

## Prevalence of Neck Masses in a Tertiary Care Hospital.

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### Abstract:

**Back Ground:** In ENT practice the neck mass is one of the commonest presentation and also one of the difficult situation to diagnose and manage, because of its highly complex anatomy and physiology. This requires multidisciplinary approach to know the etiopathological diagnosis.

**Aims :** 1. To study the **incidence** of neck mass in gender and age variation

2. To know the incidence of different neck masses in our region .

**Materials And Methods :** The study was conducted in the Govt. ENT Hospital, tertiary referral hospital in Andhra Pradesh for a duration of 2 years from May 2017 to April 2019. In about 76800 patients, attended during the above period to the Outpatient department, 3312 patients complained of symptoms of head and neck disease. 845 patients attended with neck masses alone. These patients were distributed depending upon gender and age variation .They were also grouped on the basis of clinical and pathological diagnosis .

### Observation Or Results:

The total number of patients studied were 845, with an incidence in female 587 and male 258. M:F Ratio is 1:2.27 with female preponderance. The age group most commonly affected is 21-30 yrs with 207 patients(24.49%) and least is in the age group 1-10 years with 101 patients (11.9%) . The group with 313 patients (37.5%) with infective etiology is found to be the most common cause of neck masses in our hospital, out of which the Non specific lymphadenitis with 147 patients is the most common disease (49.96%) and Kikuchis disease with 1 patient was the least common (0.31%). In the congenital group (92 patients) thyroglossal cyst dominated with 53 patients(57.60%) and the least was ectopic thyroid with 1 patient(1.08%). In benign tumors group (208), Multinodular goiter/goiter with 130 patients was the most common lesion(62.5%) and the least common lesion was Laryngocoele with 1 patient.(0.48%). In malignant group (232) the squamous cell carcinoma was the commonest lesion with 157 patients(67.67%) and both small round cell tumour and hurtle cell carcinoma metastasis with 3 patients were seen as least common (1.29%).

**Conclusion:** In this study of total number of 845 patients, the Male:Female Ratio is 258:587( 1 : 2.27 )with female preponderance. The age group most commonly affected is 21-30 yrs and least is age group 1-10 years. In the neck masses the infective origin group is found to be commonest and the least common is the congenital etiology group. In infective group, the non specific lymphadenitis is the most common etiology and the least common is Kikuchis disease. In the malignant group squamous cell carcinoma is the most common and both the Small round cell carcinoma and hurtle cell carcinoma are the least common etiologies. In the benign group with neck masses the most common is goiter/multinodular goiter and the least common being Laryngocoele. In the congenital etiology group the most common is found to be least common being Ectopic thyroid.

**Key Words :** Neck masses, Thyroid masses, Cysts of neck, Lymphnode masses.

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### I. Introduction

Most of the head and neck diseases may present with primary complaint as neck mass because neck is the seat of salivary, respiratory, phonatory, endocrine and vascular systems. Neck mass is one of the most common presentations in every ENT clinic and hospital. Some patients may present very early with small nodules and others may attend very late with huge swelling. Most common neck swelling is non specific cervical lymphadenitis in children and adolescents due to scalp infection, infected miliriasis and infected acne vulgaris. In the specific infective group tuberculous cervical lymphadenitis stands first in the row because of poor socio economic status and malnutrition. Chronic parotid and submandibular sialadenitis are also not uncommon which presents with a neck swelling. The congenitally developed lesions (Turkyilmaz Z, Karabulut R., et al<sup>1</sup>) like branchial cyst, thyroglossal cyst, ectopic thyroid, cystic hygroma, hemangiomas, lymphangioma and dermoid cyst, also present with neck mass. In the group of benign tumors of neck region thyroid takes the major number presenting as both goiter and adenomas with solid or cystic type of lesion, later are the neck swellings arising from salivary glands like pleiomorphic adenoma, warthins tumour and adenocarcinoma Rice DH et al<sup>2</sup>. Other neck masses like lipoma, sebaceous cyst, neurofibroma, rhabdomyoma, leiomyoma,

schwannoma or paraganglioma, carotid body tumour are rarely seen. Laryngocele also may present as neck mass in wind instrument blowers. Malignant tumours like squamous cell carcinoma, adenocystic carcinoma, undifferentiated carcinoma, adenocarcinoma, hurthle cell carcinoma present as neck mass, mostly hard in consistency. To diagnose the etiology of the above different masses, we need good history taking, clinical examination and radiological examination with ultra sound, X-ray, CT<sup>3</sup>, MRI and angiography and pathological investigations like FNAC or biopsy, with or without ultrasound and CT guidance. The pathological diagnosis decides the mode of treatment by medical, surgical or with radiation.

## II. Aims And Objectives

1. To study the incidence of neck mass in gender and age variation
2. To know the incidence of different neck masses in our region .

### STUDY DESIGN

Observational retrospective study.

### SETTING--HOSPITAL

The study was conducted in the Govt ENT Hospital, tertiary referral hospital in Andhra Pradesh.

## III. Materials And Methods

The study was conducted in the Govt ENT Hospital, tertiary referral hospital in the state of Andhra Pradesh. This hospital will receive patients from costal Andhra Pradesh, Odisha and Madhya Pradesh. About 76,800 patients attended during the above period to the outpatient department, of which 3312 patients had complained of symptoms of head and neck disease. 845 patients attended with neck masses alone.

In the above patients, the history of the neck masses was thoroughly taken primarily, later the total clinical examination of head and neck was performed. The other systems related with the presenting complaints were also investigated like endocrinology, cardiovascular, respiratory and central nervous system.

These patients were distributed depending upon gender and age variation .They were also grouped on the basis of etiology attained after clinical examination and pathology reports.

### INCLUSION CRITERIA

All the neck masses are included in this study

### EXCLUSION CRITERIA

1. Cellulitis of neck
2. Ulcerative lesion of neck

### OBSERVATION:

#### GENDER VARIATION

S.NO	GENDER	NUMBER OF PATIENTS
1	MALE	258
2	FEMALE	587
TOTAL		845

The total number of patients studied were 845. The incidence in this study showed the female are affected more than males. ( males 258 and females 587). Male versus female ratio is M:F 1 : 2.27. Here it projects female preponderance.

#### AGE VARIATION

S.NO	AGE VARIATION(YRS)	NUMBER OF PATIENTS	PERCENTAGE(%)
1	1-10Yrs	101	11.9
2	11-20Yrs	132	15.06
3	21-30Yrs	207	24.49
4	31-40Yrs	167	19.7
5	41-50Yrs	120	14.2
6	51Yrs and above	118	13.96
	TOTAL	845	100

The age group most commonly affected is 21-30 yrs with 207 patients. Later, the age groups involved in descending order are 31-40 yrs with 167 patients, 11-20 yrs with 132 patients, 41-50 yrs with 120 patients and above 50 yrs with 118 patients. The least incidence is seen in the Age group of 1-10 yrs with 101 patients.

**ETIOPATHOLOGICAL CLASSIFICATION-MAJOR DISTRIBUTION**

S.NO	TYPE	NUMBER	PERCENTAGE (%)
1	CONGENITAL	92	10.88
2	INFECTIVE	313	37.04
3	BENIGN TUMORS	208	24.61
4	MALIGNANT	232	25.20
	TOTAL	845	100

The total number of patients studied with neck masses were 845. The infective group with 313 patients (37.5%) was the most common cause of neck masses in our hospital. Later malignant tumors with 232 patients (25.20%), benign tumors with 208 patients (24.61%), congenital origin with 92 patients (10.88%) were found in a descending order.

**CONGENITAL ORIGIN**

S.NO	TYPE	NUMBER	PERCENTAGE(%)
1	THYROGLOSSAL CYST	53	57.60
2	ECTOPIC THYROID	1	1.08
3	BRANCHIAL CYST	3	3.26
4	CYSTIC HYGROMA	3	3.26
5	HEMANGIOMA	6	6.52
6	LYMPHANGIOMA	2	2.17
7	DERMOID CYST	24	26.08
	TOTAL	92	100

The total no. of patients in congenital origin of neck masses were 92. In the congenital group thyroglossal cyst is dominated with 53 patients (57.60%). Later was the dermoid cyst with 24 patients, Hemangioma with 6 patients, Branchial cyst with 3 patients, Cystic hygroma with 3 patients, Lymphangioma with 2 patients were identified in descending order. The least affected lesion was ectopic thyroid with 1 patient (1.08%).

**INFECTIVE ORIGIN**

S.NO	TYPE	NO. OF PATIENTS	PERCENTAGE(%)
1	NON SPECIFIC LYMPHADENITIS	147	46.96
2	TUBERCULOUS LYMPHADENITIS	84	26.83
3	GRANULOMATOUS LYMPHADENITIS/ SARCOIDOSIS	5	1.59
4	REACTIVE LYMPHADENITIS	32	10.22
5	CHRONIC SIALOADENITIS	21	6.70
6	KIKUCHI'S DISEASE	1	0.31
7	HASHIMOTO'S THYROIDITIS	23	7.34
	TOTAL	313	100

The total no. of patients in infective etiology group of neck masses were 313. Non specific lymphadenitis with 147 patients (46.96%) is the most common disease in the infective group neck masses, later tuberculous cervical lymphadenitis with 84 patients, Reactive lymphadenitis with 32 patients, Hashimoto's thyroiditis with 23 patients, Chronic sialadenitis with 21 patients, Granulomatous lymphadenitis/Sarcoidosis with 5 patients are seen in descending order. Kikuchi's disease is the least common with 1 patient (0.31%).

**BENIGN TUMOURS GROUP**

S.NO	TYPE	NUMBERS	PERCENTAGE(%)
1	GOITRE/MULTINODULAR	130	62.5
2	ADENOMA THYROID	18	8.65
3	PLEOMORPHIC ADENOMA	35	16.82
4	SCHWANNOMA	2	0.96
5	WARTHIN TUMOUR	3	1.44
6	LARYNGOCELE	1	0.48
7	NERVOFIBROMA	3	1.44
8	LIPOMA	8	3.84
9	SEBACEOUS CYST	6	2.88
10	BENIGN FIBROUS HISTIOCYTOSIS	2	0.96
	TOTAL	208	100

The total no.of patients in benign tumors group of neck masses were 208. Multinodular goiter/ goiter with 130 patients (62.50%) was the most common lesion in the benign tumor group of the neck masses. Pleomorphic adenoma with 35 patient found to be the second most common , later adenoma of thyroid with 18 patient, lipoma with 8 patients ,sebaceous cyst with 6 patient , warthin tumour with 3 patients , neurofibroma with 3 patients , schwannoma with 2 patients ,benign fibrous histiocytosis with 2 patients were seen in descending order. The least common lesion was Laryngocele with 1 patient (0.48%).

#### MALIGNANT TUMOURS GROUP

S.NO	ETIOLOGICAL TYPE	NUMBER	PERCENTAGE (%)
1	SQUAMOUS CELL CARCINOMA	157	67.67
2	UNDIFFERENTIATED CARCINOMA	23	9.91
3	ADENOCYSTIC CARCINOMA	10	4.31
4	ADENOCARCINOMA	8	3.44
5	MUCOEPIDERMOID CARCINOMA	6	2.58
6	LYMPHOMA	11	4.74
7	SMALL ROUND CELL TUMOUR	3	1.29
8	METASTATIC NODES OF PAPILLARY CARCINOMA	7	3.01
9	MALIGNANT EPITHELIAL TUMOUR METASTASIS	4	1.72
10	HURTLE CELL CARCINOMA METASTASIS	3	1.29
	TOTAL	232	100

The total no. of patients in malignant group of neck masses were 232. In the malignant tumours of neck group the squamous cell carcinoma was the dominant lesion with 157 patients (67.67%), later the undifferentiated carcinoma with 23 patients, lymphoma with 11 patients, adenocystic carcinoma with 10 patients, Adenocarcinoma with 8 patients, metastatic nodes of papillary carcinoma with 7 patients, mucoepidermoid carcinoma with 6 patients, malignant epithelial tumors of metastasis with 4 patients, small round cell tumors with 3 patients (1.29%), hurtle cell carcinoma metastasis with 3 patients (1.29%) were the least common .

#### IV. Discussion

The total number of patients included in our study are 845. The incidence in this study showed the female are affected more than males. ( males 258 and females 587). Male versus female ratio, M:F is 1:2.27, which signifies female preponderance.

The neck mass with head and neck disease is one of the common presentations in ENT clinics and hospitals. In this study we selected 845 patients with neck mass who attended the ENT outpatient department. After thorough clinical examination, hematological, radiological & pathological investigations we came to final diagnosis.

They were broadly classified and distributed in four groups.

1. Congenital group with 92 patients (10.88%)
2. Infective group with 313 patients (37.04%)
3. Benign tumors group with 208 patients (24.61%)
4. Malignant tumors group with 232 patients(25.20%) .

The infective group with 313 patients (37.5%) was the most common cause of neck masses in our hospital. M.Tanriverdi, Salih Bakir et al.<sup>4</sup> shows infective origin 39.0% which is similar to ours with 37.4% , congenital group 11.5% which is equal to our results, benign tumors 15.3% , malignant tumors 34.4% which varies with our observation. Later malignant tumors with 232 patients (25.20%) ,benign tumors with 208 patients (24.61%),congenital origin with 92 patients (10.88%) were found in a descending order.

Total no. of patients in congenital origin of neck masses are 92 (10.88%) . In the congenital group thyroglossal cyst is dominated with 53 patients (57.06%) as a most common which is nearer to Rosenberg TL.,Brown JJ,et al.,<sup>5</sup> who shows thyroglossal cyst 51.04%, but M.Tanriverdi, Salih Bakir et.al<sup>4</sup> shows epidermoid is the most common with 26.54% and thyroglossal cyst with 20.35% which varies with our findings . Drousseau VJ, Solares CA,et al.,<sup>6</sup> shows thyroglossal cyst incidence 52.06% which is nearer to our observation. Later in our study is the dermoid cyst with 24 patients((26.08%), Hemangioma with 6 patients (6.52%). Branchial cyst with 3 patients (3.26%) ( Shin JH, Lee H et al<sup>7</sup> shows 4.2% brachial cyst which is nearer to our observation ), Cystic hygroma with 3 patients(3.26%), Lymphangioma with 2 patients (2.17%) are identified in descending order. The least affected lesion is ectopic thyroid with 1 patient (1.08%).

The total no.of patients in infective etiology group of neck masses are 313. Non specific lymphadenitis with 147 patients (46.96%) is the most common disease in the infective group neck masses M.Tanriverdi, Salih Bakir et.al<sup>4</sup> shows 48.82% which is nearer to us. Later in our study is tuberculous cervical lymphadenitis with 84 patients (26.83%) is the second most common . M.Tanriverdi, Salih Bakir et.al<sup>4</sup> shows 21.67% which is

lower than our incidence. Reactive lymphadenitis with 32 patients(10.22%) ,Hashimotos thyroiditis with 23 patients (7.34%) ,Chronic sialadenitis with 21 patients(6.70%) ,Granulomatous lymphadenitis/Sarcoidosis with 5 patients (1.59%) in descending order. Kikuchis disease with 1 patient (0.31%) is the least common.

The total no.of patients in benign tumors group of neck masses are 208. Goiter/ Multinodular goiter with 130 patients (62.5%) is the most common lesion in the benign tumors group of the neck masses. Batsakis JG<sup>8</sup> shows goiter/multinodular goiter incidence to be 60.02% which is nearer to us and Mc Guirt WF et al<sup>9</sup> shows 58.19% which slightly varies with us and Haynes J,Arnold R et al<sup>10</sup>. shows 51.3% which varies with us.Pleomorphic adenoma with 35 patients (16.82%) found to be the second most common , Lu YC,Fan WJ et al<sup>11</sup> shows 21.22% which is slightly higher than our incidence. Adenoma of thyroid with 18 patients(8.65%), lipoma with 8 patients(3.84%) ,sebaceous cyst with 6 patient(2.88%) , warthin tumour with 3 patients (1.44%) , neurofibroma with 3 patients(1.44%) , schwannoma with 2 patients (0.96%) (Wax MK,Shiley SG<sup>12</sup>, et al ,shows schwannoma incidence to be 1.8% which is twofold to our incidence), Benign fibrous histiocytosis with 2 patients (0.96%) are seen in descending order. The least common lesion is Laryngocoele with 1 patient (0.48%).

The total no.of patients in malignant group of neck masses are 232. In the malignant tumours of neck group the squamous cell carcinoma is the dominant lesion with 157 patients(67.67%) . Melissa A Pynonnen,M.Boyd Gillespie et al<sup>13</sup>., shows squamous cell carcinoma incidence to be 62% which is nearer to our results. Later in this study the undifferentiated carcinoma with 23 patients (9.91%) , lymphoma with 11 patients(4.74%) , adenocystic carcinoma with 10 patients (4.31%), Adenocarcinoma with 8 patients(3.44%), metastatic nodes of papillary carcinoma with 7 patients(3.01%) mucoepidermoid carcinoma with 6 patients (2.58%) (spino RH,Huvos AG,Berk et al<sup>14</sup> shows mucoepidermoid as 3.8% which varies with our results), metastasis of malignant epithelial tumours with 4 patients(1.72%) (Sadri D,Azizi A, et al.,<sup>15</sup> shows metastasis of malignant epithelial tumors incidence to be 3.60% which is two-fold of us) are seen in descending order. Small round cell tumour with 3 patients (1.29%) , Hurtle cell carcinoma metastasis with 3 patients(1.29%) are seen as least common in malignant tumors group.

## V. Conclusion

In this study of 845 patients, the Male: Female Ratio is 258:587 (1:2.27) with female preponderance. The age group most commonly affected is 21-30 yrs with 207 patients (24.49%) and least is age group 1-10 years with 101 patients (11.9%). In the neck masses, the infective origin group with 313 patients (37.04%) is found to be commonest , followed by malignant etiological group with 232 patients (25.02%), benign tumors with 208 patients (24.61%) and the least is the congenital etiology group with 92 patients (10.88%). In infective group (313) the non specific lymphadenitis is the most common etiology with 147 patients (46.96%) and the least common is Kikuchis disease with 1 patient(0.31%) . In the malignant group of 232 patients squamous cell carcinoma with 157 patients (67.67%), is the most common and the Small round cell carcinoma and hurtle cell carcinoma with 3 patients (1.29%) each are the least common etiologies. In the benign group of 208 patients with neck masses the most common is Goiter/Multinodular goiter with 130 patients (62.5%) and the least common is Laryngocoele with 1 patient (0.48%). In the congenital etiology group with 92 patients of neck masses the most common is found to be Thyroglossal cyst with 53 patients (57.60%) and least common is Ectopic thyroid with 1 patient (1.08%).

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