoma (60 year female), anaplastic carcinoma (52 year female) and medullary carcinoma (60year male ) were noted.
- 12) To conclude there were 28 cases (41.18%), of neoplastic lesion and 40 cases (58.82%) of neoplastic lesions. Of neoplastic lesions 28 cases (70%) were benign and 12 cases (30%) were malignant. In benign lesions majority lesions were follicular adenomas in malignant lesions, majority were papillary carcinomas.

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