



FNAC OF NORMAL SIZE PAEDIATRIC LYMPH NODES: IS IT JUSTIFIED?

Gaurav Jain[†] --- Deepti Kalita² --- Leela Pant³ --- Sompal Singh⁴

¹Senior resident, Pathology, Hindu Rao Hospital, India

^{2,3,4}Specialist, Pathology, Hindu Rao Hospital, India

ABSTRACT

This study was performed to assess utility of FNAC in normal size paediatric lymph nodes and to compare cytological findings in these normal size lymph nodes with enlarged lymph nodes. Two years retrospective study included all paediatric (age ≤ 14 years) patients referred to our department of cytopathology, for fine needle aspiration of lymph node swellings. Total 1524 lymph node FNAs were performed in 2011-12. Among these 484 (31.8%) were paediatric cases and were included in the study. Out of these cases 293 (60.5%) were normal by size and 191 (39.5%) were enlarged lymph nodes. It was observed that fine needle aspiration is more useful in large lymph node lesions than normal size lymph nodes for specific diagnosis. Still owing to small but finite possibility of finding specific lesions in normal sized lymph nodes, cytological examination of these cases is still recommended.

Keywords: Paediatric lymphadenopathy, Normal size lymph nodes.

Received: 5 January 2015/ **Revised:** 2 February 2015/ **Accepted:** 6 February 2015/ **Published:** 12 February 2015

Contribution/ Originality

The paper's primary contribution is finding that cytological examination of normal size palpable paediatric lymph nodes is advisable owing to small but finite possibility of finding specific lesions.

1. INTRODUCTION

Paediatric lymph nodes of size less than 1 cms for cervical, less than 1.5 cms for inguinal and less than 0.5 cms for supra-clavicular regions are considered normal size. Hal and Robert [1] Many a times, such palpable lymph node swellings whether normal in size or enlarged, are subjected to fine needle aspirations. Common indication in such cases is strong clinical suspicion of tuberculosis. FNAC is considered fairly accurate in their diagnosis. [2, 3] This study was

[†] Corresponding author

© 2015 Conscientia Beam. All Rights Reserved.

performed to observe cytological findings in normal sized lymph nodes with respect to enlarged lymph nodes.

1.1. Aim

To study and compare spectrum of cytological lesions observed in normal and enlarged paediatric lymph nodes and to assess utility of FNAC in normal size lymph node.

2. MATERIALS AND METHOD

Two years retrospective study was done from 1st January 2011 to 31st December 2012, including all paediatric (age \leq 14 years) patients referred to department of cytopathology, Hindurao hospital for fine needle aspiration of lymph node swellings. Cases which yielded non-lymphoid diagnosis were excluded from the study. Data was compared and p value calculated by using student t test.

3. RESULTS

Total 1524 lymph node FNAC were performed in this two years period, out of which paediatric lymph node cases were 484 (31.8%). Among these, 293 (60.5%) cases were normal by size and 191(39.5%) were enlarged lymph nodes. Most common lymph node group assessed was cervical group followed by axillary, inguinal and others comprising of 452(93.4%), 17(3.5%), 12(2.5%) and 3(0.6%) cases respectively. Spectrum of lesions observed in both normal size and enlarged lymph nodes is as shown in table 1.

Table-1. Spectrum of lesions observed in normal size and enlarged lymph node groups with p values

Cytological diagnosis	Enlarged lymph node group (n=191)	Normal size lymph node group (n=293)	p value
Reactive	78 (40.8%)	242 (82.6%)	<0.0001
Tuberculosis	51 (26.7%)	07 (2.4%)	<0.0001
Granulomatous lesion	27 (14.1%)	18 (6.1%)	0.005
Acute inflammatory lesion	32 (16.7%)	14 (4.8%)	<0.0001
Unsatisfactory	01 (0.5%)	12 (4.1%)	0.0349
Lymphoproliferative neoplasm	02 (1.2%)	Nil	0.2293

4. DISCUSSION

Paediatric lymphadenopathy is a commonly encountered condition; primary purpose of performing FNA in these patients is to diagnose specific pathology like tuberculosis. Fear of needles in children makes such aspiration procedures difficult to perform, more so with smaller size lymph nodes.

To the best of our knowledge, size of the lymph node and its effect on spectrum of cytological diagnosis has not been reported in the literature till date.

The maximum number of cases (93.4%) in the present study involved the cervical group of lymph nodes as observed by other studies from India. [Dhingra, et al. \[4\]](#) This could be attributed

to the predominant population being from the low socio-economic group. As they have a high incidence of oro-pharyngeal, dental and scalp infections which results in enlargement of the cervical lymph nodes, draining the above regions and manifesting with reactive lymphadenitis.

Overall, inflammatory lymphadenopathy comprised 96.9% of the total lesions observed; it included 66.1% cases of reactive hyperplasia, 12.0% cases of tubercular lymphadenitis, 9.3% cases of granulomatous inflammation and 9.5% cases of acute nonspecific lymphadenitis. Malignant lesions were seen in 0.4% of the patients. These findings are in agreement of those reported by Locham et al, who diagnosed reactive hyperplasia in 68% cases, tubercular lymphadenopathy in 29% cases and malignancy in 3% cases. locham [5], Sankaran, et al. [6] also observed lymphoid hyperplasia as the most common condition in benign lesions, followed by tuberculosis. Sankaran, et al. [6] Jain et al reported 1.8% malignant cases in their study. Jain, et al. [7] Incidence of reactive hyperplasia, tuberculosis and acute inflammatory lesion incidence observed in the study is comparable to other similar studies.

This two years retrospective study shows almost similar spectrum of lesions in both normal size and enlarged lymph node groups, but with statistically significant difference in proportions of the cytological diagnosis. Majority of normal size lymph nodes showed reactive cytological appearance which could be due to concurrent non-specific bacterial infection or due to aspirations performed before development of specific findings.

Diagnosis of tuberculosis was observed almost ten times more often in enlarged lymph node group as compared to normal size lymph node group; 26.7% vs 2.4%. This finding not only shows increased probability of finding tuberculosis in enlarged lymph nodes but also highlights reduced but definite probability of such specific diagnosis even in normal size lymph nodes.

Diagnosis of Lymphoproliferative neoplasm was not observed in normal size lymph node group. Both the cases diagnosed as malignant (lymphoblastic leukemic) had size more than 3 cms and peripheral smear showing features of acute lymphoid leukaemia. It can be reliably stated that malignancy is noted in large size nodes only. This finding has been observed by Oguz et al and Yaris et al as well. [8, 9]

Unsatisfactory aspirations were more common on normal size lymph node group in comparison to enlarged lymph node group (4.1% vs 0.5%), this can be explained by difficulty encountered in performing fine needle aspirations in smaller size lymph nodes of children.

5. CONCLUSION

Non-specific reactive hyperplasia is seen less often and specific diagnosis like tuberculosis is seen more often, with large sized lymph nodes as compared to normal size lymph nodes in paediatric population, still there is definite use of performing Fine needle aspiration in normal size lymph nodes owing to few cases which can be specifically diagnosed.

Funding: This study received no specific financial support.

Competing Interests: The authors declare that they have no competing interests.

Contributors/Acknowledgement: All authors contributed equally to the conception and design of the study.

REFERENCES

- [1] B. J. Hal and S. B. Robert, *Lymphadenopathy. In: Kleigman RM, Marcante KJ, Jenson HB, Behrman RE, editors. Nelson essentials of pediatrics*, 6th ed. Philadelphia: Elsevier Saunders, 2010.
- [2] J. Byun, B. Choe, and J. Hwang, "Diagnostic effectiveness of fine needle aspiration cytology on pediatric cervical lymphadenopathy," *Korean J. Pediatr*, vol. 49, pp. 162-166, 2006.
- [3] E. Chu and R. Hoye, "The clinician and the cytopathologist evaluate fine needle aspiration cytology," *Acta Cytological*, vol. 21, pp. 413-417, 1973.
- [4] V. Dhingra, V. Misra, and R. Mishra, "Fine needle aspiration cytology (Fnac) as a diagnostic tool in pediatric lymphadenopathy," *Journal of Clinical and Diagnostic Research [Serial Online]*, vol. 4, pp. 2452-2457, 2010.
- [5] K. locham, "Lymphadenopathy in children role of fnac," *Journal of Cytology*, vol. 19, pp. 183-186, 2002.
- [6] V. Sankaran, R. Prasad, and R. Narasimhan, "Fine needle aspiration cytology in the diagnosis of superficial lymphadenopathy. An analysis of 2,418 cases," *Diagn Cytopathol.*, vol. 15, pp. 382-16, 1996.
- [7] M. Jain, D. Majumdar, and K. Agarwal, "Fine needle aspiration cytology as a diagnostic tool in pediatric head and neck lesions," *Indian Pediatrics*, vol. 36, pp. 921-923, 1999.
- [8] O. Aynur, T. Ceburu Atike, and C. Elvan Caglar, "Evaluation of peripheral lymphadenopathy in children," *Pediatric Hematology and Oncology*, vol. 23, pp. 549-561, 2006.
- [9] N. Yaris, M. Cakir, and E. Sözen, "Analysis of children with peripheral lymphadenopathy," *Clin Pediatr (Phila)*, vol. 45, pp. 544-549, 2006.

Views and opinions expressed in this article are the views and opinions of the author(s), International Journal of Medical and Health Sciences Research shall not be responsible or answerable for any loss, damage or liability etc. caused in relation to/arising out of the use of the content.