



ORIGINAL RESEARCH PAPER

Pathology

PAEDIATRIC LYMPHADENOPATHY- A FINE NEEDLE ASPIRATION STUDY

KEY WORDS: FNAC, paediatric, lymphadenopathy

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ABSTRACT

INTRODUCTION: Lymphadenopathy is one of the common conditions encountered in clinical practice and always poses a diagnostic dilemma for the paediatricians. FNAC proved to be a very useful tool in separating benign lesions from malignant. Correlation of cytodiagnosis with clinical features is recommended before the biopsy of lesion.

AIM AND OBJECTIVES: To study the cytological features of paediatric lymphadenopathy, to correlate clinical findings and manifestations with cytological diagnosis and to evaluate the role of FNA as a diagnostic and/or supportive investigation.

METHODOLOGY: 101 children with clinical significant lymphadenopathy, aged upto 15 years were studied. The smears were stained by Giemsa, H& E and/or Papanicolaou .Stain for AFB was done when required.

RESULT: Aspirated material in 14 cases (13.8%) was deemed inadequate for cytological diagnosis. Reactive lymphadenopathy was the most common lesion followed by granulomatous lymphadenitis. No complications were encountered

CONCLUSION: FNAC emerged as a safe and reliable diagnostic procedure in paediatric age group and would better define the appropriate duration of follow up before a biopsy is recommended.

INTRODUCTION

Lymph node enlargement is a common clinical finding in paediatric practice. Normal lymph nodes vary in size, depending on both the age of the patient and location of the nodes. Lymph node enlargement may represent the normal age related physiological changes or transient response to various benign local or generalized infections. In developing countries like India, acute upper respiratory infections, suppurative skin infections and tuberculosis are the major causes for regional lymphadenopathy.^{1,2}

FNAC is often the first line of investigation used in case of lymphadenopathy to differentiate between malignancies and benign infections, particularly to ameliorate parental anxiety and guide clinical management. However, when supplemented with ancillary techniques like IHC and gene rearrangement the accuracy of diagnosis can be increased to the same level as histopathology.^{3,4}

FNAC is easy to perform, economical, quick, inexpensive, doesn't require anesthesia and produces useful data for patient management so as to avoid surgical procedure, specially in developing country like India with economic constraints.^{5,6}

AIMS AND OBJECTIVE

1. To study the cytological features of paediatric lymphadenopathy.
2. To correlate clinical findings and manifestations with cytological diagnosis.
3. To evaluate the role of FNA as a diagnostic and/or supportive investigation.

METHODOLOGY

This study was carried out on 101 children with clinically significant lymphadenopathy, aged upto 15 years. Informed consent was taken from parents. Aspiration was done using a 23G needle attached to a 5ml disposable syringe. The gross appearance was noted and the aspirate was smeared. The smears were air dried and/or fixed in 5% ethyl alcohol and stained with Giemsa, H &E and/or Papanicolaou stain. Stain for AFB was done when required. The smears were examined in detail and cytodiagnosis was rendered.

RESULTS

A total of 101 cases were studied. The adequate aspirates

were obtained in 87 cases, while 14 cases were inadequate. Inadequacy was attributable to haemorrhagic aspirate alone or cytologically inconclusive cellular aspirate. In maximum number of cases 3 stains were done. Staining for AFB was done when clinical diagnosis of tuberculosis was suspected or made.

Maximum cases were in the age range of 11-15 years. The M:F ratio was 0.89:1. Fever with upper respiratory tract infection was the most common presenting symptom and fever alone was the most common sign. Most cases had lymphadenopathy for the duration of 0-6 months.

Table 1: Distribution Of Cases According To The Site Of Lymphadenopathy

S.No	SITE OF LYMPHADENOPATHY	No. Of Cases	Percentage
1.	Submandibular	9	10.34
2.	Submental	7	8.04%
3.	Supraclavicular	1	1.40%
4.	Inguinal	3	3.44%
5.	Axillary	6	6.89%
6.	Cervical	61	70.10%
7.	Total	87	100

Cervical lymph nodes were the most common site aspirated.

Table:2 Distribution Of Cases According To The Cytological Diagnosis

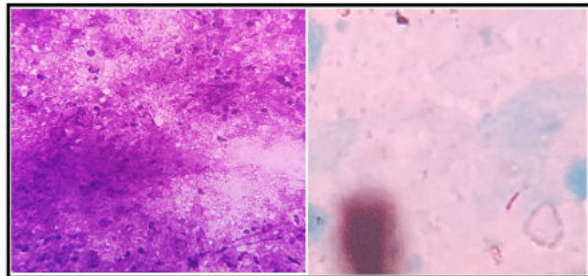
S. No	SITE OF LYMPHADENOPATHY	No. Of Cases	Percentage
1.	Reactive	51	58.60%
2.	Suppurative	11	12.60%
3.	Hodgkin lymphoma	2	2.20%
4.	NHL	3	3.44%
5.	Granulomatous	17	19.50%
6.	Others	3	3.44%
7.	Total	87	100

Reactive lymphadenitis was the most common lesion and was encountered most commonly in the age group of 11-15 in cervical lymph nodes.

Other lesions include 1 case of BCG lymphadenitis and 2 case of pleomorphic adenoma of submandibular gland.

Gross appearance and Cytological features of reactive lymphadenitis: Polymorphous lymphoid population with or without tingible body macrophages and lymphohistiocytic aggregates were seen. Mitosis was noted in few cases. No characteristic gross appearance was noted.

Gross appearance and Cytological features of suppurative lymphadenitis: Gross appearance was usually purulent. Acute inflammatory infiltrate in a necrotic background was seen microscopically.



Gross appearance and cytological features of granulomatous lymphadenitis: Blood mixed aspirates often revealed granulomas with necrosis as compared to caseous material which mainly revealed necrosis along with higher AFB detection. AFB was detected in 8 out of 17 (47.05%) granulomatous lymphadenitis cases.

On the basis of chest x ray, mantoux and serological tests, 5 cases were clinically diagnosed as tubercular lymphadenitis which were in complete concordance with our cytomorphological diagnosis having positive stain for AFB.

Gross appearance and cytological features of Hodgkin lymphoma: Reed Sternberg cells and variants were seen in the background of lymphoplasmacytic cells and eosinophils. Out of 2 HL cases 1 case having popcorn variant of RS cell was confirmed on histology as mixed cellularity subtype of classical HL. No characteristic gross appearance was noted.

Gross appearance and cytological features of Non Hodgkin lymphoma: Majority of aspirates were grayish white in appearance. Cellular morphology corresponds to the subtype of non Hodgkin lymphoma. None of the case show peripheral leukemia.

Problem Area

1. On aspiration cytology, HL may show polymorphous population as do TB and reactive hyperplasia. Therefore presence of RS cells is mandatory for making a diagnosis of HL.
2. The cytomorphological features are similar in BCG and TB lymphadenitis enforcing a proper history taking to differentiate the two entities for proper treatment protocol.
3. Aspiration is difficult in crying and squirming childrens.

Complications

No complications were encountered in our study.

DISCUSSION

In present study ,the overall adequacy rate was 13.8% which was similar to the studies done by Steel LB et al⁽⁷⁾ reporting 10.9% adequacy rate and Buchino JJ et al⁽⁸⁾ reporting 10.6% adequacy rate. Uncooperative behavior of children could be a possible reason of inadequacy in our study.

In our study sex ratio and age distribution were not significantly different from the study done by Locham KK et al⁽⁹⁾.

In our study, cervical nodes were enlarged in 70.1% of cases which is in concordance with the study done by Al-Nazeer M

et al⁽¹⁰⁾ showing cervical lymphadenopathy in 71.8% of cases. In present study, reactive lymphadenitis was seen in majority of cases (58.6%) which correlate with the studies done by Al-Nazeer M et al⁽¹⁰⁾ and Reddy MP et al⁽¹¹⁾ reporting 52% and 54% of reactive lymphadenitis cases respectively also the cytomorphological features seen were in concordance with those reported by Gupta AK et al⁽¹¹⁾.

In our study, supportive lymphadenitis was seen in 11(12.64%) of cases which correlate with the studies done by Buchino JJ et al⁽⁸⁾ reporting 10% of cases and the cytomorphological features seen were in concordance with those reported by Handa U et al⁽¹²⁾.

In present study, granulomatous lymphadenitis was seen in 17(19.5%) of cases which correlate with the studies done by Lochem KK et al⁽⁹⁾ reporting 23% of cases and the cytomorphological features seen were in concordance with those reported by Handa U et al⁽¹²⁾.

In our study, lymphoma was seen in 5 (5.74%) of cases which correlate with the studies done by Buchino JJ et al⁽⁸⁾ reporting 4.5% of cases. The cytomorphological features of Hodgkin lymphoma seen were in concordance with those reported by Gupta AK et al⁽¹¹⁾ Subtyping of non Hodgkin lymphoma could not be done on the basis of morphology alone in absence of immunohistochemistry. However, on the basis of relative proportions of neoplastic and non neoplastic cells, Hodgkin lymphoma can be subclassify. Similar findings were reported by Das DK et al⁽¹³⁾.

CONCLUSION

We conclude that FNAC even in absence of ancillary techniques, is a reliable, cost effective and simple method accepted by patients and attendants as it is free of complications, for diagnosing lymphadenopathy in paediatric cases which is mostly transitory and benign.

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