

Distribution of Various Diseases in Diagnosis of Lymphatic Lesions by FNAC

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ABSTRACT

Lymphadenopathy is one of the commonest clinical presentations in inflammatory and neoplastic disorders. The etiology can be confirmed by various techniques, out of which the most simpler, easy and cost-effective OPD procedure is Fine Needle Aspiration Cytology (FNAC). It can be quickly done without any radiological guidance and only utilizes visual masses for identification. This study aims to evaluate distribution of various diseases in diagnosis of lymphatic lesions by FNAC. It was a Retrospective observational study with a total of 298 patients with FNAC. The procedure was carried out by a single pathologist by palpating the mass without any radiological guidance. The most common site affected was cervical lymph nodes followed by axillary. The most common picture observed was of tubercular lymphadenopathy observed in 50.6% cases, which was followed up by reactive lymphadenopathy in 43.9% cases, NHL in 3.35% cases, metastasis in 1%, inconclusive and inflammatory abscess in 0.3% cases each. FNAC is established as the primary first level investigation for diagnosis of the lymphadenopathy. It has various advantages such as being less invasive, easy steps, OPD procedure. It is not dependent on any radiological tool and considers only clinical examination for the procedure.

Keywords-FNAC; Metastasis; Tuberculosis; Lymphadenopathy

INTRODUCTION

Lymphadenopathy is one of the commonest clinical presentations in inflammatory and neoplastic disorders. Other etiologies for the same include reactive lymphadenopathy, tuberculosis and other non-specific diseases. This etiology can be confirmed by various techniques, out of which the most simpler, easy and cost-effective OPD procedure is Fine Needle Aspiration Cytology (FNAC). It can be quickly done without any radiological guidance and only utilizes visual masses for identification. It 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. Although the sample collected is not at par with that of true-cut biopsy, but still it is first line for the same due to easy availability of the same. Also, it has very less complications rate as compared to other diagnostic modalities. The utility of diagnostic cytopathology is rapidly increasing in laboratory diagnostics [1,2]. Apart from rapid turnover time, the obtained material can be used for molecular studies. This study aims to evaluate the results of FNAC in lymphadenopathy.

Materials and methods

This study was conducted in Department of Pathology at a tertiary level health care center in Rajasthan. It was a Retrospective observational study conducted from September 2019 to August 2022. A total of 298 patients with FNAC were included in the study. The FNAC procedure was performed in the laboratory procedure room of the Cytopathology department. The procedure was carried out by a single pathologist by palpating the mass without any radiological guidance. We included axillary, cervical and inguinal lymph node enlargements in this study. After palpation, two to three attempts were taken with a 22-23 gauge needle along for the procedure. The obtained material was spread on three slides that were then stained with hematoxylin and eosin (H & E), Papanicolaou (PAP), and Diff-Quik methods. The remaining material was used for cell block preparation. If the satisfactory diagnostic material was not obtained, the fourth attempt of FNAC was performed after one day. The maximum numbers of attempts taken for the procedure were four. The FNAC slides along with cell block slides were examined and reported by cytopathologists.

Data was collected and entered in Excel sheet. The data was then processed using SPSS software. P-values ≤ 0.05 were considered as significant.

RESULTS:

We evaluated 298 cases with FNAC in our study from September 2019 to August 2022. Satisfactory material was encountered in 94% of the patients in our study. The most common site affected was cervical lymph nodes followed by axillary. Other demographic indices are described

(TABLE 1)

Age distribution	No Of Cases
Young (10-18)	67
Middle (18-45)	200
Old (>45)	38
Sex distribution	
Male	105
Female	193
Site Involvement	
Cervical	251
Axillary	24
Inguinal	14

The most common picture observed was of tubercular lymphadenopathy (Fig 1) observed in 50.6% cases, which was followed up by reactive lymphadenopathy (Fig 2) in 43.9% cases. It was followed by NHL in 3.35% cases, metastasis in 1%, inconclusive and inflammatory abscess in 0.3% cases each. The same has been depicted in table 2.

Diagnosis	No of Cases	Percentage
TB lymphadenopathy	151	50.6%

Reactive lymphadenopathy	131	43.9%
NHL	10	3.35%
Metastasis	3	1%
Inflammatory abscess	1	0.3%
Inconclusive	1	0.3%

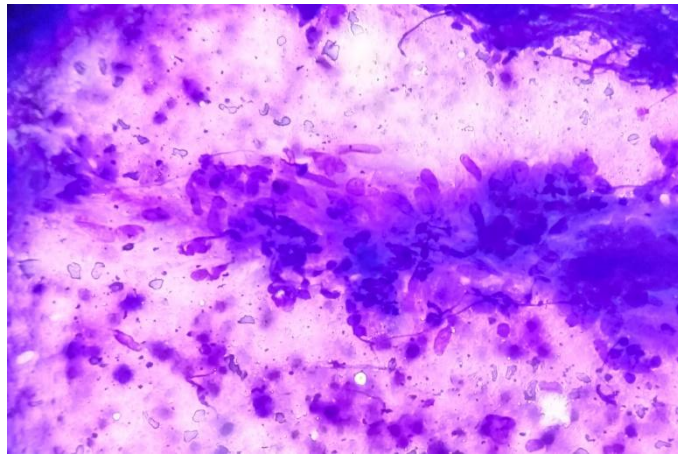


Figure 1: Tuberculosis granuloma

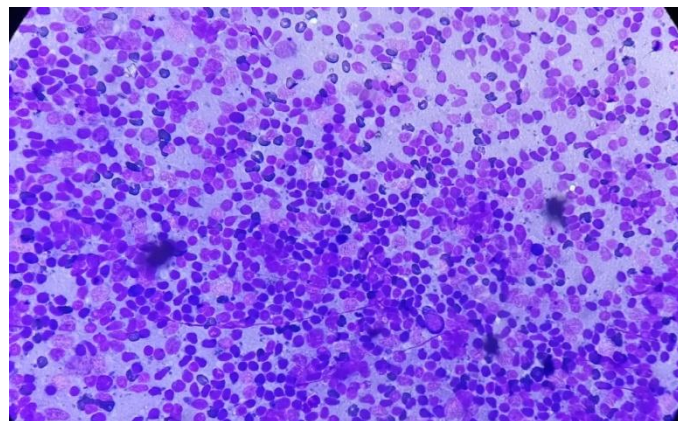


Figure 2 : Reactive Lymphadenopathy

Age based distribution was also evaluated and it was observed that Reactive lymphadenopathy was observed more commonly in children while metastasis was observed mostly in older age group. Tuberculosis was reported to be most common in middle age adults with mostly cervical lymph node involvement. In the cases of metastasis, mostly cervical, followed by axillary and inguinal group of nodes were involved.

DISCUSSION:

FNAC is now considered the first line diagnostic technique for evaluation of superficial lymphadenopathy. It has various advantages such as being less invasive, easy to do, OPD procedure. It is not dependent on any radiological tool and considers only clinical examination for the procedure.

A study evaluated 550 consecutive cases of TB diagnosed on FNAC. They noted that caseous

necrosis with degenerated inflammatory cells in the background was the most common cytological pattern. They also found that cervical lymph nodes were the most common site and maximum incidence was in the third decade [3]. We also noted a higher frequency of TB in cervical lymph nodes with the most common occurrence in the 18-45 years age group. Another cytomorphological study investigating lymphadenopathy reported TB to be the most common cause of lymphadenopathy (44.02) [4].

On examination, a suspicious clinical history of TB (pyrexia, night sweats, recent travel to endemic areas, no previous BCG vaccination) along with positive aspirate and other blood, sputum and urine tests for AFB supports diagnosis of TB. Although the culture result shows inherent delay, but still due to newer techniques such as polymerase chain reaction and other amplification methods, the detection time of organisms is reducing, thus making FNAC more valuable. [5]

Reactive lymphadenopathy was the second most frequent cause observed in our study (131 cases). It was more common in the younger age group. These findings are similar with other studies in the past. In a study by Malhotra AS, it was observed that 42.64% cases were of Reactive lymphadenopathy and was just behind tuberculosis (44.02%) in number. [4]. Non-Hodgkin's lymphoma was identified as a monotonous population of lymphoid cells. It was observed in 10 cases in our study (3.35 %).

FNAC is an important tool for metastatic workup, especially in cases of breast carcinoma and head and neck squamous cell carcinoma. A study evaluating metastatic lymphadenopathy by FNAC reported that the supraclavicular lymph node was the most common site of metastatic lymphadenopathy and squamous cell carcinoma was the most common type of metastatic carcinoma [6]. In our study, 1% of lymphadenopathy cases had a cytomorphological diagnosis of metastatic carcinoma, and a significant association of this diagnosis was noted with older age. Metastatic carcinoma on cytology is characterized by cohesive clusters of atypical cells.

In cases where malignancy is proven histologically with subsequent lymph node enlargement, a cytological diagnosis of metastasis is helpful to avoid unwanted biopsy as a confirmatory investigation for metastasis. While, in cases where malignancy is not established beforehand, FNAC helps to confirm it and provides us information regarding the site of primary [7]. But, since the role of FNAC for classification of lymphoid malignancy is controversial, so it is subsequently followed up by tissue biopsy in most cases [8-10]

For the diagnosis of Neck masses, the gold standard investigation remains open biopsy followed by histological examination of the tissue [11]. However, it is well established that that open biopsy prior to radical neck dissection leads to higher rates of local, regional and distant metastasis, as compared to patients who didn't have biopsy.[12]. This further enhances the FNAC for diagnosis as it does not have increased chances of recurrence.

Our study had a few limitations. First, we did not have any radiological or biopsy based analysis for all the cases as a confirmation. Also, it was a retrospective study, thus can be associated with bias in evaluations. Multi-centre large scale studies are required in future for the same.

CONCLUSION:

FNAC is established as the primary first level investigation for diagnosis of the lymphadenopathy. It has various advantages such as being less invasive, easy steps, OPD procedure . It is not dependent on any radiological tool and considers only clinical examination for the procedure.

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