

A Study on Fine Needle Aspiration Cytology of Cervical Lymph Nodes

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Abstract

Introduction: Aim of the Study: To study the spectrum of lesions in cervical lymph nodes on Fine Needle Aspiration Cytology. *Materials and Methods:* This was a prospective study done over a period of two and half years in the department of pathology at Kakatiya Medical College, Warangal, Telangana. A total of 330 patients with cervical lymphadenopathy were evaluated. The detailed clinical history was recorded before performing FNAC. Other relevant radiological investigations were also noted for correlation. *Results:* FNACs were done in 350 cases who presented with enlarged cervical lymph nodes. There were 20 inadequate aspirates which were excluded from the study. Age group ranged from 1 to 70 years. Majority of the patients (33.3%) were in the age group 21-30 years and male to female ratio was 2.3:1. Tuberculous lymphadenitis was the most common diagnosis. *Conclusion:* FNAC of lymph nodes is very useful and simple procedure in the initial diagnosis of cervical lymphadenopathies.

Keywords: Cervical Lymphnode; Fine Needle Aspiration Cytology; Tuberculosis.

Introduction

Enlarged lymph nodes were the first to be diagnosed by fine needle aspiration and are one of the most frequently sampled tissues [1]. Lymphadenopathy is one of the commonest clinical presentations of patients, attending the outdoor clinics in most hospitals. The etiology varies from an inflammatory process to a malignant condition [2].

Fine needle aspiration cytology (FNAC) of lymph node has become an integral part of the initial diagnosis and management of patients with lymphadenopathy due to early availability of results, simplicity and minimal trauma with less complication. [3].

FNAC has also been advocated as a useful method in comparison to more expensive surgical excision biopsies in developing countries with limited financial

and health care resources [4].

It is a simple, inexpensive, rapid investigative procedure with minimal trauma and low complication [5].

It almost offers an accurate diagnosis for reactive lymphoid hyperplasia, infectious disease, granulomatous lymphadenitis, and metastatic malignancy. Thus, it can avoid the need for excisional biopsy in most cases and allow rapid initiation of therapy [6].

Malignancies in lymph nodes in our country are predominantly metastatic in nature with an incidence varying from 65.7% [7] to 80.4% [8] and lymphomas range from 2% [9] to 15.3% [8] among lymph nodes aspirated from all sites [7,8]. Any cervical lymph node more than 1cm in diameter is considered as lymphadenopathy and can be subjected to FNAC [9].

Materials and Methods

Informed consent was taken from all patients and from guardians in case of minor patient before performing the procedure. This prospective study was

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carried out over a period of 2 and half years in department of Pathology in Kakatiya Medical College, Warangal, Telangana.

Inclusion Criteria

1. Patients with enlarged cervical lymphnodes irrespective of age and gender were included in this study.
2. Out-door and patients and also admitted patients referred for the FNA procedure from the departments of general surgery, ENT and Medicine and Paediatrics were included.
3. Ultrasound guided FNAC from cervical lymph nodes was also included.
4. Referral slides from cervical lymph nodes that had come for review were included

Exclusion Criteria

1. Inadequate samples or samples showing only blood were excluded
2. Patients undergoing repeat FNAC during the study period to collect sample for other tests like pus culture or PCR were excluded.
3. Review slides of FNA from non-cervical lymph node site were excluded.

A total of 350 patients with cervical lymphadenopathy were evaluated in the study period.

Detailed clinical history and examination findings

were recorded before performing FNAC. Relevant findings of radiological investigations were also noted for correlation. FNAC was done on enlarged lymph nodes under all aseptic conditions. Multiple aspirations were done in patients when sample was inadequate.

FNAC was done with a 22 or 23 gauge needle, attached to a 5 ml or 10 ml syringe under all aseptic conditions. The aspirated material was smeared on the glass slides and immediately fixed in alcohol, and stained with Hematoxylin and Eosin stain. Air dried smears were also made which were subjected to Giemsa staining. All necrotic aspirates were stained with Ziehl-Neelsen (ZN) stain for Acid Fast Bacilli (AFB). Microscopic examination was done after staining.

Twenty cases were excluded from our study as repeated aspirations yielded scanty or only hemorrhagic smears which were inadequate for reporting.

Observations and Results

A total of 330 cases showed adequate aspirates and hence was the final total number of cases in the study.

The patient age ranged from 1 to 76 years. Majority of the cases (33.3%) were in the age group 21- 30 years. Children 1to 10 years and patients above 70 years were 3% each.

Gender-Wise Distribution

There were 230 (69.6%) males and 100 (30.3%)

Table 1: Age-wise distribution of the cases

Age (years)	No. of cases	%
1-10	10	3%
11-20	50	15.1%
21-30	110	33.3%
31-40	65	19.6%
41-50	40	12.1%
51-60	25	7.5%
61-70	20	6.0%
70-80	10	3%
Total	330	100%

Table 2: Site of involvement in cervical lymph nodes

Site	No. of Cases	%
Anterior cervical region	280	84.8 %
Submandibular region	30	9.09%
Sub mental region	20	6.06%
Total	330	99.95%

female patients. The male to female ratio was 2.3:1

Present study showed anterior cervical region as

the most commonly affected site (84.8 %) followed by submandibular region (9.09%) and lastly submental

region (6.06%)

Type of Aspirate

The aspirate was blood mixed in 135 cases (40.9%) purulent in 40 cases (12.1%) and as necrotic or cheesy material in 155 cases (46.9%).

Among the cases of tuberculous lymphadenitis, females were 59 and males were 96 and the male to female ratio was 1.6:2.

Tuberculous inflammation was the most common condition affecting all age groups. Lymphomas and metastatic disease were seen in patients above 40 years.

Table 3: Cytological diagnosis of enlarged cervical lymphnodes

Diagnosed on Cytology	No. of Cases	%
Reactive lymphadenitis	80	24.2%
Acute suppurative lesion	40	12.1%
Chronic granulomatous lymphadenitis	155	46.9%
Chronic nonspecific lymphadenitis	35	10.6%
NHL	4	1.2%
HL	1	0.3%
Metastatic deposits	15	4.5 %
Total	330	100%

Table 4: Age wise distribution and cytological diagnosis of cervical lymphnodes

Age (years)	Reactive lymphadenitis	Acute suppurative lesion	TBlympadenitis	Non specific lypadenitis	NHL	HL	Metastasis	Total
0-10	5	4	1	-	-	-	-	10
11-20	15	10	20	5	-	-	-	50
21-30	32	6	60	12	-	-	-	110
31-40	10	10	30	15	-	--	-	65
41-50	10	6	15	3	-	1	5	40
51-60	3	2	15	-	-	-	5	25
61-70	4	1	10	-	2	-	3	20
>70	1	1	4	-	2	-	2	10
Total	80	40	155	35	4	1	15	330

NHL: NonHodgkins lymphoma, HL: Hodgkins lymphoma

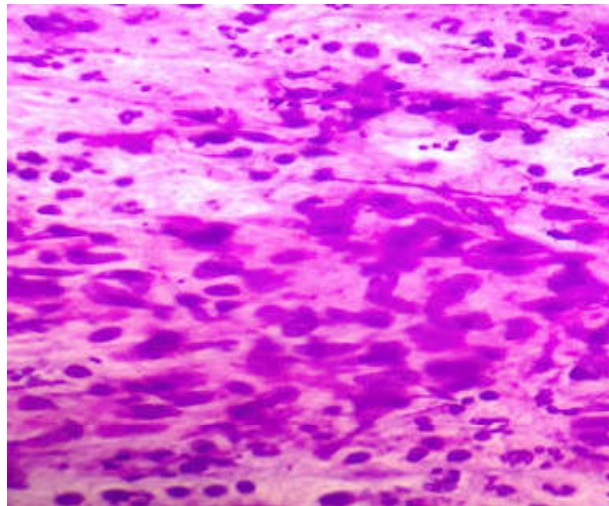


Fig. 1: Clusters of epithelioid histiocytes, lymphocytes, degenerated polymorphs against necrotic background suggesting granulomatous inflammation. (Hematoxylin and eosin stain, 400X)

Discussion

FNACs were done in 350 cases who presented with enlarged cervical lymph nodes. Inadequate aspirates

were seen in 20 cases.

Age: In the present study most of the cases (33.3%) were in the 21- 30 years age group which compares well with the study by Kumar et al [10] and More et al [11] where they also observed maximum cases affected by cervical lymphadenopathy in 21-40 and 21-30 years age. Shakya et al [12] and Balkishan et al [13] also observed more cases in the third decade. On the contrary, Nirmala et al [14] observed slightly more number on cases in the 11-20 years age group.

Gender: In the present study there were more males patients and the overall male to female ratio was 2.3:1. In the study by Kumar et al [10] also there were 59% males and 41% females. Qadri et al [15] reported slight male predominance for cervical lymphadenopathy and the male to female ratio in their study was 1.5:1. Shakya et al [12] and Nirmala et al [14] also observed a slight male predominance. On the contrary More et al [11] has reported slight female predominance as 1:1.7 ratio.

Presentation: In the present study all the patients had presented with swelling in the cervical region that was associated with or without pain. Khan et al [16] and Desai et al [17] also in their studies found that 100% of their patients presented with swelling in

cervical region.

Site of Involvement: In the present study anterior cervical lymph nodes were most commonly affected (84.8%) followed by submental nodes (6%). This compares well with the findings of More et al [11] who observed 82.5% in cervical nodes, 7% in submandibular nodes and 1% in submental nodes.

Cytological Diagnosis: In the present study the most common diagnosis was of chronic granulomatous lymphadenitis of possibly tuberculous etiology (46.9%) followed by reactive nodal hyperplasia. In the study by Balkishan et al [13] also tuberculous etiology contributed to 74% cases. In our study most common age for TB lymph nodes was 21-40. Balkishan et al [13] also reported 72.4% of TB lymph node cases in the 21-40 years age. Narang et al [18] observed mean age

for TB as 25 years. In our study metastatic deposits were found in 4.5% cases, whereas, in the studies of Balkishan et al [13] and Ahmed et al [19] it was 10% and 12% respectively. Balkishan et al [13] have reported metastatic disease in nodes commonly above 40 years and this compares well with our study. There was a single case of Hodgkins disease in our study in the age group of 41-50 years. Ramani et al [20] have reported the median age of Hodgkins disease in India to be 34 years. Other Indian authors [13] found Hodgkins disease commonly in the 31-40 years group.

More et al [11] showed benign lymphadenopathies 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%. Our findings compare well with the above observations.

Table 5: Comparison of present study with other studies for cytological evaluation of lymph nodes

	Reactive LN	Acute suppurative LN	TB LN	Chronic Non specific LN	NHL	HL	Metasatic deposits	Chronic granulomatous LN	Total
Shakya et al [12]	256 (50.4%)	63 (12.4%)	114 (22.4%)	-	8 (1.6%)	2 (0.4%)	14 (2.8%)	51 (10%)	508
Kumar et al [10]	95 (44.3%)	-	102 (47.6%)	-	9 (4.2%)	-	6 (2.8%)	2 (0.93%)	214
Kochhar et al [21]	33 (24.4%)	5 (3.7%)	52 (38.5%)	-	3 (2.2%)	-	49 (30.3%)	-	90
Present study	80 (24.2%)	40 (12.1%)	155 (46.9%)	35 (10.6%)	4 (1.2%)	1 (0.3%)	15 (4.5%)	-	330

LN: Lymph node

Conclusion

Fine needle aspiration cytology of lymph nodes is a simple and very useful procedure in the diagnosis of cervical lymphadenopathies. It is the initial procedure for diagnosis of infectious diseases such as tuberculosis which is common in our country. FNAC obviates the need for surgical biopsy procedure thereby saving cost and time to the patients.

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