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Original Research Paper

Evaluation of Cytomorphological Spectrum of Lymph node lesions on FNAC

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ABSTRACT:

Background: FNAC is simple cost effective, rapid& reliable technique which can be used as routine OPD procedure & 1st line investigation in diagnosing variety of superficial & deep lesions. Enlarged lymph node is one of the commonest complaint in surgical OPDs. Lymphadenopathy can be associated with many range of diseases from infectious diseases to malignant neoplasm. Any lymph node larger than l cm can easily aspirated & diagnosed with least patient complications. **Objectives**: To study Cytomorphology of enlarged lymph nodes to aid in diagnosis **Materials & Methods**:This is a retrospective study with 120 cases of lymph node lesions. Clinical history & Cytology reports of patients taken From to Jan 2021 to Jan 2022. **Results**: Retrospective Study on 120 cases from all age group. We found that the majority of patients had reactive lymph node hyperplasia 70cases(58.33%) in our study, granulomatous lymphadenitis was the second most common pathology 30 cases(25%),Metastatic deposits constituted 6 cases(5%)of the pathologies,acute suppurativelymphadenitis(1.67%),lymphoproliferative disorders(8.34%) and necrotic lymphadenitis(1.67%) were the few other diagnosis given. **Conclusion**: FNAC of Lymph node emphasizes on diagnosing inflammatory treatable conditions & malignant neoplastic lesions & help in guiding patients for early intervention

Keywords: FNAC, Lymph Nodes

INTRODUCTION:

FNAC is cost effective, relatively less traumatic, and helps the pathologist to provide the clinician with a diagnosis in a short time, and hence is ideal especially for OPD patients.[1] Lymphadenopathy is a common clinical entity. The diagnosis of the cause underlying the enlarged lymph nodes enables the clinician to plan appropriate management for each patient[1,2]. Enlarged superficial lymph nodes are easily evaluated by FNA technique and hence FNAC forms an important diagnostic tool. While histopathological evaluation of surgically excised lymph nodes is a more specific and accurate diagnostic parameter, it is relatively more costly, time consuming and discomforting to the patient, and may not be indicated in every patient. FNAC is more cost effective and relatively non - invasive. FNAC evaluation may prevent a patient to undergo unnecessary surgery and treating patients with conservative therapy[3,4,5.] This study was done to identify the causes of lymphadenopathy amongst patients referred for FNAC evaluation of their enlarged lymph nodes to the laboratory of our hospital.

MATERIAL AND METHODS:

This was a retrospective study using existing patients data obtained from the records of the Department of Pathology, MGM Hospital. During the period 01 January 2021 to 01 Jan 2022, a total of 120-patients were referred to the cytopathology department of the Central Laboratory of MGM Hospital for FNAC evaluation of superficial enlarged lymph nodes, which were either single or multiple. All patients who were referred for FNAC of enlarged superficial lymph nodes were included in the study. After taking clinical history & patients consent of each patient, FNAC of enlarged lymph node(s), using a 22 or 23 gauge needle & 10 cc disposable syringe was done. Smears were prepared on clean glass slides and the smears either wet fixed by immersing the slides in 95% methanol or air dried. Where aspirate was scanty, all slides were wet - fixed only. Wet fixed smears were stained by Hematoxylin and Eosin (H and E) and Papanicolaou's (Pap) stains. Air dried smears were stained by Giemsa stain. All slides after staining were mounted using standard

cover slips and then analyzed by standard microscopy. Special stains like AFB were used for diagnosis of tuberculosis . A turn around time of two hours was maintained while reporting the slides. In cases where malignant deposits or lymphoproliferative disorders were diagnosed on FNAC, patients referred to a cancer centre for immunocytochemistry/biopsy and HPE of the lesions. At the end of the study period, spectrum of pathologies analysed reported on FNAC during the period under study. The age and gender profile of the patients was also studied.

RESULTS:

A total of 120 patients reported for FNAC evaluation of enlarged superficial lymph nodes during the period January 2021 to january 2022. The distribution of lesions diagnosed is given in according to site of involvement is given in table 1

Table1:Distribution of cases according to Site of lymph node involvement

Site of lymph node	Number of cases	% of cases
Cervical	90	75
Axillary	10	8.333
Supraclavicular	08	6.7
Submandibular	14	11.67
Submental	04	3.34

During the entire study period, a diagnosis of reactive lymph node hyperplasia was given in 70 aspirates out of 120 (58.33% of cases) and was the most common diagnosis. Granulomatous lymphadenitis, caseating or noncaseating, was diagnosed in 30 aspirates out of 12O(25%) and was the second most common diagnosis .

Table 2: Gender wise Distribution of lesions on lymph node FNAC

Sex	Number of cases	% of cases
Male	66	52
Female	44	48

Table 3: Age wise distribution of lesions on lymph node FNAC

Age	Number of cases	% of cases
0-25	64	53.4
25-50	45	37.5
>50	11	9.1

Table 4: Distribution of lesions on lymph node FNAC according to cytological diagnosis

Cytological Diagnosis	Number of cases	% of cases
Reactive Lymphadenitis	70	58.33
Granulomatous Lymhadenitis Including Tuberculosis	30	25
Lymphoproliferative Disorder	10	8.34
Metastatic Lymph node SCC & Adenocarcinoma	6	5
Acute suppurative	2	1.67
Necrotising	2	1.67

Granulomatous lymphadenitis was diagnosed by the presence of epithelioid cell granulomas, with or without caseating necrosis (Figure 5).

Reactive lymph node hyperplasia was diagnosed by the presence of a polymorphous population of lymphoid cells and tingible body macrophages (Figure 6). This formed the predominant pathology in our series of FNAC's.

Necrotic lymphadenitis (1.67% was diagnosed by the presence of necrotic material in the aspirated material with insufficient cellular content in the smears to describe any etiology for the necrosis.(figure 3)

Suppurative lymphadenitis (1.67%) lymph node draining a septic focus, was diagnosed by the presence of a predominantly neutrophilic inflammatory component in the aspirate against a background of lymphoid cells as shown in (Figure 4)

Fig 1

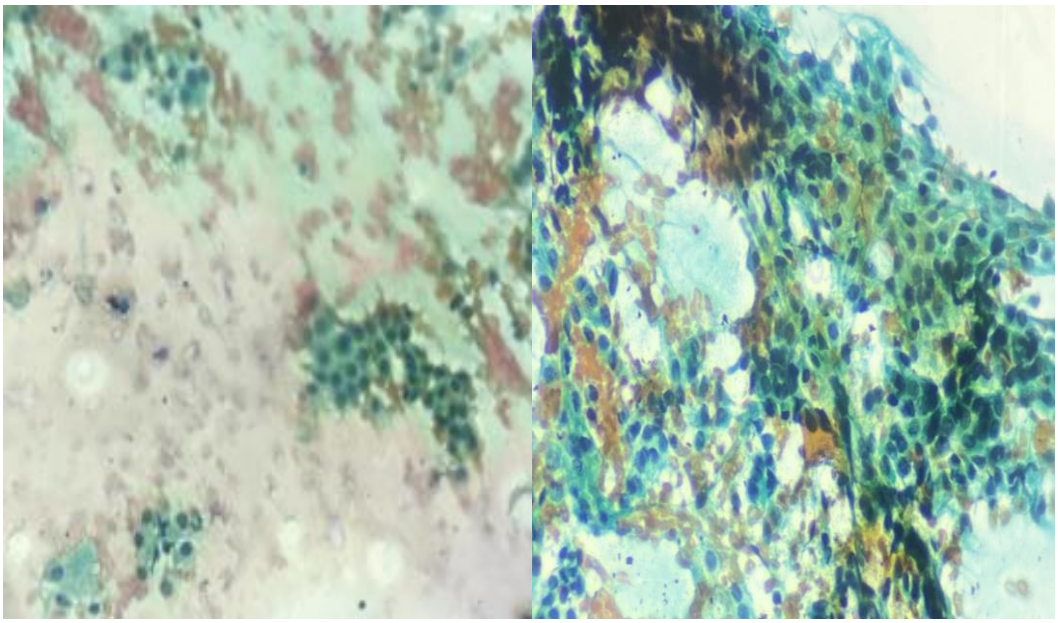
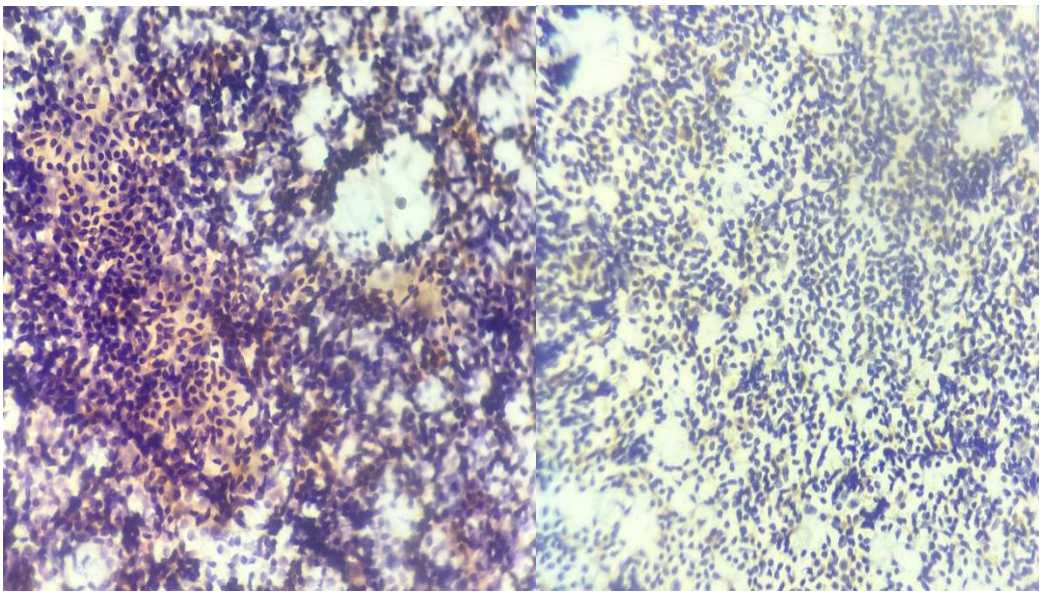
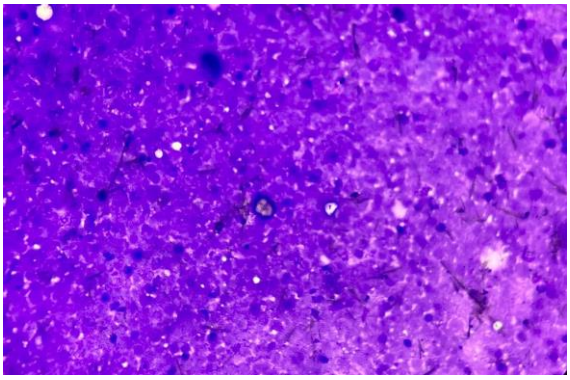


Fig2



Metastatic Lymph Node in Fig. 1 & Lymphoproliferative in Fig. 2

Fig3



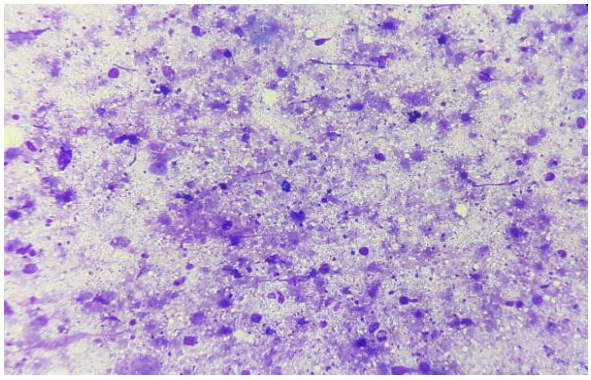


Fig4

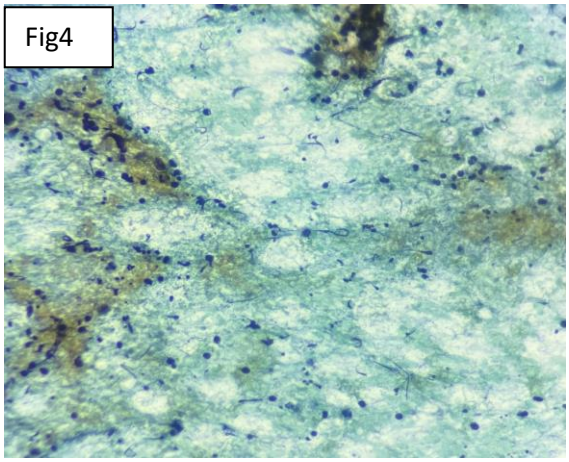


Fig 5

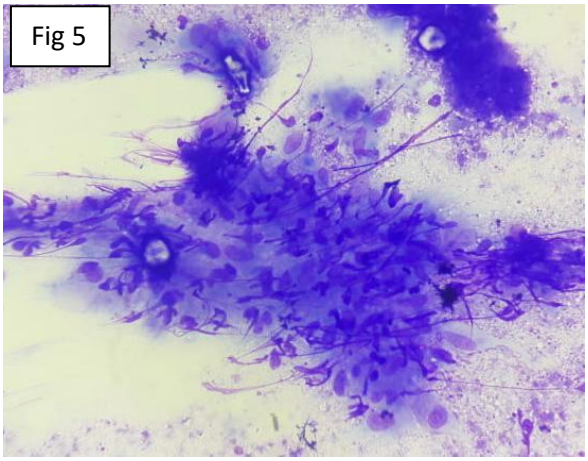
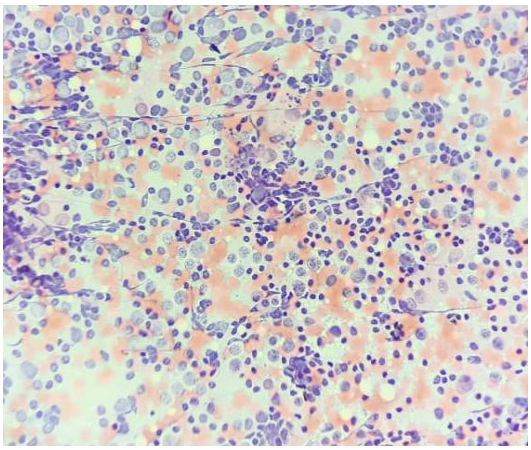


Fig6



DISCUSSIONS:

FNAC is a valuable diagnostic tool for establishing a diagnosis in cases of superficial lymphadenopathy. The use of this technique has limited the need for excision of enlarged lymph nodes, especially in cases of reactive and tubercular lymphadenitis. [1] In this study, reactive lymph node hyperplasia was the most common diagnosis. Similar findings were noted by Shrivastav A et al[2], Mohan AR et al [3]. In this series granulomatous lymphadenitis was the second most common diagnosis offered; in the series of Kumar H et al [4]and Shilpa G et al[5], reactive lymph node hyperplasia was the most common diagnosis. The relative frequency of pathologies varies with the type of hospital and the demographics of the dependent population. In this study there was a preponderance of female patients (61%) in contrast to other studies where male preponderance was noted. Metastatic deposits in the enlarged lymph nodes were diagnosed in 6 cases (5%). Among the metastatic lesions diagnosed, metastatic Squamous cell carcinoma & adenocarcinoma were the most common microscopic variant seen. A similar finding was reported by Ghartimagar D et al[6]. Lymphoproliferative disorders were diagnosed in 10out of 100 aspirates (8.34%), and a finding which correlates with other studies. Dowerah S et al[7],PatilS et al[8],Caitra etal[9] & Ashwin HN et al [10]however, reported an incidence of 10.6% cases of lymphomas in their series. Study diagnosed three cases as non - Hodgkin's lymphoma and one case as

Hodgkin's lymphoma. Excision biopsy of the affected lymph node was done in one case ofnon - Hodgkin's lymphoma and histopathological evaluation of the excised node confirmed the diagnosis. Lymphoproliferative disorders were diagnosed in only 10 out of 120 aspirates analyzed (8.34%); three cases were diagnosed as non - Hodgkin's lymphoma and one as Hodgkin's lymphoma.Non - Hodgkin's lymphoma was diagnosed by the presence of a monotonously uniform population of lymphocytic cells scattered singly in a highly cellular smear and the absence of Reed Stemberg cells(Figure2). Metastatic deposits 6 cases(5%)were diagnosed based upon morphological patterns and cellular details. Papillary carcinoma metastases are shown in Figure 1 and 2. Well - formed papillary structures composed of malignant cells were seen against a background of lymphoid cells. Other pathologies in our study were acute suppurative lymphadenitis and necrotic lymphadenitis which were found in 2 (1.67%) and 2 (1.67%) aspirates respectively.Shah et al[11] reported 30 cases of acute lymphadenitis in their series of 555 aspirates analyzed (5.4%) which is similar to our findings.

CONCLUSION:

FNAC is a convenient, relatively non - traumatic and speedy (TAT- 2 hours) method of diagnosing the underlying pathology in cases of superficial enlarged lymph nodes. We found that the majority of patients had reactive lymph node hyperplasia in our study. Granulomatous lymphadenitis was the second most common pathology. Metastatic deposits constituted 6% of the pathologies. Acute suppurative lymphadenitis, lymphoproliferative disorders and necrotic lymphadenitis were the other less common diagnoses given on FNAC evaluation of the superficial lymph nodes in our study. FNAC continues to be an important diagnostic tool in the evaluation of superficial lymph nodes.

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