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Pathology

FINE NEEDLE ASPIRATION CYTOMORPHOLOGICAL SPECTRUM (FNAC) OF PERIPHERAL LYMPH NODE LESIONS AT A TERTIARY CARE TEACHING MEDICAL COLLEGE & HOSPITAL

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ABSTRACT **INTRODUCTION:** Peripheral lymhadenopathy is common presentation of inflammatory and neoplastic lesions.FNAC is one of the first-line investigations of management for the evaluation of lymphadenopathy.Enlargement of Lymph node is seen in variety of reactive inflammatory to neoplastic conditions related to regional or systemic diseases. It is very useful, easy, rapid, minimal invasive, cost effective and accurate approach in diagnosing various lymph node lesions and helpful in the workup of management of patients with nodal enlargement.

METHODS: A total of 175 patients were included in our study Department of Pathology, referred from the department of ENT, Medicine, Paediatrics, Surgery, Respiratory Medicine and Tuberculosis of Karpaga Vinayaga Hospital in the period from January 2017 to Dec 2018. Alcohol fixed and air dry smears were prepared and stain with H&E, PAP, and MGG. The special stain like PAS, ZN (20%) etc were done whenever required.

RESULTS: In present study total 175 cases of lymphadenopathy were studied. The presentation of various lymph node lesions on cytomorphological findings were Acute non-specific lymphadenitis cases were 5 (**2.85**%), Chronic non-specific lymphadenitis cases were 11 (**6.28%**), Granulomatous lymphadenopathy cases were 6 (**3.42**%), Tuberculous lymphadenitis cases were 60 (**34.28**%)' Reactive lymphadenitis cases were 48 (**27.42**%), Metastasis to lymph node cases was 36 (**20.57**%), Lymphoma cases were 9 (**5.14**%). Unsatisfactory smears(11) were excluded from the study. The detailed clinical material data, relevant investigations were taken for supporting the diagnosis.

CONCLUSION: Cytomorphological features of lymph node FNAC, used in conjunction with clinical details, laboratory test investigations, radiology imaging study will be very helpful for diagnosing various disorders. It will be rapid, cost effective, safe, and reliable method for early diagnosis and treatment of the patients

KEYWORDS : Peripheral Lymphadenopathy, Cytomorphology, FNAC, Rapid Diagnosis.

INTRODUCTION

Lymph nodes are encapsulated organ of the antigen presentation and lymphocyte activation, proliferation and differentiation. They generate mature antigen primed B and T lymphocyte and filter particles including microbes from the lymph by the action of phagocytosis by numerous macrophages[1,2]. Fine needle aspiration cytology (FNAC) is the study of cells and other tissue components obtained by sampling of a palpable superficial lesion or radiologically localized deep seated lesion through a small gauge needle.

FNAC is used routinely as a common first line of investigation in the evaluation of patients with lymphadenopathy. Enlarged lymph nodes are one of the oldest indications for FNAC. This diagnostic method has gained considerable very important in the management of patients with lymphadenopathy over many years [3,4]. Lymphadenopathy is one of the commonest clinical presentations of all age groups attending Out Patient Departments. The etiology can vary from an inflammatory process,benign to a malignant condition[3].

Lymphadenopathy is one of the most common clinical manifestations of the patient. The etiology varies from an inflammatory, benign to malignant conditions. Different patterns observe in fine needle aspiration cytology aspirates should be properly evaluated for making preliminary and definite diagnosis or to give suspicious of particular disease condition[5]. FNAC is routinely performed as primary diagnostic work-up. It also helps in preliminary diagnosis, recurrent disease, staging in neoplastic conditions and to obtain material for ancillary work up studies [6,7,8,9]. FNAC helps in early, rapid diagnosis and an early differentiation of benign and malignant lesion with minimal intervention and prevent patients from undergoing unnecessary surgery. [6,7,8,9]

The present study was undertaken to find out cytomorphological features with spectrum of peripheral lymph node lesions evaluated with its clinical correlation. The aim of our study to evaluate the diagnostic role of FNA in patients with lymphadenopathy and to study the cytomorphological spectrum associated with lymphadenopathy.

MATERIAL AND METHODS

A total of 175 patients were included in our study Department of Pathology, referred from the department of ENT, Medicine, Pediatrics, Surgery, Respiratory Medicine and Tuberculosis of Karpaga Vinayaga Hospital in the period from January 2017 to Dec 2018. Inclusion Criteria: 1) All patients clinically diagnosed with lymphadenopathy were included. 2) Palpable or accessible lymph nodes measuring >0.5cm in diameter were aspirated. Exclusion Criteria: 1) Inadequate material aspirated. 2) Blood only aspirated. 3) Any swelling clinically or radiologically considered to be lymph node, but turned out to be something else were excluded.

The clinical materials details and protocol of each case was prepared. Informed written consent from the patient was taken. The FNAC was performed using sterile, disposable 22 gauge needle with 10 ml syringe. Alcohol fixed and air dry smears were prepared and stain with H&E, PAP, MGG. The special stain like PAS, ZN (20%) etc were done whenever required. Smears were analyzed by cytopathologist and lesions were categorized.

STATISTICAL ANALYSIS

The data was analysed and final results were listed according to frequency and gender. Data was expressed in percentages.

RESULTS

Table.1. Cytomorphological patterns of lymphadenopathy cases

Cytological diagnosis	Frequency	%
Acute non-specific inflammation	5	2.85%
Chronic non-specific inflammation	11	6.28%
Granulomatous lymphadenopathy	6	3.42%
Tuberculous lymphadenopathy	60	34.28%
Reactive hyperplasia	48	27.42%
Metastatic to lymph node	36	20.57%
Lymphoid malignancy	9	5.14%
Total	175	

Table.2.Age distribution of lymphoadenopathy cases

Age (Years)	Lymphadenopathy cases	%
<10	10	5.71%
11-20	18	10.28%
21-30	36	20.57%
31-40	30	17.14%
41-50	20	11.42%
51-60	25	14.28%
61-70	28	16.00%
More than 70	8	4.57%
TOTAL	175	

Table.3. Sex wise distribution of lymphadenopathy cases

Male cases	Female cases	M:F Ratio
105	70	1.5:1

Table.4. Site wise distribution lymphadenopathy cases

Site	Lymphadenopathy cases	%
Cervical	156	89.14%
Axillary	15	8.57%
Inguinal	4	2.28%

In this study total 175 cases of lymphadenopathy were studied. The spectrum of various lymph node lesions on cytomorphological findings were (Table 1); Acute non-specific lymphadenitis cases were 5(2.85%), Chronic non-specific lymphadenitis cases were 11 (6.28%), Granulomatous lymphadenopathy cases were 6 (3.42%), Tuberculous lymphadenitis cases were 60 (34.28%)' Reactive lymphadenitis cases were 48 (27.42%), Metastasis to lymph node cases was 36 (20.57%), Lymphoma cases were 9 (5.14%). Unsatisfactory smears $_{11}$ cases were excluded from the study. The detail clinical data with relevant investigations were taken for supporting the diagnosis. The histopathological study correlation was done wherever lymph node biopsy was done.

DISCUSSION

FNAC is commonly & widely used diagnostic method for the assessment of various nonneoplastic and neoplastic lymphoid lesions. FNAC is replacing excisional lymph node biopsy now a days. The clinical findings with cytomorphological features were correlated to give patterns of lymph node lesions, which will guide to clinicians in accurate & early rapid diagnosis and treatment of the patients. In our study we have presented 175 cases of lymphadenopathies. In present study of lymphadenopathy the age range from 01 years to 81 years. In which maximum number of cases was in age group were between 21-30 years of age (Table 2). In our study male to female ratio was 1.5:1 (Table.3). The cervical group of lymph node was most common involved in lymphadenopathy cases. (Table 4). Tuberculous lymphadenitis 60 cases (34.28%) was the most common cause of lymphadenopathy followed by reactive lymphadenopathy 48 (27.42%). In Indian population tuberculous lymphadenopathy remains the most common cause for superficial lymphadenopathy, [9-11] while it is very low (1.6%) in developed countries. The tuberculous lesions were confirmed on various cytomorphological features. The ZN stain (20%) was done to demonstrate acid fast bacilli (AFB) in smears. Other relevant clinical findings data, laboratory test investigations, radiological investigations findings were taken for supporting diagnosis of tuberculous lymphadenitis. The other granulomatous lymphadenitis 6 (3.42%) were categorized according to their etiology and separated from tuberculous lymphadenitis. The cervical group of lymphadenopathy were most common involved in metastatic lesions. [12] Metastatic carcinoma was observed in 36 cases (20.57%) in our study. Metastatic lymphadenopathy reported cases by Ghartimagar et al showed 18%[13] & Patel MM et al, 27.06% [14].

The lymphoid malignancies were noted in 09 cases (5.14%) on aspiration. These cases were confirmed on lymph node biopsies and relevant investigations. Reactive hyperplasia related lymphadenopathy was noted in 48 cases (27.42%) in our study. The study by Khan A et al [15] showed 28%, Javed et al [16] 16.66% cases.

In patients were received medical line of treatment (especially antibiotics) and they respond to it, still lymphadenopathy persist, repeat FNAC was performed. The cases of acute non-specific lymphadenitis were 5 (2.85%) in our study. These cases were mostly showed suppurative inflammation which was other than tuberculous etiology. The purpose of this study was to investigate different pattern of lymphadenopathy among the patients presented to our tertiary care hospital. This will be helpful for efficacy of fine needle aspiration cytology in early diagnosis and better care of the patient.

CONCLUSION

Lymphadenopathy occurs as a commonly response to a new antigen and may occur due to inflammatory conditions, as well as primary and secondary neoplasms. The specific management therapy can be started by the clinician when an early, rapid and accurate diagnosis is made on time, thus reducing morbidity and mortality. Cervical group of lymphadenopathy is the most common presentation in both benign and malignant conditions. Nonspecific reactive lymphadenitis is the most common benign pathology associated with enlarged lymph nodes whereas metastasis is the most common malignant condition. FNAC not only offers tissue diagnosis but is also considered as a preliminary screening procedure for a number of clinical diagnosis like lymphoma, leukemia, metastasis, tuberculosis and lymphadenopathy, not otherwise specified (NOS). The decision regarding biopsy from appropriate sites, if necessary, can be done to confirm the diagnosis. The sensitivity and specificity of FNAC is is 100% and 95% respectively with lot of various other advantages like early, rapid diagnosis, reliable, repeatability, less traumatic, minimal complication, economical and convenient and 100% correlating with histopathology study in malignant lesions

Cytomorphological features of lymph node FNAC, used in conjunction with clinical details, laboratory test investigations, radiology imaging study will be very helpful for early,rapid diagnosing various disorders. It will be safe, cost effective and reliable method for early diagnosis and treatment of the patients

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REFERENCES

1. Dr. Vatsala Sharma, Dr. Parveen Shah, Dr. (Brig) Vinod Raghava, Dr. Uma Sharma, Cytomorphological Spectrum of Lymph Node Swellings:A Tertiary Care Hospital Study in Gurugram; IOSR-JDMS; 2279-0853,Volume 17, Issue 1 Ver. 13 January. (2018), PP 56-59
2. Caroline W. Cells, Tissues and systems. In: Susan S, editor. Gray's anatomy, 40th ed. London: Churchill Livingstone; 2009. P. 6680.
3. Ioachim HL, Medeiros JL. Ioachim's lymph node pathology, fourth edition, Lippincott Williams Wilkins, 2008.
4. Orell SR, Sterer GF, Whitaker D. Fine needle aspiration cytology, 4th edition, Chirchill Livingston, 2005; 1-8 and 83-124.
5. Hemalatha A, Udaya Kumar M, Harendra Kumar ML. Fine needle aspiration cytology of Lymph nodes: a mirror in the diagnosis of spectrum of lymph node lesion. J Clin Biomed Sci 2011;1,4:164-72.
6. Khillan R, Sidhu G, Abiotic C, et al. Fine needle aspiration cytology for diagnosis of cervical lymph adenopathy. Int J Hematol. 2012. 95:282-284.
7. Zeepa P, Marino G, Troncone G, et al. Fine needle cytology and flow cytometry, immunophenotyping and subclassification of non-hodgkinlymphoma: a critical review of 307 cases with technical suggestion. Cancer, 2004.102:55-65.
8. Sunil Vitthalrao Jagtap1, Swati Sunil Jagtap2, Vidya Chandrashekhar Aher, Ritvik Sanjay Khandelwal, Spectrum of Lymph Node Lesions on Fine Needle Aspiration Cytology: Study of 187 Cases at Tertiary Care Hospital, Int J Health Sci Res. 2015; 5(11):111-114
9. Paul PC, Goswami BK, Chakrabarty, et al. Fine needle aspiration cytology of lymph nodes- an institutional study of 1448 cases over five years period. J Cytology.2004;21:187-90.
10. Khajuria R, Gosswami KC, Singh K, et al. Pattern of lymphadenopathy on fine needle aspiration cytology in Jammu. JK Science,2006;8,3:157-159.
11. Bhaskaran CK, Kumar HG, Sreenivas M, et al. Fine needle aspiration cytology, review of 1731 cases. Indian J Pathol Microbiol.1990;33:387-99.
12. Gupta RK, Naran S, Lallu S, et al. The diagnostic value of fine needle aspiration cytology in assessment of supraclavicular lymph node: a study of 218 cases. Cytopathology, 2003; 14: 201-7.
13. Ghartimagar DG, Ghosh A, Ranabhat S, et al. Utility of fine needle aspiration cytology in metastatic lymph nodes. Jr of Pathology Nepal. 2011;1:92-5.
14. Patel MM, Italiya SL, Dhandha ZB, et al. Study of metastasis in lymph nodes in Fine needle aspiration cytology: our institutional experience review. International Journal of Research in Medical Sciences. 2013;1,4:451-4.
15. Khan AH, Hayat AS, Baloch CH, et al. Study of fine needle aspiration cytology in cervical lymphadenopathy. World Appied Sciences Journal. 2011;12(11):1951-54.
16. Javed M. Diagnostic value of fine needle aspiration cytology in cervical lymphadenopathy. J Postgrad Med Inst. 2006;20(2):117-20.