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# Study on the Role of Fine Needle Aspiration Cytology in Cervical Lymphadenopathy

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**Abstract:** This observational descriptive study was conducted on the role of fine needle aspiration cytology (FNAC) in the cervical lymphadenopathy at the department of medicine, Liaquat medical university of medical and health sciences Jamshoro, from January 2009 to January 2010. Fifty patients with enlarged cervical lymph nodes were selected from out patients department. All patients were evaluated through detailed history, general physical and systemic examination. Physician performed all FNAC procedures and the specimens were also examined at histopathology department. SPSS11 was used for data analysis. Age was presented by mean standard deviation. Frequencies and percentages were computed to present FNAC & histological findings. Histopathology is considered as gold standard criteria and performed for its sensitivity, specificity and accuracy of analysis. Out of fifty, 30 were females and 20 were males, among the diagnostic outcome, 52% were having tuberculous lesions, while 48 % were having non-tuberculous lesions. 8% were having malignant lesions while 92% were having benign lesions. Among the malignant lesions 20% were having lymphoma, while 80% 'were having secondary' metastases. Overall prevalence of various lesions were tuberculosis 26 (52%). Abscesses 5(10%). lymphoma 1 (2%), Secondary metastases 3 (6 %). reactive lesion 14 (28%). cystic lesion1 (2%). FNAC is reliable, safe and accurate test used as a first line for evaluation of cervical lymphadenopathy. It played vital role in the management of cervical lymphadenopathy it could differentiate the infective process from neoplastic one and avoids unnecessary surgeries.

**Key words:** Cervical Lymphadenopathy · FNAC · Fine Needle Aspiration Cytology · Lymph Nodes · Lymphadenopathy

## INTRODUCTION

FNAC is inexpensive quick and simple method that is used to sample superficial cervical lymph nodes [1]. Fine needle aspiration (FNAC) in the investigation of lymph adenopathy has become an standard and frequently practiced invasive technique and it is cheap and accurate first line investigation in lymph adenopathy [2]. Superficial cervical lymphadenopathy is a common clinical finding; it may be a sign of inflammation, metastatic malignancy or malignant lymphoma. Because of early availability or results, simplicity, minimal trauma and complication, the aspiration cytology is now considered as a valuable diagnostic aid and it provides ease in following patients with known malignancy and ready identification of metastasis or recurrence [3]. In this present study we try to determine possible causes of Lymphadenopathy and the role of FNAC (Fine needle Aspiration cytology) among patients presenting with Cervical Lymphadenopathy. This is of particular importance in view of the high prevalence of tuberculosis in our country, atypical presentation of tuberculosis and because of the fact that AFB are seen mostly in purulent aspirate smears which do not show granulomas, necrosis or epithelioid cells and which in absence of Ziehl-Neelsen staining can be missed as acute suppurative lymphadenitis [4]. The present study was carried out to know the overall prevalence of various diseases responsible for cervical lymphadenopathy of more than four weeks duration among the adults.

## MATERIALS AND METHODS

The present study on 51 patients of lymphadenopathy was conducted in the Department of Medicine Liaquat University of Medical and Health Sciences from January 2009 to January 2010. FNAC of the enlarged Lymphnodes was performed with informed consent of the patient following thorough clinical examination. The patients with Lymphadenopathy of less

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than four weeks duration having a history of history of taking drug which can cause Lymphadenopathy or having contraindication of FNAC, (Bleeding disorders, cardio respiratory failure) were excluded from the study. The criteria of selection of patients was Cervical Lymphadenopathy of more than four weeks duration of adult age and both sex. All patients were asked about history related to neck swelling and relevant questions to the etiological cause. Present, past and family History of Tuberculosis, history of sexual exposure for syphilis and AIDS and other relevant histories were asked, homosexuality, drug abuse, blood transfusion, etc. in young adults. Subjects were also asked for history of exposure to animal bites or contact etc. They had undergone clinical examination of Cervical Lymphadenopathy the enlarged nodes were aspirated in the medical department by ultra sound guidance of a radiologist using a 23-25 G needle and syringe. The palpable cervical node was fixed with one hand and the skin was cleansed and 23-25 gauge -1.5 cm long needle with 10 ml syringe was inserted into the lymph node and a full suction pressure was applied. The tip of the needle was moved around. The pressure was neutralized and the needle was withdrawn. The aspirated material was placed on the glass slides. In all the cases, alcohol fixed smears were made and stained with H & E stains.

## RESULTS

The present study over the period of one year from January 2009 to January 2010 a total of 51 patients presented with Cervical Lymphadenopathy. Who were clinically assessed and investigated, by laboratory test and FNAC. Out of 51, patient one case was excluded because of failure to aspirate the Material from lymph nodes. Among remaining 50 patients, age ranged from 12-85 years 20 were male (40%) and 30 were female (60%) FNAC was found to be convenient and safe test without any complication. The duration of Cervical Lymphadenopathy was 1 to 15 months duration. Among the diagnostic outcome, 52% were having tuberculous lesions, while 48 % were having non-tuberculous lesions. 8% were having malignant lesions while 92% were having benign lesions. Among the malignant lesions 20% were having lymphoma, while 80% 'were having secondary' metastases. Overall prevalence of various lesions were tuberculosis 26 (52%). Abscesses 5(10%). lymphoma 1 (2%), Secondary metastases 3 (6 %). reactive lesion 14 (28%). cystic lesion 1 (2%). Tuberculosis and lymphoma were more common among the females, while abscesses and secondary metastases lesions in cervical lymph nodes were more common among males. All other observations are summarized in Tables 1 and 2.

Table 1: Showing Prevalence of Various Lesions Responsible for Cervical Lymphadenopathy

| S no. | Causes | No of Patients | Percentage |
|---|---|---|---|
| 1 | Tuberculosis | 26 | 52% |
| 2 | Abscess | 5 | 10% |
| 3 | Lymphoma | 1 | 2% |
| 4 | Metastases | 3 | 6% |
| 5 | Reactive | 14 | 28% |
| 6 | Cystic | 1 | 2% |
| | | 50 | 100% |

Table 2: Showing Distribution of Various Lesions of Cervical Lymphadenopathy among Males & Females

| S no. | Cause | Male | Female |
|---|---|---|---|
| 1 | Tuberculosis | 40% (10) | 60% (16) |
| 2 | Abcess | 60% (03) | 40% (02) |
| 3 | Lymphma | 100% (01) | 00 |
| 4 | Metastases | 75% (02) | 25% (01) |
| 5 | Reactive | 15% (02) | 85% (12) |
| 6 | Cystic | 100%(01) | 00 |

## DISCUSSION

Fine needle inspiration is a simple and rapid diagnostic technique for evaluation of lymphadenopathy. In the present study, out of a total of 50 patients, 46 patients (92%) had benign lesion and 4 patients (8%) had malignant lesions. Among the benign lesions the tuberculosis 26(52%) was most frequent followed by reactive nonspecific chronic inflammation 14(28%) followed abscesses 5(10%) followed by metastases lesion 3 (6%) following by cystic lesion 1(2%) and lastly the Lymphoma 1(2%). There are few studies to analyze the prevalence of pathological lesions and etiological factors for lymphadenopathy These findings correlate well with the results reported. In the study by steel *et al*. in their series of 1103 patients FNAC for Cervical lymphadenopathy, found 593 as malignant, 399 as benign and 91 as suspicious. In 120 cases the material was unsatisfactory. They concluded that material aspirate from supraclavicular nodes were more likely to be malignant (67%) in their study. According to them the most challenging lesions were lymphoma. With the use of newer, immunocytochemistry technique the lesions can be well interpreted by FNAC [3]. In the study by Suresh Kumar *et al*. 35 patients were enrolled in study, 20 cases showed benign disease and 15 were malignant[4]. In another study by M Javed *et al*. FNAC findings in this series were metastatic (42.85%), tuberculosis adenitis (26.19%), reactive hyperplasia (16.66%),

lymphoproliferative disorder (9.52%) and lymphoma (4.76%) [5]. In the study performed by Bhattacharya *et al*. [6] for FNAC for diagnosis of tuberculosis. The authors concluded that FNAC is very useful adjunct in the diagnosis of T.B which can be made by the demonstration of epitheloid granuloma with or without caseation) even in the absence of AFB. The authors further recommend that necrotic features in suppurative abscesses and the smear however may show high AFB positivity and the diagnosis of tuberculosis is still possible even in the absence of Typical epitheloid grannuloma. Due to high prevalence of tuberculosis in southeast Asia it is important to asses all cases of Cervical Lymphadenopathy [6]. Egea *et al*. who reported 55.1% cases of reactive or non-specific lesions. Reactive glands were mostly small and less than 1 cm in size in 80% cases whereas tubercular and malignant glands were larger and over 1 cm in size in 84.8% and 83.1% cases, respectively [7]. Akmal Jamal *et al*. [8] in his study on hodgkin's lymphoma in cervical lymphodenopathy in 500 patients 40 were diagnosed as hodgkin's lymphoma (32 male and 8 female) among them 8 patient it was difficult to differentiate it from tuberculosis clinically [8]. Kirn *et al*. [9] PCR(Polymerized Chain reaction) test for mycobacterial DNA study on aspirated material is 100% specific and sensitive test for the diagnosis of tuberculosis but this test is not performed in our set up. A pyogenic abscess is a frequent problem in our country 5(10%). Such material should be sent for microbiological and bacteriological examination. Lesions diagnosed as reactive 14(28%) are non specific chronic inflammatory lesions and are usually benign. But, such lesions require further clinical examination for the evidence of septic and infective foci in head and neck. In young adults chronic inflammatory lesions can be of tuberculous origin especially if past history of tuberculosis lesions in lungs are the coexisting clinical findings. If such lesions are present they should undergo biopsy, the material should undergo bacteriological examinations and culture study [9]. Fit Z patrick *et al*. [10] remarked that tuberculosis of Lymph nodes have been shown to frequently seen in USA. He described that tuberculous and non- tuberculous mycobacteria can be responsible for cervical lymphadenitis.

Malignant causes of Cervical Lymphadenopathy. are both diagnostically and prognostically important. 4 out of 50 cases (8%) were malignant lesion responsible for Cervical Lymphadenopathy. In our study, out of 1(2%) were primary lymphoma and 3(6%) were secondary metastases. Metastatic malignant lesion of is Cervical Lymphadenopathy more common in male (85%) and among the age group more than 50 yrs. In metastatic lesions FNAC not only help to detect the lesion but also gives clue to the physician about the primary tumour. Metastases of unknown origin (MUO) is a clinical diagnostic challeng and often manifest as Cervical Lymphadenopathy [10]. Reyes *et al*. [11] study with FNAC in metastatic Cervical Lymphadenopathy, the microscopic study was complemented with Diffquik, pap smear, electron microscopy and cells were typed (classified) Primary malignancy of lymphnodes i.e. lymphoma both Hodgkins's lymphoma and NHL (Non Hodgkins lymphoma) were 1 (2%). Though their prevalence is low, they pose a great diagnostic challenge. In our study all the cases were associated with systemic symptoms i.e. fever, fatigue, weight loss, night sweats and anorexia in all 52% of tuberculosis Cervical Lymphadenopathy. In both the condition the matting of lymph nodes is common feature but the characteristics softening and abscess formation is the feature of TB lymphadenitis. Once the lymphoma is diagnosed one should go for the stage of the disease and its appropriate investigation [11].

In conclusion, the present study confirmed that FNAC of lymphnodes is an excellent first line method, for investigating the nature of the lesions. Also combination of fine needle aspiration cytology with acid fast staining is highly valuable for routine diagnosis of tuberculosis. It is an economical and convenient alternative to open biopsy of lymphnodes. The study strongly indicated the fact that the tuberculosis is the most common cause of cervical Lymphadenopathy. No complication is recorded during the study with FNAC.

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