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RESEARCH ARTICLE

Management of cervical lymphadenopathy

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Abstract

Background: - Cervical lymphadenopathy refers to lymphadenopathy of the cervical lymph nodes (the glands in the neck), the term lymphadenopathy strictly speaking refers to disease of the lymph nodes.

Objectives:-To diagnose the causes of the cervical lymphadenopathy and the management of this problem

Method: - This is an interventional study on 40 patients with cervical lymphadenopathy from January 2015 to December 2015.

Results:- Forty patients were studied, 30 female (75%) and 10 male (25%), and female to male ratio 3:1. The age ranged from 1 to 70 years, with a mean age of 20 years \pm 5 years. The majority being in the 1st decade of life constituting 10 patients (25%). Also our study showed that the causes of the cervical lymphadenopathy are reactive adenitis 12 patients (30%) followed by acute bacterial suppurative adenitis 10 patients (25%), Hodgkin lymphoma 4 patients (10%), non Hodgkin lymphoma 3 patients (7.5%), chronic non specific adenitis 3 patients (7.5%), secondary metastases 2 patients (5%), tuberculosis adenitis 2 patients (5%), chronic lymphocytic leukaemia 1 patient (2.5%), infectious mononucleosis 1 patient (2.5%), typhoid fever 1 patient (2.5%), and Castleman disease 1 patient (2.5%).

Conclusion:- Our study showed that the causes of the cervical lymphadenopathy are reactive adenitis, followed by acute bacterial suppurative adenitis, Hodgkin lymphoma, non Hodgkin lymphoma, chronic non specific adenitis, secondary metastases, tuberculosis adenitis, chronic lymphocytic leukaemia, infectious mononucleosis, typhoid fever, and Castleman disease. In our study we considered the incisional or excisional biopsy with or without Fine-needle aspiration cytology before it, and it is the best diagnostic methods to diagnose the pathology of the lymphadenopathy, and all patients are treated according to his or her condition and there was no death rate during our study.

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Introduction:-

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.⁽¹⁾ The neck is relatively slender to allow the flexibility necessary to position the head to maximize the efficiency of its sensory organs (mainly the eyeballs but also the ears, mouth, and nose).⁽¹⁾ Thus many important structures are crowded together in the neck, such as muscles, glands, arteries, veins, nerves, lymphatics, trachea, esophagus, and vertebrae.⁽¹⁾ The neck is a well-known region of vulnerability, several vital structures, including the trachea, esophagus, and thyroid gland, lack the bony protection afforded other parts of the systems to which these structures belong.⁽¹⁾ 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.⁽¹⁾ Lymph from structures in the head and neck drain into cervical lymph nodes, lymph from all of the body except the superior right

quadrant enters the venous system through the thoracic duct in the root of the neck.⁽¹⁾ The sternocleidomastoid muscle divides the neck into the anterior and the posterior triangles.⁽²⁾ The anterior triangle is bounded above by the body of the mandible, posteriorly by the sternocleidomastoid muscle, and anteriorly by the midline.⁽²⁾ It is further subdivided into the carotid triangle, the digastric triangle, the submental triangle, and the muscular triangle.⁽²⁾ The posterior triangle is bounded posteriorly by the trapezius muscle, anteriorly by the sternocleidomastoid muscle, and inferiorly by the clavicle.⁽²⁾ The posterior triangle of the neck is further subdivided by the inferior belly of the omohyoid muscle into a large occipital triangle above and a small supraclavicular triangle below.⁽²⁾ The investing layer of the deep cervical fascia lies deep to the skin, between the skin and the investing layer is the platysma muscle.⁽³⁾ Other than subcutaneous lipomata and sebaceous cyst, most neck swelling lie deep to the platysma.⁽³⁾ 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.⁽⁴⁾ The lymphatic drainage of the head and neck is of considerable clinical importance.⁽⁵⁾ The most important chain of nodes are the jugular nodes (also called cervical), which run adjacent to the internal jugular vein.⁽⁵⁾ The other main groups are the submental, submandibular, pre- and post-auricular, occipital and posterior triangle nodes.⁽⁵⁾ Cervical lymphadenopathy refers to lymphadenopathy of the cervical lymph nodes (the glands in the neck), the term lymphadenopathy strictly speaking refers to disease of the lymph nodes,⁽⁶⁾ often however the term refers to enlargement of the lymph nodes, similarly, the term lymphadenitis refers to inflammation of a lymph node, but often it is used as a synonym of lymphadenopathy.⁽⁷⁾ Cervical lymphadenopathy is a sign or a symptom, not a diagnosis, the causes are varied, and may be inflammatory, degenerative, or neoplastic.⁽⁷⁾ 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.⁽⁸⁾ 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.⁽⁹⁾ If nodes heal by resolution or scarring after being inflamed, they may remain palpable thereafter.⁽⁶⁾ In general, lymph nodes greater than 1 cm in diameter are considered to be abnormal.⁽¹⁰⁾ In children, most palpable cervical lymphadenopathy is reactive or infective, in individuals over the age of 50, metastatic enlargement from cancers (most commonly squamous cell carcinomas) of the aerodigestive tract should be considered.⁽⁶⁾

Objective:-

The aim of the study is diagnose the causes of the cervical lymphadenopathy and the management of this problem.

Patients and methods:-

This is an interventional study on 40 patients with cervical lymphadenopathy from January 2015 to December 2015. 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.

Results:- Forty patients were studied, 30 female (75%) and 10 male (25%) as shown in Table 1, and female to male ratio was 3:1. The age ranged from 1 to 70 years, with a mean age of 20 years \pm 5 years. The majority being in the 1st decade of life constituting 10 patients (25%) as shown in Table 1. Also our study showed that the causes of the cervical lymphadenopathy are reactive adenitis 12 patients (30%) followed by acute bacterial suppurative adenitis 10 patients (25%), Hodgkin lymphoma 4 patients (10%), non Hodgkin lymphoma 3 patients (7.5%), chronic non specific adenitis 3 patients (7.5%), secondary metastases 2 patients (5%), tuberculosis adenitis 2 patients (5%), chronic lymphocytic leukaemia 1 patient (2.5%), infectious mononucleosis 1 patient (2.5%), typhoid fever 1 patient (2.5%), and Castleman disease 1 patient (2.5%) as shown in Table 2.

Table 1 : Age & Sex distribution of patients.

Age group (Years)	No of male	No of female	Total	%
1 – 10	2	8	10	25
11 -20	1	3	4	10
21 - 30	2	4	6	15
31 – 40	2	5	7	17.5
41- 50	1	4	5	12.5
51-60	1	5	6	15
61-70	1	1	2	5
Total	10	30	40	100%

Table 2 : Causes of cervical lymphadenopathy.

Causes of cervical lymphadenopathy	No of patients	%
Reactive adenitis	12	30%
Acute bacterial suppurative adenitis	10	25%
Hodgkin lymphoma	4	10%
Non Hodgkin lymphoma	3	7.5%
Chronic non specific adenitis	3	7.5%
Secondary metastases	2	5%
Tuberculosis adenitis	2	5%
Chronic lymphocytic leukaemia	1	2.5%
Infectious mononucleosis	1	2.5%
Typhoid fever	1	2.5%
Castleman disease	1	2.5%
Total	40	100%

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, unrecognised 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 localised 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⁾ Also in physical examination we examine the size of the nod or nodes, generally considered to be normal if they are up to 1 cm in diameter, however, some authors suggest that epitrochlear nodes larger than 0.5 cm or inguinal nodes larger than 1.5 cm should be considered abnormal.^(13,14) In one series of 213 adults with unexplained lymphadenopathy, no patient with a lymph node smaller than (1 cm²) had cancer, while cancer was present in 8 percent of those with nodes from (1 cm²) to (2.25 cm²) in size, and in 38 percent of those with nodes larger than (2.25 cm²).⁽¹⁵⁾ In children, lymph nodes larger than 2 cm in diameter (along with an abnormal chest radiograph and the absence of ear, nose and throat symptoms) were predictive of granulomatous diseases (i.e., tuberculosis, cat-scratch disease or sarcoidosis) or cancer (predominantly lymphomas).⁽¹⁶⁾ The pain and tenderness taken in consideration during the physical examination, when a lymph node rapidly increases in size, its capsule stretches and causes pain, pain is usually the result of an inflammatory process or suppuration, but pain may also result from hemorrhage into the necrotic center of a malignant node, the presence or absence of tenderness does not reliably differentiate benign from malignant nodes.⁽¹⁷⁾ The consistency is examined, stony-hard nodes are typically a sign of cancer, usually metastatic, very firm or rubbery nodes suggest lymphoma, softer nodes are the result of infections or inflammatory conditions, suppurant nodes may be fluctuant, the term "shotty" refers to small nodes that feel like buckshot under the skin, as found in the cervical nodes of children with viral illnesses.⁽¹⁰⁾ And the matting also examined, a group of nodes that feels connected and seems to move as a unit is said to be "matted", nodes that are matted can be either benign (e.g., tuberculosis, sarcoidosis or lymphogranuloma venereum) or malignant (e.g., metastatic carcinoma or lymphomas).⁽¹⁰⁾ Because the Fine-needle aspiration yields a high number of non diagnostic results because of the small amount of tissue obtained and the inability to examine the architecture of the gland.⁽¹³⁾ In addition, there may be some risk of sinus tract formation, depending on the underlying pathology.⁽¹⁴⁾ We considered the incisional or excisional biopsy with or without the Fine-needle aspiration cytology before it, is the best diagnostic methods to diagnose the pathology of the lymphadenopathy. our study showed that the causes of the cervical lymphadenopathy are reactive adenitis 12 patients (30%) followed by acute bacterial suppurative adenitis 10 patients (25%), Hodgkin lymphoma 4 patients (10%), non Hodgkin lymphoma 3 patients (7.5%), chronic non specific adenitis 3 patients (7.5%), secondary metastases 2 patients (5%), tuberculosis adenitis 2 patients (5%), chronic lymphocytic leukaemia 1 patient (2.5%), infectious mononucleosis 1 patient (2.5%), typhoid fever 1 patient (2.5%), and Castleman disease 1 patient (2.5%) as shown in table 2. Castleman disease also known as giant or angiofollicular lymph node hyperplasia, lymphoid hamartoma, angiofollicular lymph node hyperplasia, is a group of uncommon lymphoproliferative disorders that share common lymph node histological features that may be localized to a single lymph node (unicentric) or occur systemically (multicentric), it is named after Benjamin Castleman.⁽¹⁸⁾ Second study showed that the causes of cervical lymphadenopathy of 270 patients are (metastases $n = 101$, lymphoma $n = 21$, tuberculosis $n = 76$, reactive $n = 72$).⁽¹⁹⁾ And in a third study of 105 patients showed that the causes of cervical lymphadenopathy are reactive lymphadenitis ($n = 28$), tuberculosis ($n = 17$), lymphoma ($n = 14$), and metastases ($n = 46$).⁽²⁰⁾ As shown in table 3. All patients are treated according to his or her condition and there was no death rate during our study.

Table 3 : Causes of cervical lymphadenopathy in patients in our study in comparison with other studies.

Causes of cervical lymphadenopathy	Our study	2 nd study ⁽¹⁹⁾	3 rd study ⁽²⁰⁾
Reactive adenitis	12	72	28
Acute bacterial suppurative adenitis	10		
Hodgkin lymphoma & Non Hodgkin lymphoma	7	21	14
Chronic non specific adenitis	3		
Secondaries metastases	2	101	46
Tuberculosis adenitis	2	76	17
Chronic lymphocytic leukaemia	1		
Infectious mononucleosis	1		
Typhoid fever	1		
Castleman disease	1		
Total	40	270	105

Conclusion:-

Our study showed that the causes of the cervical lymphadenopathy are reactive adenitis, followed by acute bacterial suppurative adenitis , Hodgkin lymphoma , non Hodgkin lymphoma, chronic non specific adenitis, secondary metastases, tuberculosis adenitis, chronic lymphocytic leukaemia, infectious mononucleosis, typhoid fever , and Castleman disease. In our study we considered the incisional or excisional biopsy with or without Fine-needle aspiration cytology before it, and it is the best diagnostic methods to diagnose the pathology of the lymphadenopathy, and all patients are treated according to his or her condition and there was no death rate during our study.

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