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Neck mass management, an interventional study

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Abstract
Background: The neck is the transitional area between the cranium superiorly and the clavicles inferiorly that joins the head to the trunk and limbs, it serves as a major conduit for structures passing between them, in addition, several important organs with unique functions are located here.
Objectives: To diagnose the causes of the neck swelling.
Method: This is an interventional study on 100 patients with neck swelling from the period of January 2017 to January 2018.
Results: One hundred patients were studied, 60 female (60%) and 40 male (40%), and female to male ratio was 1.5:1. The age ranged from 1 to 70 years, with a mean age of 30 years $\pm$ 5 years. The majority being in the third decade of life constituting 25 patients (25%). Also our study showed that the causes of the neck masses are inflammatory 50 patients (50%), benign and neoplastic masses of the thyroid gland 25 patients (25%), neoplastic lesion 12 patients (12%), congenital masses 8 patients (8%) and miscellaneous 5 patients (5%).

Keywords: Neck mass, lymphadenopathy, cervical mass, thyroid

1. Introduction
The neck is the region of the body that lies between the lower margin of the mandible above and the suprasternal notch and the upper border of the clavicle below [1]. The neck consists essentially of five blocks of tissue running longitudinally [2]. 1- The cervical vertebrae surrounded by a number of muscles and enclosed in a dense layer of prevertebral fascia [2].
2- The pharynx and larynx, partially enclosed in a thin layer of pretracheal fascia, Below the level of C6 these give way to the oesophagus and trachea [2].
3- & 4- Two vascular packets consisting of the common and internal carotid arteries, the internal jugular vein and the vagus nerve, all enclosed in the fascial carotid sheath [2].
5- An outer enclosing sheath consisting of the sternomastoid and trapezius and the investing layer of deep fascia of the neck [2]. The neck is divided into anterior and posterior triangles by the sternocleidomastoid muscle, the anterior triangle extends from the inferior border of the mandible to the sternum below, and is bounded by the midline and the sternocleidomastoid muscle, the posterior triangle extends backwards to the anterior border of the trapezius muscle and inferiorly to the clavicle, the upper part of the anterior triangle is commonly subdivided into the submandibular triangle above the digastrics muscle and the submental triangle below, the lymphatic drainage of the head and neck is of considerable clinical importance [3]. The most important chain of nodes are the jugular nodes (also called cervical), which run adjacent to the internal jugular vein [3]. The other main groups are the submental, submandibular, pre- and post-auricular, occipital and posterior triangle nodes [3]. The main arterial blood flow to the head and neck (the carotid arteries) and the principal venous drainage (the jugular veins) lie anterolaterally in the neck [4]. When considering the swelling that may arise in any anatomical region, may be enumerates the anatomical structures lying there in and then the pathological swelling that may arise from them [5]. The lymphatic drainage of the head and neck is of considerable clinical importance [6]. The upper limit in size of a normal node varies with location, and of course the size cut off used depends on the desired sensitivity and specificity, in Cervical lymph nodes, the size criteria are, most nodes are 10 mm in short-axis and sub-mental and sub-mandibular are 15 mm and the retropharyngeal are 8 mm, there is an error rate of 10-20% if using size criteria alone and the long-to-short axis ratio has also been proposed [7]. In children up to the age of 12, cervical nodes up to 1 cm in size may be palpable and this may not signify any disease [8]. If nodes heal by resolution or scarring after being inflamed, they may remain palpable thereafter [9]. In general, lymph nodes greater than 1 cm in diameter are considered to be abnormal [10].

2. Objective
The aim of the study is diagnose the causes of the neck mass and the management of this problem.

3. Patients and Methods
This is an interventional study on 100 patients with neck mass from the period of January 2017 to January 2018. All patients completed a questionnaire including age, sex, occupation, residence, present symptoms and duration, previous medical and drugs history, previous surgical history, vaccination. Clinical and physical examination were done to all patient. Completed all investigation including laboratory and radiological investigation. Incisional or excisional biopsy were done to all patients, with or without Fine needle aspiration cytology.

4. Results
One hundred patients were studied, 60 female (60%) and 40 male (40%) as shown in Table 1, and female to male ratio was 1.5:1. The age ranged from 1 to 70 years, with a mean age of 30 years $\pm$ 5 years. The majority being in the third decade of life constituting 25 patients (25%) as shown in Table 1. Also our study showed that the causes of the neck masses are inflammatory 50 patients (50%), benign and neoplastic masses of the thyroid gland 25 patients (25%), neoplastic lesion 12 patients (12%), congenital masses 8 patients (8%) and miscellaneous 5 patients (5%) as showed in Table 2. Table 3 showed the types of inflammatory neck masses and their percentage. TabLE 4 showed the types of benign and malignant thyroid lesion. Table 5 showed neoplastic lesion. Congenital lesion are showed in Table 6. And the miscellaneous causes are showed in Table 7.

Table 1: Age & Sex distribution of patients.

Age group (Years)	No of female	No of male	Total	%
1 – 10	11	4	15	15%
11 -20	6	4	10	10%
21 - 30	20	5	25	25%
31 – 40	6	11	17	17%
41- 50	8	6	14	14%
51-60	7	5	12	12%
61-70	2	5	7	7%
Total	60	40	100	100%

Table 2: Distribution of neck masses according to the etiology

Causes	No	%
Inflammatory	50	50%
Thyroid masses	25	25%
Neoplastic	12	12%
Congenital	8	8%
Miscellaneous	5	5%
Total	100	100%

Table 3: Types of inflammatory neck masses

Types	No	%
Lymphadenitis with abscess	40	40%
Nonspecific inflammation	6	6%
Tuberculous lymphadenitis	4	4%
Total	50	50%

Table 4: Type of thyroid disease

Type of disease	No of patients	%
Nontoxic multinodular goiter	10	10%
Single nodule in on lobe	7	7%
Toxic goiter	5	5%
Thyroid cancer	3	3%
Total	25	25%

Table 5: Types of neoplastic lesions

Neoplastic	No	%
Benign lesion		
Lipoma	3	3%
Schwannoma	1	1%
Total	4	4%
Malignant lesion		
Secondary	6	6%
Primary	2	2%
Total	8	8%

Table 6: Congenital lesions

Lesions	N0	%
Thyroglossal cyst	3	5%
Cystic hygroma	1	1%
Epedermoid cyst	1	1%
Hemangioma	1	1%
Dermoid	1	1%
Branchial cyst	1	1%
Total	8	8%

Table 7: Type of miscellaneous lesions

Lesion	No	%
Sternomastoid tumor	1	1%
Lymph node hyperplasia	4	4%
Total	5	5%

5. Discussion
In our study we are consider four key points when compiling a patient's history, first, are there localizing symptoms or signs to suggest infection or neoplasm in a specific site, second, are there constitutional symptoms such as fever, weight loss, fatigue or night sweats to suggest disorders such as tuberculosis, lymphoma, collagen vascular diseases, unrecognized infection or malignancy, third, are there epidemiologic clues such as occupational exposures, recent travel or high-risk behaviors that suggest specific disorders, fourth, is the patient taking a medication that may cause lymphadenopathy because some medications are known to specifically cause lymphadenopathy (e.g., phenytoin [Dilantin]), while others, such as cephalosporins, penicillins or sulfonamides, are more likely to cause a serum sickness-like syndrome with fever, arthralgia and rash in addition to lymphadenopathy [10].

In Physical Examination and when lymphadenopathy is localized, we examine the region drained by the nodes for evidence of infection, skin lesions or tumors, and other nodal sites we also be carefully examined to exclude the possibility of generalized rather than localized lymphadenopathy, this is an important aspect of the examination, as a study of primary care physicians found that generalized lymphadenopathy was identified in only 17 percent of the patients in whom it was present. [11] Also the anatomic location of localized adenopathy will sometimes be helpful in narrowing the differential diagnosis, for example, cat-scratch disease typically causes cervical or axillary adenopathy, infectious mononucleosis causes cervical adenopathy, and supraclavicular lymphadenopathy has the highest risk of malignancy, estimated as 90 percent in patients older than 40 years and 25 percent in those younger than age 40 [12]. Skandalaskis and co-workers in reviewing of 1616 case with non-thyroid masses find that only (3.2%) are inflammatory wheres (84.8%) are neoplastic and the congenital lesion represent (12%) [13]. Neck masses that appear over a short period are generally symptomatic. Subacute masses are noticed within weeks to months. Although these masses might grow somewhat quickly, they often go unnoticed at onset because of their asymptomatic nature. A persistent asymptomatic neck mass in an adult should be considered malignant until proven otherwise [14]. Because delayed diagnosis contributes to decreased survival in conditions such as laryngeal cancer, it is paramount for family physicians to recognize common presentations of head and neck cancers [15, 16]. In our study we considered the incisional or excisional biopsy with or without Fine-needle aspiration cytology befor it, and it is the best diagnostic methods to diagnose the pathology of the masses, and all patients are treated according to his or her condition and there was no death rate during our study.

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