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Clinicopathological Study of Neck Masses in Anterior Triangle of Neck

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Abstract:
Background: *Tumors of the neck are interesting to surgeons especially because of the complex neck anatomy and difficult differential diagnosis. Different types of neck masses are thyroid swellings, salivary glands swellings ,thyroglossal cysts, branchial cysts , lymphangioma and also the miscellaneous and rare lumps in the neck. Fine needle aspiration cytology (FNAC) is a simple,quick and cost effective method to sample superficial masses found in the neck.*
Materials And Methods*: This is a prospective study, conducted at our institute National Institute of Medical Sciences and Research, Jaipur from January 2021 to June 2022 for a duration of 18 months. All Patients will be evaluated starting with clinical history and examinations followed by Fine needle aspiration cytology (FNAC).*
Results*: A total of 50 patients were studied during this period. Out of the 50 patients, 34 of them were thyroid swellings (68%) and 16 among them were other neck swellings (32%). People over a wide range of age group between 10-70 years were affected. Thyroid swelling were more common than other neck swellings.*
Conclusion*: Among the swellings in anterior triangle of neck , thyroid swelling was found to be the commonest followed by salivary glands swellings. Thyroid swellings occur more commonly in the females than males. Ultrasound and FNAC is the most common, effective and safe investigation that aids in the diagnosis. Treatment of choice for benign, non inflammatory and non-malignant neck swelling is mostly surgical excision rather than medical management.*
Key word: *Anterior neck swellings , FNAC , Surgical management.*

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I. Introduction

• Neck masses are a relatively common head and neck problem. There are usually no associated symptoms besides the recognition of a lump noticed incidentally on palpation and cosmetic appearance with increase in size of swelling over a duration or noticed by another individual. The common benign neck masses are thyroid swellings and those of the salivary gland. Less common pathologies presenting as neck swelling are from thyroglossal cysts, branchial cleft cyst and lymphatic malformation. Lumps may sometime also be classified in relation to triangles of neck.[1,2] Tumors of neck are interesting to surgeons especially because of complex neck anatomy and difficult differential diagnosis. They arise from definite anatomic structures and are very common in the out-patient department. Every time a surgeon sees a neck mass, he has several questions in his mind like, whether it is congenital or acquired, inflammatory or non-inflammatory; tissue of origin; benign or malignant; primary or secondary lesion; if secondary, then source of primary; or could it be occult primary and what are the required diagnostic tools and treatment etc.[3] The differential diagnosis in a patient presenting with neck mass is often extensive and will vary with age these neck masses are evaluated by a detailed history, clinical examination and investigation like FNAC, USG NECK, CT NECK and excisional biopsy. Clinical examination of neck has false positive results between 20-30% and false negative rates ranging from 30-40%.[4,5]This study aims to study different types of neck masses in anterior triangle of neck, their nature, clinical features and management according to age and sex.

II. Materials And Methods

This was a prospective study, conducted at our institute National Institute of Medical Sciences and Research, Jaipur from January 2021 to June 2022 .

Study Area: Department of Otorhinolaryngology, National Institute of Medical Sciences and Research, Jaipur.

Study Population: Patients attending Otorhinolaryngology department OPD at NIMS Medical College and Hospital, with neck swellings in anterior neck triangle.

Inclusion criteria:

All patients attending OPD/IPD of otorhinolaryngology department at NIMS Medical college and hospital with swelling in anterior triangle of neck.

Exclusion criteria:

- Suspected neck masses of vascular origin on clinical examination.
- Neck abscess.
- Cervical lymphadenitis.

Hospital based time bound study:- TIME DURATION-18 MONTHS (JANUARY 2021- JUNE 2022)

Study design: Prospective Study

Time frame: 18 months – January2021 to June 2022 .

III. Methodology

All patients attending the ENT OPD with neck swellings in the anterior triangle of neck were included in this study. All Patients were evaluated starting with clinical history and examinations. A provisional diagnosis was established and further investigations in the form of Ultrasonography, fine needle aspiration cytology, complete blood count, routine investigations etc. were carried out on each patient. In some cases special investigations like CT scan and MRI were also done. After coming to a final diagnosis, surgical excision was the modality of treatment preferred in most cases and all masses were sent for histopathological examination for further confirmation. Patients who signed Informed Consent Form on an approved format, were included in study. Clearance from Institutional Ethical Committee was taken prior to start of the study. Regular clinical follow up of all the patients was carried out.

Statistical analysis

The data collected was analysed for validity statistically. Descriptive analysis was conducted for categorical data. Relevant graphs and charts were prepared for more comprehensive understanding. Relevant tests of significance were used to test if the difference in data was statistically significant

IV. Results

A total of 50 patients were included in the study. Out of them 68% were thyroid swellings and 32% were other neck swellings. People in the range of 16-70 years were affected. Among the various neck swellings, thyroid swelling is the most common anterior neck swelling. It is more common in females as compared to the males and occurring more frequently during the 3rd to 5th decade. Among the congenital anomalies, the most common neck swelling is the thyroglossal cyst. It is seen in the 1st decade of life. After appropriate investigations like USG, USG guided FNAC, CT, MRI neck, are managed by surgical excision of these neck mass rather than medical management For thyroid gland swellings, according to involvement of lobe we do hemi thyroidectomy or total thyroidectomy and for salivarygland swelling, excision of the gland is the treatment of choice. For branchial cyst, surgical excision of branchial cyst and for thyroglossal cyst, sistrunk operation is the preferred surgery modality.

Table no 1: Age distribution

Age groups in years	No of cases	Percentage
16-20	2	4%
21-25	5	10%
26-30	6	12%
31-35	10	20%
36-40	11	22%
41-45	6	12%
46-50	5	10%
51-55	3	6%
61-65	1	2%
66-70	1	2%

Table no 2: Site of swelling distribution

Site of swelling	No of cases	Percentage
Anterior triangle	36	72%
Submandibular triangle	10	20%
Muscular triangle	3	6%
Anterior + Muscular triangle	1	2%

Table no 3: Side of swelling

Side of swelling	No of cases	Percentage
Left	22	44%
Right	21	42%
Midline	7	14%

Figure no 1: Different types of anterior neck swellings

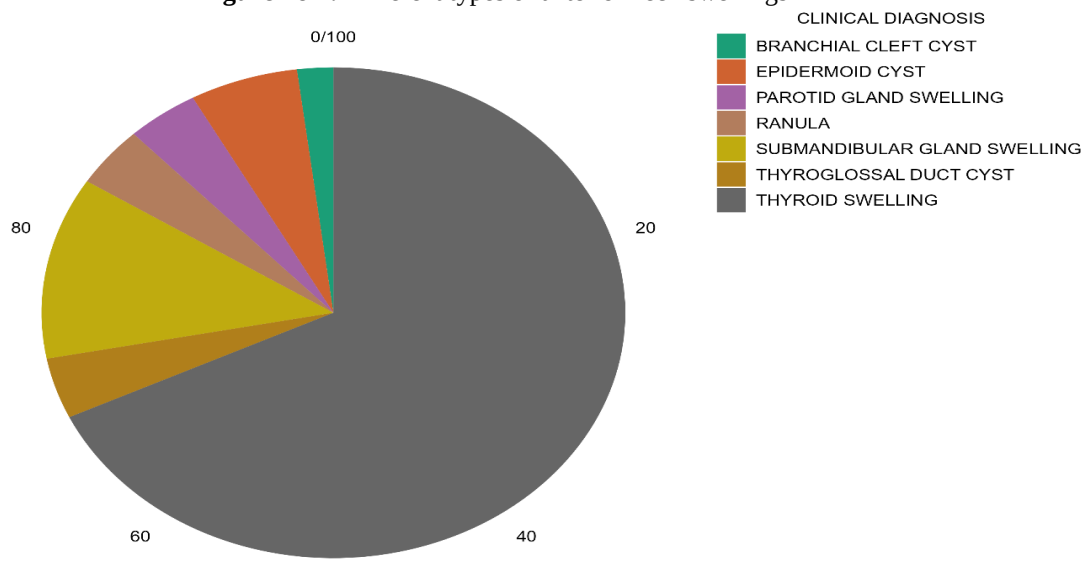

Figure no 2: Patient having right side neck swelling later on HPE diagnosed as Follicular Adenoma.

V. Discussion

• Neck masses are very frequently encountered in the outpatient department at a hospital and offer a diagnostic challenge for the surgeon. Thyroid mass especially colloid goitre is the most frequently encountered neck mass. Patient history and a physical examination are fundamental to making an early and correct diagnosis. Ultrasonography is very useful in detecting the site, extent, consistency and relationship of neck swellings to adjacent structures. Ultrasonography is very helpful in differentiating between solid and cystic neck swellings. It also differentiates between benign and malignant lesions of salivary glands and lymph nodes. USG guided Fine needle aspiration cytology is simple, quick and cost effective method to diagnose superficial masses in the neck. The technique is performed mostly in the outpatient department, the disadvantage being minimal trauma to the patient. [6-8] It is always beneficial to differentiate a benign from malignant pathology as it greatly influences the planned treatment. It can be both diagnostic and therapeutic in cystic swellings.[9] But there are some limitations of FNAC in the neck region that can be encountered. They are as follows: difficulty in the diagnosis and sub classification of lymphoma, distinguishing colloid goitre from follicular adenoma ,differentiation of colloid goitre from macro follicular papillary carcinoma, distinguishing between thyroid adenoma from early follicular carcinoma. The most common congenital lesions found in the pediatric population are thyroglossal duct cyst and branchial cleft cysts.[10] Irani et al study showed 24.2% of children had branchial cyst and 9% had thyroglossal duct cysts. As branchial cleft cysts are typically located in the submandibular region, and thyroglossal cyst are usually located in the midline in infrahyoid region. Hudise et al study showed most common congenital mass was thyroglossal cyst 24.2% then branchial cleft cyst 8.1%, then lymphangioma 6.5% and dermoid 1.6% and inflammatory 33.9%. In our study most common congenital neck mass are thyroglossal cyst (14%) and then dermoid cyst (7%) then lymphangioma (3.5%) and then branchial cleft cyst (1.7%). Goyal et al diagnosed the different types of cysts out of total head neck swelling because these cysts are commonly present in head neck region. [11] In their study 100 patients of different cystic neck swelling were studied over a period of five years from 2008-2013 to compare the finding with clinical diagnosis, FNAC and histopathological report for diagnostic reliability. Their study found that simple clinical examination followed by FNAC and histopathology is simple, quick, inexpensive and minimally invasive technique to diagnose different types of head and neck swelling. In their study, out of different head and neck cystic swellings thyroglossal cyst was most common followed by dermoid cyst. [12-14] . In our study out of the thyroid masses, colloid goitre (82.8%) was most common followed by follicular adenoma (14.2%) followed by thyroiditis (2.8%).This is consistent with study by Marvin et al. [15] Out of the salivary gland masses, pleomorphic adenoma (60%) of parotid was the most common followed by submandibular gland sialoadenitis (40%) This is consistent with the study by John et al.[16] Most common benign lesions are found in thyroid, this is consistent with the study of Dean DS et al. [17] Among the thyroid masses, colloid goitre, thyroiditis and follicular adenoma were more common in females and young adults.[18] In most of the other cases, which consist of cystic hygroma, ganglioneuroma, vascular malformation, sclerosing hemangioma, branchial cyst, computed tomography give a useful idea and anatomical relationship of the masses and help to plan surgical treatment.Deborah L considered computed tomography as an excellent means of evaluating patients with neck masses.[19] There are a few indications for CT scan for benign neck masses. They are:i) If tumor is nearer to the carotid triangle. ii)Large thyroid nodule causing compression of trachea. MRI is also done in some special benign neck swelling such as lymphangioma, epidermal cyst and branchial cyst.

VI. Conclusion

From our present study, it can be concluded that Thyroid predominated anterior neck swellings were found to be the commonest, followed by salivary gland swellings. Thyroid swellings are more common in the females and young adult. USG guided FNAC was the most common, effective and safe investigation. Treatment of choice for benign, non-inflammatory and non-malignant neck masses is mostly surgical excision.

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