Spectrum Of Cytological Findings In Patients With Lymphadenopathy In Rural Population Of Southern Haryana, India - Experience In A Tertiary Care Hospital
A Kochhar, G Duggal, K Singh, S Kochhar

Abstract
Lymphadenopathy is of great clinical significance as underlying diseases may range from a treatable infectious etiology to malignant neoplasms. In fact, it is also essential to establish that the swelling in question is a lymph node. Fine Needle Aspiration Cytology (FNAC) plays a vital role in solving these issues, nowadays being recognized as a rapid diagnostic technique because of its simplicity, cost effectiveness, early availability of results, accuracy and minimal invasion. This study was conducted to evaluate the usefulness of FNAC as a diagnostic tool in the management of patients with superficial lymphadenopathy. The study was also carried out to know the distribution of various lesions among the different age groups.

INTRODUCTION
Lymphadenopathy is one of the most common clinical presentations of patients attending the outdoor department. Fine Needle Aspiration Cytology (FNAC) is a reliable, simple, safe, rapid and inexpensive method of establishing the diagnosis of lesions and masses at various sites and organs. Lymph node aspiration is of great value for the diagnosis of lymphadenitis, lymphomas and metastatic carcinoma. The present randomized study was undertaken to study cytological features of non-neoplastic and neoplastic lesions of enlarged lymph nodes by FNAC in 182 patients presenting with lymphadenopathy referred to cytology section of pathology department from the OPD/IPD of Maharaja Agrasen Medical College, Agroha village over a period of one year from January to December 2011. There were 100 male and 82 female patients with an age range of 1–70 years. Tuberculous lymphadenitis, reactive hyperplasia, metastatic carcinoma, suppurative lymphadenitis and lymphomas were seen in 35.7%, 31.3%, 20.3%, 9.9% and 2.7% respectively. Reactive hyperplasia was seen most often (60%) in first two decades of life, 58.9% tuberculous lymphadenitis in the second and third decades (66%) and incidence of metastatic carcinoma are high during and after 40 years of age. Cervical lymph nodes were involved in all types of lymphadenopathy. Metastatic lesions of lymph nodes were seen to be more common in males. Squamous cell carcinoma is the most common metastatic lesion.

MATERIAL AND METHOD
A total of 182 patients presenting with superficial palpable lymph nodes, who were referred to cytology section of pathology department from the OPD/IPD of Maharaja Agrasen Medical College situated in Agroha village covering the rural population of southern Haryana, were studied over a period of one year. In each instance, a brief history and physical examination along with evaluation of relevant investigations, if available, was carried out. FNAC procedure performed by pathologist using 22-24 G needle attached to 10 - 20 mL syringe. Aspirated material was
smeared on the slides in each case. Slides were immediately
put into the fixative solution and air-dried. Alcohol-fixed
smears were stained by Haematoxylin and eosin and
Papanicolaou method. The air-dried smears were stained
with May-Grunwald-Giemsa (MGG) stain. Special stains
like Ziehl Neelson (ZN) stain for acid-fast bacilli and
Periodic Acid Schiff (PAS) stain were used whenever
required.

RESULTS
The study included 182 patients with lymphadenopathy
swellings. Out of 182 patients with palpable
lymphadenopathy, in two (1%) cases, FNAC was
inconclusive due to unsatisfactory smears. There were 84
(46.15%) female and 98 (53.84%) male patients with an age
range of 1–70 years. Tuberculous lymphadenitis and reactive
hyperplasia were the most common lesions seen (35.7% and
31.3% respectively), followed by metastatic carcinoma in
20.3%, suppurative lymphadenitis in 9.8% and lymphomas
in 2.7% (Hodgkin’s 1.09%, Non Hodgkin’s 1.64%) of the
cases (Table-1). Reactive hyperplasia was seen most often
(60%) in first two decades of life, 58.9% tuberculous
lymphadenitis in the second and third decades (66%) and
incidence of metastatic carcinoma are high during fourth
decade of life and after 40 years of age. Males showed
preponderance of reactive hyperplasia, lymphoma and
metastatic carcinoma, while tuberculous lymphadenitis
showed a slight female preponderance. Cervical lymph
nodes were involved in all types of lymphadenopathies
(Table-III). Squamous cell carcinoma is the most common
metastatic lesions of lymph node and comprise of 81.63% of
the cases. (Table-V). Metastatic lesions of lymph node are
more common in males whereas metastatic lesions from
carcinoma breast were seen exclusively in females (Table-
V). Cervical lymph node is the most common site for
metastasis of squamous cell carcinoma. (Table-V). Axillary
lymph nodes are common site for metastasis from breast
malignancy.

Figure 1
Table 1: CYTOLOGICAL DIAGNOSIS OF 182 CASES OF
LYMPHADENOPATHY

<table>
<thead>
<tr>
<th>CYTOLOGICAL DIAGNOSIS</th>
<th>NO. OF CASES</th>
<th>PERCENTAGE (%)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
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<tr>
<td>Tuberculous lymphadenitis</td>
<td>22</td>
<td>9</td>
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<tr>
<td>Reactive lymphadenitis</td>
<td>22</td>
<td>5</td>
</tr>
<tr>
<td>Suppurative lymphadenitis</td>
<td>09</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Hodgkin’s lymphoma</td>
<td>01</td>
<td>01</td>
</tr>
<tr>
<td>Non Hodgkin’s lymphoma</td>
<td>02</td>
<td>01</td>
</tr>
<tr>
<td>Metastatic carcinoma</td>
<td>27</td>
<td>10</td>
</tr>
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</table>

Figure 2
Table 2: AGE AND INCIDENCE OF
LYMPHADENOPATHY

<table>
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<tr>
<th>Sr. No</th>
<th>Cytologic Diagnosis</th>
<th>0-20</th>
<th>21-30</th>
<th>31-40</th>
<th>41-50</th>
<th>51-60</th>
<th>&gt;60</th>
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<td>14</td>
<td>20</td>
<td>11</td>
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<td>01</td>
</tr>
<tr>
<td>2</td>
<td>Reactive hyperplasia</td>
<td>17</td>
<td>17</td>
<td>19</td>
<td>01</td>
<td>01</td>
<td>00</td>
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<tr>
<td>3</td>
<td>Suppurative lymphadenitis</td>
<td>04</td>
<td>03</td>
<td>05</td>
<td>00</td>
<td>01</td>
<td>01</td>
</tr>
<tr>
<td>4</td>
<td>Hodgkin’s disease</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>Non Hodgkin’s disease</td>
<td>-</td>
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<td>Metastatic carcinoma</td>
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DISCUSSION

FNAC is inexpensive, completely safe and quick method for diagnosis of lymphadenopathy and it reduces the need for surgical biopsy. We have presented our experience with 182 cases of lymphadenopaties over a period of one year. In the present study, diagnosis was based on definite cytomorphological findings with clinicocytological correlation. Our primary aim was to help the clinician in arriving at an early diagnosis in cases presenting with lymphadenopathy. The pattern of lesions consisted of tuberculous lymphadenitis, reactive lymphadenopathy, metastatic carcinoma, suppurative lymphadenitis, lymphoma and metastatic lymphadenopathy seen in our study, more or less is same as reported in other studies in India and other developing countries. Maximum numbers of cases in our study are of tuberculous lymphadenitis. In India, tuberculous lymphadenitis is one of the most common types of lymphadenopathy encountered in clinical practice, whereas it is in sharp contrast to very low frequency of 1.6% in developed countries. The highest incidence of tuberculous lymphadenitis was seen in second and third decades with female preponderance and decreasing incidence with age. Patra et al had 37.8% cases of tuberculosis while the present study has 35.71% cases. This was quite close to our studies. A similar study was done by Khajuria et al, which showed Tubercular lymphadenitis as 52.3% and Bhaskara et al found 67.57% (Table VII). All these authors' studies, including our study, suggest that Tubercular lymphadenitis is the most common cause of lymphadenopathies. The discrepancy in results is due to a wide variation in study age group and socio-economic condition of the patients. The highest incidence of reactive hyperplasia was seen in first two decades of life (74.5%) with a male preponderance. These findings are in agreement
Metastatic malignancies are significantly more common in males. The superficial lymph nodes are common sites of metastasis. On comparing lymph node group involved in metastatic lesions, it has been seen that cervical lymph nodes are most commonly involved in metastatic lesions. Squamous cell carcinoma is the most common metastatic lesion. In diagnosis of metastatic malignancy, lymph node aspiration is as rewarding as surgical biopsy. Metastatic carcinoma was observed in 14.5% of cases by Patra AK et al1, 3.8% cases by Ruchi Khajuria and 5.6% cases by Bhaskara et al2, which is in sharp contrast to our studies showing 20.7% of metastatic carcinoma. This variation in results is due to same reason, that is, difference in age groups of patients (Table IV), as most of metastatic lesions are common above 40 years of age. In Patra’s study, majority of patients, 43.68% are in the first decade, while in contrast to 15% in our study. Patra restricted his study up to 60 years of age as compared to our study, which includes 8.79% of cases above 60 years of age. In study done by khajuria3, patients above 40 years of age constitute 15.70% as compared to 23.62% of cases in our study. This shows significant difference and contribute to this variation. The other reason for higher metastasis is the regional variation, as in this region tobacco farming is more prevalent and hence tobacco chewing, which is one of the major predisposing factor for malignancy especially of aero digestive tract. Benign reactive inguinal lymphadenopathy is the most common etiologies, and inguinal lymphadenopathy is of low suspicion for malignancy. In our study, we received the least amount cases of inguinal lymphadenopathy. Carcinoma of external genital region, the lymphomas and melanoma also involved this group of lymphnode1. The anatomical site of involved node along with age and sex may give some indication to the location of primary tumour. For example, axillary lymph nodes commonly harbor the metastatic deposits from the breast, lungs or ovaries in middle-aged females. Carcinoma of the external genital region, the lymphomas and melanoma also involved inguinal group of lymphnode1. The cytomorphological pattern seen in routinely stained smears often give clue to the site of primary tumour. Glandular cells moderately pleomorphic arranged in a gland – in – gland or in cribriform pattern suggest a prostatic carcinoma. Columnar cells with elongated nuclei arranged in palisades, stringy mucus and necrosis suggests primary in the large bowel, while mucin-containing signet ring cells suggest the stomach as the most likely primary site among several other possibilities. The incidence of squamous cell carcinoma, adenocarcinoma and miscellaneous malignancies are more or less comparable with other studies2,3,3,4,5. In the present study, squamous cell carcinoma is the most common metastatic lesion of lymph node, which is comparable to other studies. Miscellaneous malignancies are more common than metastatic adenocarcinoma of lymph node in the present study.

In conclusion, FNAC is a reliable diagnostic tool in evaluation of lymphadenopathy for both screening and follow-up and can be performed as an outpatient’s procedure. In our study, the predominant cause of enlarged neck nodes was tuberculous lymphadenitis, followed by reactive lymphadenitis and malignant neoplasm, especially metastatic carcinoma and lymphoma. We concluded from the present study that tuberculous lymphadenitis is the most common problem in patients presenting with lymphadenopathy in our set-up, followed by non-specific lymphadenitis and malignant neoplasms, especially metastatic carcinoma. In addition, FNAC is an easy and reliable procedure.

References

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nodes. Cancer 1984; 54:1076-81

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