

A Retrospective study on the advantage of Fine Needle Aspiration Cytology (FNAC) as Walk- in Diagnostic Test in Patients with Cervical Lymphadenopathy

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ABSTRACT

Objective: To determine the etiologic spectrum of cervical lymphadenopathy using fine-needle aspiration cytology (FNAC) in a tertiary care setting.

Methods: In the present retrospective study, we presented the data of 1773 patients who presented in Multan Medical and Dental College within 11 years from Jan-2007 to Dec-2018. In all patients, FNAC was performed using a 22-23-gauge needle by using a 10 ml syringe. After collection specimens were sent to the hospital laboratory, the collected samples were stained using Papanicolaou stain, the Field's stain, and Ziehl-Neelsen (ZN) stain and acid-fast bacilli (AFB) for determination of the pattern of cervical lymphadenopathy. Specimen analysis was done in a private diagnostic center.

Results: Mean age of study participants was 37.8±9.7 years. There were 1012 (57.07%) male patients and 761 (42.93%) female patients. Tuberculosis was diagnosed in 655 (36.9%) patients, metastasis in 349 (19.6%), reactive hyperplasia in 267 (15.0%), acute lymphadenitis in 193 (10.9%), lympho-proliferative lesions in 96 (5.4%), non-hodgkin lymphoma in 30 (1.69%), chronic infections in 18 (1.0%) and Hodgkin lymphoma in 11 (0.62%) patients.

Conclusion: In the present study, cervical tuberculosis was the most common diagnosis found in 36.9% of cases, which present that tuberculosis is very common in our population. FNAC is easy and can be performed as a bedside procedure for the diagnosis of cervical lymphadenopathy.

Keywords: Cervical lymphadenopathy, Fine needle aspiration cytology.

INTRODUCTION

Lymph nodes are oval in structure. Which are present in all areas of the body and connected with the immune system.¹ Any increase in the size of the number of lymph nodes is known as lymphadenopathy. Lymphadenopathy can be caused by a variety of conditions such as propagation of various inflammatory or neoplastic cells into lymph nodes.^{1, 2} Depending upon the duration, it can be either acute (if the duration is from 6 days to 6 weeks) or chronic (if the duration is >6 weeks).^{2, 3}

Cervical lymphadenopathy is a routine clinical presentation in the outdoor department, it can be infective, benign, or malignant. Imaging studies have a limited role in diagnosing the role of lymphadenopathy.⁴ Various imaging modalities such as ultrasonography, CT scan and positron emission tomography can easily diagnose malignancy, but in patients having inflammation or multiple masses developing a differential diagnosis using imaging studies is difficult.^{5, 6} So in many patients ultimately histopathology evaluation is required for ultimate diagnosis.

In resource limited settings, where imaging modalities are not available, fine needle aspiration cytology (FNAC) is commonly performed for evaluation of lymphadenopathy. Another alternative method of biopsy such as excisional biopsy is easier than FNAC but it requires the need for anesthesia and carries the risk of damaging adjacent structures. FNAC is not always associated with 100%

diagnosis but it can provide efficient information for further management of lymphadenopathy.⁷

The present study was conducted to determine the etiologic spectrum of cervical lymphadenopathy using fine FNAC in a tertiary care setting.

METHODS

In the present retrospective study, we presented analyzed the data of 1773 patients who presented in Multan Medical and Dental College within 11 years from Jan-2007 to Dec-2018. Data on baseline clinical information such as age and gender were collected. Samples from patients having multiple enlarged lymph nodes or patients who presented with lymph node swelling which did not resolve after treating the acute infections were included in this analysis. Approval from IRB of hospital was obtained for using the data for study purpose. No informed consent from patients was obtained because of retrospective nature of study. However, the confidentiality of patients informed was strictly maintained during data retrieval.

In all patients, FNAC was performed using a 22-23-gauge needle by using a 10 ml syringe. After collection specimens were sent to the hospital laboratory, the collected samples were stained using papanicolaou stain, Field's stain, and Ziehl-Neelsen (ZN) stain and acid-fast bacilli (AFB) for determination of the pattern of cervical lymph adenopathy. Specimen analysis was done in a private diagnostic center.

All data were entered prospectively and analyzed using SPSSgv23 software.

RESULTS

The mean age of study participants was 37.8±9.7 years. There were 1012 (57.07%) male patients and 761 (42.93%) female patients.

Regarding the etiologic spectrum, tuberculosis was commonest found in 655 (36.9%) cases, followed by metastasis in 349 (19.6%), and reactive hyperplasia in 267 (15.0%) cases. The detailed spectrum is given in Table 1.

Table 1. The Pattern of Cervical Lymph Adenopathy.

Total number	1773
Tuberculosis	655 (36.9%)
metastatic carcinoma	349 (19.6%)
Reactive hyperplasia	267 (15.0%)
Acute lymphadenitis	193 (10.9%)
Lympho Proliferative Lesions	96 (5.4%)
Non-Hodgkin lymphoma	30 (1.69%)
Chronic infections	18 (1.0%)
Hodgkin Lymphoma	11 (0.62%)
non-representative cellular yield	98 (5.5%)
inadequate yield	56 (3.1%)

DISCUSSION

There are about 600 lymph nodes in the human body, out of which 60 to 70 are located in the human body.⁸ The presence of palpable lymph nodes can be a serious and life-threatening problem. Lack of proper investigations results in delay in diagnosis and can lead to iatrogenic complications.⁹

FNAC is now a widely accepted modality for initial diagnosis of lymphadenopathy especially in resource limiting settings because it is convenient, and a very cost-effective tool and is easy to perform as compared to open biopsy. Swollen lymph nodes are some of the human organs which are difficult to diagnose using cytopathology because of the huge diversity of etiological factors, moreover, some patients present with such rare pathology that is the first time in the life of pathologist and some cases biopsy sample can be inadequate for confirming the partial involvement of lymph node or fibrotic disease.^{10, 11}

In the present study, we evaluated the pattern of cervical lymphadenopathy using FNAC as a walk-in test. In present study, tuberculosis was diagnosed in 36.9% patients, metastasis in 19.6%, reactive hyperplasia in 15.0%, acute lymphadenitis in 10.9%, acute infections in 10.9%, lymphoproliferative lesions in 5.4%, non-Hodgkin lymphoma in 1.69%, chronic infections in 1.0% and Hodgkin lymphoma in 0.62% patients.

A study conducted in Karachi by Iqbal et al. on the clinical spectrum of cervical lymphadenopathy reported tuberculosis in 70.45%, reactive hyperplasia in 13.63% patients, meta-stasis in 11.36%, lymphoma in 4.54%, and non-specific chronic adenitis in 2.27% patients.¹²

Ismail et al. in a small study conducted in DG Khan district reported cervical tuberculosis in 74.5% patients, reactive hyperplasia in 11.1%, meta-stasis in 6.7%, lymphoma in 4.4%, and Kikuchie's lymphadenitis in 3.3% patients. This study was conducted in only 90 patients which cannot represent the whole population.¹³

A study conducted in India by Gayathri et al. on the clinical spectrum of cervical lymphadenopathy reported reactive hyperplasia as the commonest finding in 26.2% patients, meta-stasis in 21.2% patients, non-specific lymphadenopathy in 18.5%, Chronic Granulomatous Lymphadenopathy in 14.7%, tuberculosis in 14.65%, and acute lymphadenopathy in 3.94% patients, non-Hodgkin lymphoma in 0.56% and Hodgkin lymphoma in 0.17% patients.¹⁴

Another study by Mainali et al. in Nepal reported reactive lymphadenopathy as the most common finding diagnosed in 54.2% cases, tuberculosis in 32.4%, lymphoma in 5.7%, meta-stasis in 7.1% and Rosai Dorfman disease in 0.45% cases.¹⁵

The etiologic spectrum of lymphadenopathy varies from country to country and even region to region within the country. FNAC provides valuable and accurate information regarding the etiology of cervical lymphadenopathy. So FNAC should be done in all patients of cervical lymphadenopathy.

CONCLUSION

In the present study, cervical tuberculosis was the most common diagnosis found in 36.9% of cases, which present that tuberculosis is very common in our population. FNAC is easy and can be performed as bedside procedure for the diagnosis of cervical lymphadenopathy.

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