ABSTRACT

Background: Lymphadenopathy is one of the commonest clinical presentations of the patients. Lymph nodes in head and neck form groups and these groups are responsible for draining lymphatic fluid from different regions in head and neck. Localized cervical lymphadenopathy is lymph node enlargement that is restricted to cervical area.

Objective: To study role of FNAC in evaluation of cervical lymphadenopathy.

Materials and Methods: All the patients referred to Department of Pathology, PDUMedical College and Hospital and, RAJKOT with palpable lymph node were included in present study. FNAC was done and standard procedure adopted. All the slides were reviewed and their diagnosis was made. This was a two years study from June 2012 to June 2014.

Results: A total of 200 patients were included in present study. Maximum numbers of cases were 21-30 years age group. Our study showed female preponderance. Submandibular lymph node was most commonly involved. Benign lymphadenopathies were diagnosed in 72.5% of cases, maximum being granulomatous lymphadenopathies. Metastatic deposits were diagnosed in 21% cases, lymphomas in 6% cases and ALL/leukemic infiltration in 0.5% cases. Conclusion: FNAC is cost effective, simple procedure with minimal trauma and early availability of results.

Keywords: FNAC, Lymphadenopathies
INTRODUCTION:

Enlarged lymph nodes were first organ to be biopsied by fine needle aspiration; today they are frequently sampled tissues.\(^1\) Fine needle aspiration (FNAC) is a simple and rapid diagnostic technique. Due to early availability of results, minimal trauma and complication, fine needle aspiration cytology is now considered a valuable diagnostic aid.\(^2\) The cytomorphological features obtained in fine needle aspiration cytology correlate very well with histologic appearances of same lesion and in some situations has qualities of microbiopsy.\(^2\) Fine needle aspiration cytology is excellent first line method for investigating the nature of lesion, as it is economical and convenient alternative for open biopsy.\(^2\) Fine needle aspiration cytology was initially conceived as a means to confirm a clinical suspicion of local recurrence or metastasis of known cancer without subjecting patient to further surgical intervention.\(^3\) The clinical value of FNAC is not limited to neoplastic conditions. It is also valuable in diagnosis of inflammatory, infectious and degenerative conditions in which sample can be used for microbiological and biochemical analysis in addition to cytological preparations.\(^3\) The present study was undertaken to study role of FNAC in evaluation and different cytomorphological patterns of cervical lymphadenopathy in P.D.U Medical College.

MATERIAL AND METHODS

All the patients referred to Department of Pathology, P.D.U. Medical College and Hospital Rajkot for FNAC of cervical lymph node were included in present study. The patients were clinically evaluated and clinical details were obtained from medical records. FNAC was done and standard method for procedure adopted. All the slides were reviewed and their diagnosis was made. This study is one year study from June 2012 to May 2014. A total of 200 patients were included in present study, reported to various clinical department history of swelling. These patients were clinically evaluated and informed consent was obtained for procedure. The complications of procedure were explained to patient. Lymphnode to be aspirated was first examined thoroughly to determine site of aspiration. Underaseptic precaution FNAC was done, Four smear were made; two of them air dried for Giemsa stain and two were fixed with methyl alcohol for staining with H and E. Special stain such as Ziehl Neelsen’s stain were used wherever applicable.

RESULT

A total of 200 patients were enrolled in Department of Pathology, P.D.U. Medical College and Hospital during study period. Age of the patient varied between 1 year to 85 years. Maximum numbers of patients were below 21-30 years age group (TABLE NO.1) Fever was presenting complaint in 90.5% of patients, 10.5 % patients had swelling, 17% of patients presented with weight loss, 3.5 % patient presented with fever and swelling, 15% of patient presented with fever and weight loss.

Site of Involvement

In 7 % cases submandibular gland was involved in study group of 200 patients. Submental was involved in 1% of cases, 82.5% cases was cervical, 8.5% cases was supra-scapular, 0.5% cases was sub-mental, 1.5%
cases was judulogastric (TABLE NO.2). In 83% of cases the consistency of nodes was firm. Hard nodes were present in 15.5% of cases. Soft nodes were found in 1.5% cases. In 87% cases Blood mix fluid was aspirated. In 6% cases Purulent fluid was aspirated, 7% cases Cheesy material aspirated. In 200 cases 145 constituted benign lesion amounting to 72.5% cases, 42 cases were of metastasis and 12 cases were of lymphoma and 1 cases of ALL/leukemic infiltration (TABLE NO.3)

DISCUSSION

FNAC is commonly used diagnostic approach in investigation of cervical lymphadenopathy. In present study 200 patients underwent FNAC in period of Two years. Age of the patient varied between 1 year to 85 years with maximum number of patients were 21-30 years age group. The M: F ratio is 1:1.7 The numbers of patients with swelling were 10.5 %. The other important presenting complaints were fever in 90.5%, fever and swelling in 3.5 % cases and weight loss in 17 % cases. Aspirate was adequate in all cases except 5% where it was scanty. No opinion was possible in 14 cases. The most frequently involved node in cervical region was submandibular 83.5 % The other group involved were submental 7 % cases. The consistency of the nodes was firm in 83 % cases followed by soft in 1.5% cases. Hard nodes were present in 15.5 % cases. Soft nodes were seen in suppurative and granulomatous lymphadenitis. Hard nodes were common manifestation of malignancy. In 90% cases single lymph node was involved and bilateral in 3% and multiple nodes were involved in 5%. In 87% of cases aspirate was sanguineous, caseous in 6%, cheesy in 7% cases.

Benign Lymphadenopathies

- **Reactive Lymphadenopathies**
  In 110 cases, 90 cases were benign of which reactive lymphadenitis was diagnosed in 44.44% cases. A study conducted by Paul P C et al reported 18.92% cases as reactivelymphadenitis (2004). Another study done by Shakya G et al reported 50.4% cases as reactive lymphadenitis.9

- **Suppurative Lymphadenitis**
  Suppurative Lymphadenitis was diagnosed in 6.66 % cases. In study done by Shakya et al it was 12.4%.9

- **Granulomatous Lymphadenitis**
  Granulomatous lymphadenitis was diagnosed in 48.88 % of cases out of 90 benign cases. In study done by Anuradha S et al it was found that 22% nodes showed granulomatouslymphadenitis.4

- **Metastatic Deposits**
  Lymph node aspirate in 42 cases showed metastatic deposits. Following of table gives overview of different studies.

- **Squamous Cell Carcinoma**
Squamous cell carcinoma was diagnosed in 56.25 cases % of metastatic lymph node. The primary sites of origin are malignancies of head and neck region. This was most common malignancy in our study. A study done by Anne Wilkinson also reported squamous cell carcinoma (19 cases) as common metastatic tumour in cervical lymph node.10

- **Adenocarcinoma**

Adenocarcinoma was diagnosed in 12.5 % of metastatic lymph node cases. The primary sites of origin are malignancies of stomach, breast and lung.

- **Papillary Carcinoma Thyroid and Medullary Carcinoma Thyroid**

Two cases of metastatic thyroid carcinoma were reported in our study. Machado et al reported a case of papillary carcinoma of thyroid metastatic to lymph node5. We also reported a single case of metastatic medullary carcinoma of thyroid. Kini et al reported occult medullary carcinoma of thyroid with lymph node metastases.19 Lymphoma was detected in 1.81 cases % of metastatic deposits. Katz R emphasised that an attempt to diagnose and classify Non Hodgkin Lymphoma should be made on a FNAC. Although definitive diagnosis was possible only by use of immune histochemistry and flow Cytometry12. Ola Landgren et al concluded that FNAC is accurate method of diagnosis of lymphomas when cytologic diagnosis is corroborated by immunophenotyping 13. However, sometimes there may be limitations in accuracy of cytological lymphoma diagnosis due to loss of architecture which is common to most cytological specimens and confusing mixture of malignant and reactive elements. In our study we have reported one case of leukemic infiltration by leukemia. A study done by Nada A et al also reported a case of involvement of lymph nodes by leukemia.27 A study done by Kumar PV et al 23 cases had lymphadenopathy simultaneously with marrow leukemia and in 13 other cases lymphadenopathy was noticed during relapse. They emphasized that clinical findings, previous history, hematologic studies and immunocytochemical studies are essential to for differentiation of leukemic smear.17 In other study done by Chen Wx et al they concluded that lymph node was commonest site for leukemic infiltration.18

**CONCLUSION**

This study was undertaken with a view to evaluate role of FNAC in diagnosis of lymphadenopathies in cervical lymph node. Cervical lymphadenopathy is commonest clinical presentation with variable aetiology ranging from inflammatory to malignancy. It not only helps clinician in early detection of lesion but also helps in early plan of treatment especially in metastasis and lymphomas. Lymph node aspiration can be important in our country where facilities and cost of treatment are not afforded by poor patients. It is especially useful in rural settings and semi urban areas where facilities for surgical intervention are not available. In addition to the other added advantage of FNAC is that it can be applied to all peripheral lymph nodes. Thus fine needle aspiration as a technique is easy, safe and convenient to perform with minimal invasiveness and early availability of results. It helps clinician in confirmation and early detection of lesion.

Fine Needle Aspiration Cytology is accurate diagnostic technique which helps clinician in further plan of treatment. It is safe reliable and results can be made available within an hour.
REFERENCES:
### Table 1: Distribution of cases in various age groups

<table>
<thead>
<tr>
<th>AGE (YEARS)</th>
<th>NO. OF CASES</th>
<th>PERCENTAGE%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-10</td>
<td>26</td>
<td>13</td>
</tr>
<tr>
<td>11-20</td>
<td>33</td>
<td>16.5</td>
</tr>
<tr>
<td>21-30</td>
<td>50</td>
<td>25</td>
</tr>
<tr>
<td>31-40</td>
<td>26</td>
<td>13</td>
</tr>
<tr>
<td>41-50</td>
<td>29</td>
<td>14.5</td>
</tr>
<tr>
<td>51-60</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>61-70</td>
<td>15</td>
<td>7.5</td>
</tr>
<tr>
<td>71-80</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>81-90</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>91-100</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### Table 2: Distribution of lymph node according to site.

<table>
<thead>
<tr>
<th>LYMPH NODE</th>
<th>NUMBER</th>
<th>PERCENTAGE%</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUB-MANDIBULAR</td>
<td>167</td>
<td>83.5</td>
</tr>
<tr>
<td>SUB-MENTAL</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>ANTERIOR J.</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>EXTERNAL J.</td>
<td>9</td>
<td>4.5</td>
</tr>
</tbody>
</table>

### Table 3: Distribution of cases by aetiology

<table>
<thead>
<tr>
<th>FNAC Diagnosis</th>
<th>No of cases</th>
<th>Percentage%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benign</td>
<td>145</td>
<td>72.5</td>
</tr>
<tr>
<td>Metastasis</td>
<td>42</td>
<td>21</td>
</tr>
<tr>
<td>Lymphoma</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>ALL/Leukemia</td>
<td>1</td>
<td>0.5</td>
</tr>
</tbody>
</table>
Figure showing cystic metastasis of Squamous cell carcinoma deposits showing scattered atypical squamous cells in background of inflammatory exudate and necrotic debris
H & E 4x

Figure showing Tuberculous Lymphadenitis showing Epithelioid granuloma H&E 40x