Neck swellings in Indian population: A social stigma or stealthy scare???

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Abstract

Introduction: Neck swellings are encountered and present at all ages with an extensive differential diagnosis which range from a congenital tumour to a cancerous mass. It is hence important that all clinicians and surgeons have an in depth understanding about the embryology and anatomy of the swelling so as to aid an apt diagnosis and provide appropriate management algorithm.

Aims and Objectives:

1. To identify the common cause for neck swelling at our set up with its percentage.
2. To find out the proportion between benign and malignant neck swelling.
3. To find out the proportion between midline and lateral neck swelling.
4. To note down the proportion of gender affection towards neck swelling.
5. To educate the patients regarding the stigma or scare of neck swelling.

Materials and Methods: All the patients who consulted outpatient department with neck swelling were evaluated clinically, investigated and treated accordingly.

Results: Inflammatory cervical lymphadenopathy topped the list for all neck swellings at our set up.

Conclusion: It is to eliminate the stigma or scare that "not all the neck swellings" are carcinogenic or goitrogenic in nature.

Keywords: Neck Swelling, Midline, Lateral, Benign, Malignant.

Introduction

Neck swellings are commonly encountered and present at all ages for many causes. The differential diagnosis of a neck mass is extensive. It ranges from congenital to acquired, from inflammatory/ infective to neoplastic disease, encompassing any neck structures. Hence, it is of importance to surgeons and clinicians who come across variety of neck swellings day in and out; mainly to understand its embryology and anatomy that aid in making correct diagnosis and following an appropriate management algorithm. Knowledge of patient's age, along with its associated symptoms and anatomical location of the swelling are the main key factors to proceed towards timely action towards management.

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Materials and Methods

Study design: Prospective follow up study.

Place of study: Tertiary Care Hospital, Subbaiah Institute of Medical Sciences, Shimoga.

Study period: 2 years (from November 2016 to November 2018).

Selection criteria: A random sample of 131 patients who consulted the ENT outpatient department with neck swelling were clinically evaluated.

Inclusion criteria:

1. All the patients who presented with neck swelling were considered for the study.
2. Age group of inclusion was 1-80 years of age.

Exclusion criteria:

Age group of exclusion > 80 years of age.

Procedure of the study

A random sample of 131 patients who consulted ENT outpatient department with neck swelling were selected for the study. Ethical clearance has been taken from Institutional Ethics Committee before the start of the study.

A thorough history with detailed ENT with Head and Neck examination as well as examination of the swelling was done in all of them.

Diagnostic 0 degree nasal endoscopy and 70 degree telescopy was done in view of the swelling in all the patients. The relevant laboratory, radiological and cytological evaluation was done based on the location and type of swelling in all the patients to arrive at a diagnosis.

The necessary treatment modalities were chosen based on the diagnosis arrived following investigations. Informed written consent was taken during the study period. The detailed description about the treatment in all the patients is mentioned below.

Statistical analysis

It is done with the help of Open-epi software and Chi-square test is applied.

Results

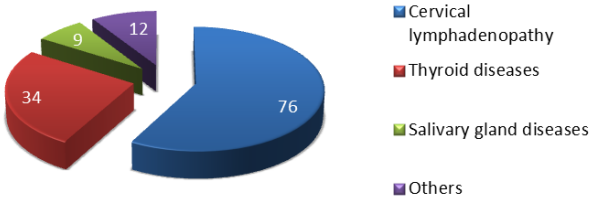

Fig. 1: All (131) neck swellings included in the study encountered in the OPD

Table 1: Causes for cervical lymphadenopathy

Cervical Lymphadenopathy		Males AC	Females AC	Total AC
Metastasis secondary to CA	Oral cavity	50	40	90
	Oropharynx	40	20	60
	Laryngopharynx	30	1 0	40
	Larynx	70	30	100
	NPC	10	00	10
	Unknown primary	10	10	20
Reactive/ Inflammatory		88	75	1513
Granulomatous		42	64	106
Total		43	33	76

A: Adults, C: Children, CA: Carcinoma, NPC: Nasopharyngeal carcinoma

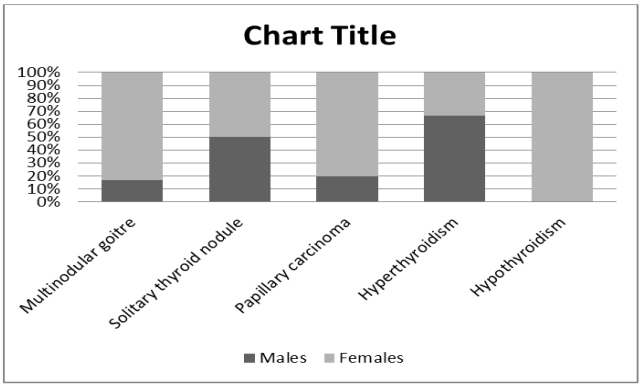

Fig. 2:Various thyroid diseases in (34) patients

Table 2: Salivary gland diseases encountered in the OPD

Salivary Gland Diseases		Males AC	Females AC	Total AC
Parotid	Parotitis	10	00	1 0
	Mumps	01	01	02
	Pleomorphic adenoma	00	20	2 0
Submandibular	Sialadenitis	20	10	3 0
	Sialolithiasis	10	00	1 0
Total		5	4	9

Table 3: Various other causes of neck swelling included in the study

Other causes of neck swelling		Males AC	Females A C	Total AC
Congenital	Dermoid	20	10	30
	Thyroglossal cyst	11	00	11

Developmental	Branchial cyst	00	01	01
Skin andsub-cutaneous tissue	Sebaceous cyst	10	10	20
	Lipoma	10	10	20
Miscallaneous:	Ludwig's angina	01	00	01
	Ranula	00	01	01
Total		7	5	12

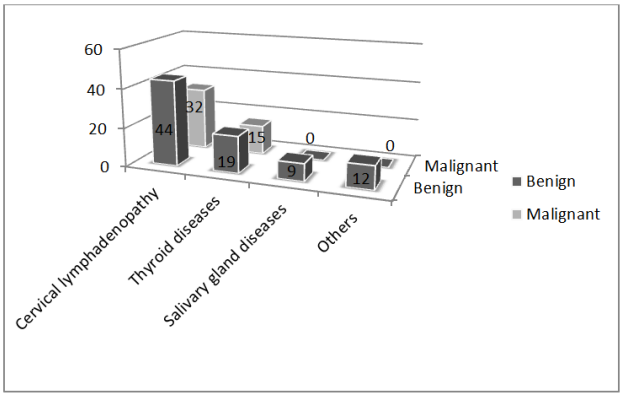

Fig. 3: Based on nature of swelling, Benignneck swellings were(84)&Malignant(47)

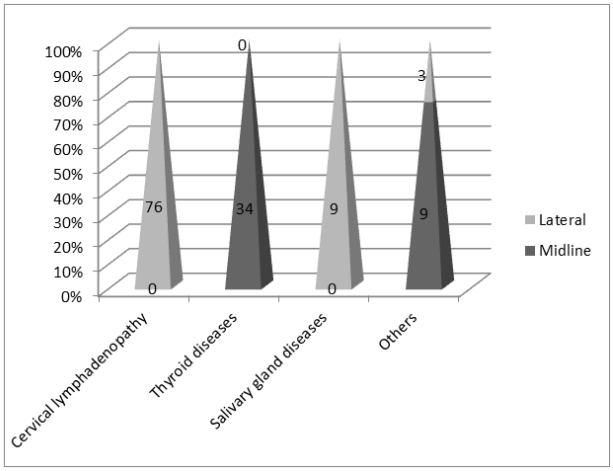

Fig. 4: Shows site of neck swellings. Lateral (88)& Midline (43)

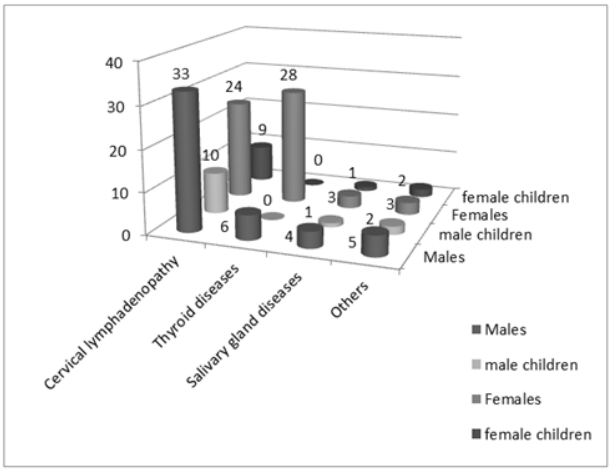

Fig. 5: Gender affection towards neck swellings. Among them (61) were Males and (70) Female patients wherein Adults were (106) and Children were (25)

Statistical Test

Table 4: Chi-square test was performed to identify the association between the gender of the patients with cause of neck swelling at 5% level of significance. There is association found between gender and cause of neck swelling

Cause of neck swelling	Males	Females	Chi-square value	p-value
Cervical lymphadenopathy	43	33	14.41< 0.001	
Thyroid diseases	6	28		
Total	49	61		

Table 5: Chi-square test was performed to find the association between the gender of the patients with nature of the disease at 5% level of significance. It was found that there is no association between gender and nature of the disease

Nature of the disease	Males	Females	Chi-square value	p-value
Benign	36	48		
Malignant	25	22		
Total	61	70	1.29 0.25> 0.05	

Discussion

As per the old surgical aphorism, "Consider the anatomical structures and then the pathology that can arise from these is never more appropriate than when one contemplates the causes of a lump in the neck.[1,7]

Within each side of the neck there are> 100 lymph nodes usually impalpable and distributed along the jugular chain and are found within anterior and posterior neck. The neck not just contains the cervical group of lymph nodes within the neck, it also contains salivary glands, thyroid gland, nerves, blood vessels, muscles, cartilage, bones and fatty tissue. Hence, knowledge of their anatomic outline is mandatory to consider any such abnormal enlargement in certain anatomic locations which is to be included within a differential diagnosis.[2,14]

Reaching to a diagnosis requires knowledge of the potential pathology. It is difficult to present an exhaustive list of the potential causes of a neck swelling, but a simple classification is tabulated below with not much of details are provided as it would be vast and extensive.[3]

Most common causes of neck swellings[4,17,25,26]

Congenital: Thyroglossal cysts, Dermoids, Haemangiomas, Lymphangiomas.

Developmental: Branchial cysts, Laryngocoele, Pharyngeal pouches.

Skin and subcutaneous tissue: Sebaceous cyst, Lipoma.

Thyroid: Multinodulargoitre (MNG), Solitary thyroid nodule (STN), Hypothyroidism, Grave's disease, Thyroiditis, CA Thyroid.

Salivary gland: Pleomorphic adenoma, Mumps, Warthin' stumor, Parotitis, Sialadenitis, Sialolithiasis, Salivary gland cancers.

Cervical lymphadenopathy[5,12,23,27]

Reactive/ Inflammatory cervical adenitis:[8,11,19,21] Tonsillitis, Pharyngitis, As a result of Varicella, Dengue fever, Glandular fever, HIV.

Granulomatous cervical adenitis[23]: Unresolved cervical adenopathy in posterior triangle (mainly Extrapulmonary Koch's, Lymphoma),

Local metastasis/ Secondaries in the neck: from an unknown primary, as a result of CA oral cavity/ oropharynx/ laryngopharynx, larynx.

Others: Ludwig's angina, Ranula, Tumors in parapharyngeal space.

In practical terms, the diagnosis is reached from the patient's age, history, location and physical examination of the swelling in the neck, examination of the head and neck followed by a thorough examination of the upper aerodigestive tract and the results of appropriate tests and investigations.

All 131 patients with neck swellings as depicted in Fig. 1, encountered in the OPD were systematically examined in detail and thorough treatment either conservative and surgical was given to all of them.

As for Head and Neck cancers.[9,13] the following below mentioned was followed in all (32) patients who consulted ENT department.

1. History: Disease related information, detailed history of habits and addictions, medical and family history including if any prior malignancy or previously irradiated or if any other comorbidities.
2. Clinical examination:
3. Performance & nutritional status assessment.
4. Histological diagnosis: triple test protocols
5. Biopsy of the growth as per the site (under LA/GA) for tissue diagnosis.
6. FNAC of cervical lymph node for confirmation of local metastasis.
7. Imaging: to know the extent of the disease and to assess operability status- CECT from base of skull

to inlet of thorax +/- MRI for both bony + soft tissue delineation.
8. After the triple test results, clinical staging and documentation of subsites involvement is done.
9. As no symptoms/ signs of distant metastasis were seen, they were not further investigated.

As the patients encountered in the study were of TNM Stage (II/ III/ IV) with either extensive, neglected, unoperable growths and were mostly unwilling for any manipulation, they were referred to higher centre for further management (Radiotherapy+/- Chemotherapy+/- Palliative care).A very few handful of them who had followed up after the radiation were cancer free and achieved good survival rates due to timely action taken.

28 patients[17,25] who consulted at the outpatient department with neck swelling which was supposedly reactive/ inflammatory cervical lymphadenopathy (Level I,II mostly) were either having one of the following conditions Tonsillitis, Pharyngitis, Laryngitis. All of them were treated symptomatically with conservative line of treatment under broad spectrum antibiotic coverage. On follow up, patients showed symptomatic satisfactory improvement.

As for the 16 patients[23] with multiple, matted cervical lymphadenopathy in both anterior (Level I,II,III,IV) and sometimes posterior (V) triangle, who showed no response to conservative line of management. Hence, were subjected to USG neck and FNAC. FNAC showed Granulomatous/ Reactive lymphadenitis. An excision biopsy of the single, most prominent lymph node was done and histopathological report confirmed it to be Extrapulmonary Koch's. They were treated with ATT (2 HRZE+ 4 HRE) for a period of 6 months after explaining the pros and cons of this treatment. Following completion of ATT, in majority of them nodes were found reduced in size on follow up, while in the rest; possible nodes which were cosmetically unacceptable were excised. Of (76) patients with cervical lymphadenopathy, (19) were children and (57) adults. Among them, (43) were male and (33) females. (32)patients were diagnosed with various Head and Neck cancers with secondaries in the neck. Of which, metastasis in males is (21) and females is (11).No children with malignancy encountered so far. The rest (44) patients had benign cause for enlarged cervical lymph nodes. Among them, (28) had reactive lymphadenopathy and (16) had granulomatous lymphadenopathy. In the group of reactive lymphadenopathy, adults were (15) and children (13) while males (16) and females (12). In the group of granulomatous lymphadenopathy, adults were (10) and children (6) while males were (6) and females (10). Benign cause for lymphadenopathy in males were (22) while malignant (21) wherein Benign cause for lymphadenopathy in females were (22) and malignant (11). Benign cause for lymphadenopathy in adults is (25) and children (19)as in Table 1[10,16,20,24]

The different thyroid swellings encountered were clinically evaluated and investigated. The "triple test" was done for all these patients with thyroid swellings. They are Thyroid function tests (TFT's), USG Neck, FNAC for confirmatory diagnosis. Patients with MNG, STN, CA Thyroid were operated (Hemithyroidectomy/Total thyroidectomy+/- postoperative thyroid hormones supplements) based on their triple test reports and specimen sent for histopathological examination for tissue diagnosis and all Hypothyroid patients were treated conservatively with Tab. Eltroxin OD empty stomach before breakfast (dosage fixed as per thyroid function tests) while Grave's disease was managed with Tab. Neomercazole OD and Tab. Propranolol OD (dosage fixed as per thyroid function tests). All patients are symptomatically better on follow up.[615,18, 22]

As per Fig. 2, in (131) patients, (34) patients were having thyroid related swellings of which (6) were males and rest (28) were females. Of (34) patients, (15) were having Thyroid carcinoma. Amongst (28) females, (16) were Hypothyroid (which is now become a rampant trend for present day systemic cause alongside Hypertension, Diabetes Mellitus).[2,24]

According to Table 2, (9)patients[5,16]encountered with salivary gland swellings were clinically evaluated based on their symptomatology and chronicity of the condition and radiologically confirmed. Patients underwent USG Neck/ OPG, FNAC of the salivary gland +/- USG guided. Patients with Mumps, Parotitis were treated conservatively. While (6) patients with Pleomorphic adenoma of parotid, Sialolithiasis and Sialadenitis (due to their chronicity of symptoms) underwent gland excision under General anaesthesia. On follow up, patients are doing well.

As per Table 3, among (12) patients[7,19] with various other neck swellings, underwent clinical evaluation and radiological investigations. In Ludwig's angina, I & D was done backed with systemic antibiotic coverage and at later date the source of infection was removed (i.e dental caries). Following confirmation over FNAC, Dermoid, Ranula, Thyroglossal cyst, Branchial cyst, Sebaceous cyst, Lipoma were excised under Antibiotic cover and the specimen was sent for histopathological examination for confirmatory tissue diagnosis. Patients on follow up are keeping fine.

Based on nature of neck swellings in 131 patients shown diagrammatically in Fig. 3, (84) were benign and (47) were malignant. Among (15) malignant thyroid diseases: (6) Multinodular goitre, (4) Solitary thyroid nodule, (5) Carcinoma and rest (32) were secondary metastasis due to Head and Neck cancers. There is no statistical significance between nature of the disease and gender of the patients as mentioned in Table 5.[1, 23]

According to site of neck swellings in 131 patients, (43) were midline and (88) were lateral. From the

"Others" group, under midline: (3) Dermoid, (2 each) of (Thyroglossal cyst and Lipoma), (1 each) of (Ludwig's angina and Ranula) and under lateral: (1) Branchial cyst, (2) Sebaceous cyst as shown pictorially in Fig. 4.[8,16]

As per gender affiliation in neck swellings mentioned in Fig. 5, in 131 patients; male population is (61), adult males were (48) and male children (13) and infemale population of (70), adult females were (58) and female children (12). Therefore total adults were (106) and children were (25). Statistically, there is association found between gender and cause of neck swelling mentioned in Table 4 while there is no association between gender and nature of the disease as mentioned in Table 5.[9,14]

The following inferences are drawn which holds good with the aims and objectives of the study. Overall in the study, the most common cause for neck swelling at our set up was cervical lymphadenopathy with (76) patients (58%)[11,21] with inflammatory origin (44) patients (58% of 76 patients).The proportion of benign neck swellings (84) patients (64%)[16,23] malignant neck swellings (47) patients(36%). The percentage of midline neck swellings (43) patients (33%) were less and almost half of lateral neck swellings (88) patients (67%).[12,17] Female (70) patients (53%)[10,14] were majority in number than male (61) patients (47%) and adults were (106) patients (81%)[11,22] and children were (25) patients (19%). The patients were explained the importance for evaluating the neck swelling as early as possible so that the origin of the swelling is known at the primitive stage and pertinent diagnosis is made with apt management for the same.

With rapid evolution and drastic changes happening with time in day to day scenario, there are certain beliefs which are still very ancient and orthodox, but patent which are:

1. Perception of "cancer" for any swelling on the body especially if it is involving the neck.
2. Hospital visit due to pressure from peer and relatives but not for their self- need.
3. If it causes dysphagia or dyspnoea or any other symptoms for that matter.
4. When it is cosmetically unacceptable to them and questions posed to them with reference to point of view of society.
5. Thought of taking lifelong medications if any (as in for Hypertension and Diabetes Mellitus).
6. The sense that they will be taken under the scalpel, which is the only option of treatment therapy.

The patients have to bring in into their minds that the aforesaid statements are not realistic instead they should realize the genuine need to visit the hospital.

Conclusion

Basically, there is no need to be sceptical about the stigma or scare behind the notion for neck swellings. It is very important to eliminate this fact that is running through the minds of Indian population time and again; that "all neck swellings" are "carcinogenic" or "goitrogenic" in nature and this perception has to be detached from their minds at the earliest. They must be educated and counselled moreover to eliminate the negative thoughts from their minds and motivate them such that they voluntarily get themselves evaluated for any neck swelling and take the treatment for the same at the earliest.

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