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Original Article

A Clinical Cytopathological of Lymphadenopathies in Malignant Lesions

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ABSTRACT

Background: To study the primary and secondary lymph node malignancy on Fine Needle Aspiration Cytology (FNAC).
Material and Method: A retrospective and prospective study of lymphadenopathy cases on FNAC reported in the Department of Pathology at our institute from October 2015 to May 2016.
Results: The total of 217 FNAC were done of enlarged lymph nodes. Metastases were seen in 70/217 cases (32.26 %), Primary lymphoid malignancies were seen in 10/217cases (4.61%). The non-neoplastic lesions were seen in 137/217 (63.13%) cases. The most common metastatic malignancy was squamous cell carcinoma (SCC) 42/70 cases (60%), followed by duct carcinoma 12/70 cases (17.14%), metastatic adenocarcinoma cases 10/70 (14.28%). The common site involved was cervical group of lymph node in 65/80 cases (81.25%) for lymph node malignancies.
Conclusion: FNAC of lymphadenopathy is a useful method for diagnosing primary and secondary malignancies of lymph node. In our study most common age group affected by malignant lesions was 61-70 years with male predominance. The most common metastatic lesion observed was squamous cell carcinoma. The cervical group of lymph node was the common site for metastatic lesions.

Keywords: Lymph node metastasis, Cytomorphology, Lymphadenopathy, Squamous cell carcinoma

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INTRODUCTION

Fine needle aspiration of lymph node has become an important diagnostic procedure for lymphadenopathies [1]. The proper clinical history, local examination, correct technique of aspiration and interpretation gives most valuable diagnosis, in primary and secondary malignant disorders involving lymph node[1]. FNAC is also useful for detection of recurrence and staging of disease for management purpose [2]. The aim of our study is to find out different malignancies in the enlarged lymph node among the study subjects.

MATERIALS AND METHODS

The study was conducted at our tertiary care hospital from October 2015 to May 2016. FNAC was performed at the Department of Pathology. The complete clinical data was noted. The patients having lymphadenopathies were taken for lymph node aspiration after written informed consent. FNAC was performed by using 22G needle and 10ml disposable syringe with all sterile techniques. Smears were air dried and stained with May-Grunewald-Giemsa while alcohol fixed smears was stained with hematoxylin and eosin, Papanicolaou stain. Wherever required Ziehl-Neelsen (ZN), Periodic Acid Schiff (PAS) stains etc were done. The detail reporting was done by cytopathologist. In required cases of primary lymphoid malignancy lymph node biopsy was performed and histopathological confirmation was done. All relevant investigations were taken into consideration for final diagnosis.

RESULTS

In our study total 217 cases of lymphadenopathies were aspirated. The cytomorphological features were studied. The lesions were analyzed. Out of these 217 cases 70 (32.25%) were diagnosed as metastatic to lymph node and 10 cases (4.61%) were of primary lymphoid malignancy (Table.1) and 137 (63.13%) were of non-neoplastic. The primary lymphoid malignancy cases were evaluated by lymph node biopsy and the histopathological confirmation was done. The site wise involvement of malignant lesion showed cervical group of lymph node was the commonest site (Table.2). The metastatic lesions (secondary) in lymph node were distributed according to their various cytomorphological features (Table. 3). Age wise distribution of secondary malignant lesion was shown in (Table. 4). In our study male predominance, with male: female ratio 1.8:1(Table. 5) was noted. While age and sex wise distribution with ratio of primary malignant lesion showing male predominance (M: F =2.3:1) was mentioned in table 6.

Table 1: Various types of lymph node lesion diagnosed on FNAC

Type of lesions on cytomorphological features	Number of cases	Percentage
Non neoplastic lesions	137	63.14
Metastatic to lymph node (Secondary)	70	32.25
Primary lymphoid malignancy(Suggestive of Lymphoma – NHL type)	10	4.61
Total cases	217	100

Table 2: Site wise distribution of malignant lesions (Primary and Secondary) in lymph node on FNAC

Site of lymph node	Number of cases	Percentage
Cervical	65	81.25
Axillary	12	15.0
Inguinal	03	03.75
Total	80	100

Table 3: Various types of secondary metastatic lesions in lymph node on FNAC

	Type of metastatic lesion in lymph node	Number of cases	Percentage
Metastatic	Squamous cell carcinoma	42	60.00
	Breast carcinoma (Duct carcinoma)	12	17.14
	Adenocarcinoma	10	14.28
	Undifferentiated/poorly differentiated carcinoma	03	04.28
	Transitional cell carcinoma	01	01.42
	Melanoma	01	01.42
	High grade sarcoma	01	01.42
Total cases		70	100

Table 4: Age wise distribution of secondary malignant lesions in lymph nodes.

Age (years)	Squamous cell carcinoma	Invasive breast carcinoma	Adeno-carcinoma	Undifferentiated/poorly differentiated carcinoma	Others
<10	-	-	-	-	-
11-20	-	-	-	-	-
21-30	1 (2.39%)	1(8.33%)	-	-	-
31-40	7 (16.70%)	1(8.33%)	1(10.00%)	1(33.33%)	-
41-50	4 (9.52%)	2 (16.66%)	3(30.00%)	2 (66.67%)	1(33.33%)
51-60	11(26.19%)	4 (33.33%)	2 (20.00%)	-	1(33.33%
61-70	14 (33.33%)	1 (8.33%)	4 (40.00%)	-	1 (33.34%)
>70	5 (11.90%)	3 (25.00%)	-	-	-
Total (70 cases)	42(60.00%)	12(17.14%)	10(14.28%)	3(4.28%)	3(4.28%)

Table 5: Sex wise distribution of secondary malignant lesions in lymph node on FNAC

	Squamous cell carcinoma		Invasive breast carcinoma		Adenocarcinoma		Undifferentiated/ poorly differentiated carcinoma		Others	
Sex	M	F	M	F	M	F	M	F	M	F
Cases	33	9	0	12	7	3	2	1	2	1
(70)	(47.14%)	(12.85%)		(17.14%)	(10.00%)	(4.28%)	(2.80%)	(1.42%)	(2.80%)	(1.42%)

Overall M:F ratio = 1.8 : 1

Table.6. Age and Sex wise distribution of primary malignant lesions in lymph node.

Age (years)	Non-Hodgkin-Lymphoma	
	Male	Female
<10	-	-
11-20	-	-
31-40	-	-
41-50	2(20.00%)	-
51-60	1(10.00%)	1(10.00%)
61-70	3(30.00%)	-
>70	1(10.00%)	2(20.00%)
Total cases	10	
Overall M:F ratio = 2.3:1		

DISCUSSION

Lymphadenopathy is a clinical manifestation of regional or systemic disease and serves as excellent clue about the underlying disease. For the initial diagnosis and management of patients with lymphadenopathy FNAC has become an integral part in clinical practice. As FNAC is simple technique, easily performed and is cost effective. The results can be given quickly and accurately. So the need for lymph node biopsy can be minimized [3, 4]. FNAC is reliable, sensitive diagnostic tools for lymphadenopathies in patients who are suspected for malignancy. The 90% of lymph node metastasis are diagnosed by initial aspiration.

In our study secondary malignant lesions metastatic were 70 out of 217 cases of lymph node aspiration study and primary lymphoid malignancy cases were 10 out of 217 (4.61%) cases (Table. 1) In our study most common age group affected by metastatic malignant lesions was between 61-70 years (Table 4). With male predominance, having male: female ratio 1.8:1(Table 5, 6) was noted. The similar findings were repeated by Pandav AB et al [5] study. The cervical group of lymph node was the common site in our study (Table.2) also similar site noted by Ghartimagar D et al [2].

In our study metastatic squamous cell carcinoma was the commonest finding showed 42/70 cases (60%) of metastatic lesions in lymph node (Table. 3). The smears showed tumor cells in sheets or singly scattered round to polygonal having dense eosinophilic cytoplasm with mild to severe pleomorphic nuclei. Individual cell keratinization and keratin material helps to differentiate squamous cell carcinoma [6]. The Alam K et al [7], Bagwan IN et al [6], Hoft S et al [8] studies noted squamous cell carcinoma being the most common histological type and cervical nodes was the most common group of nodes involved. In our patients tobacco use was noted in clinical history with mostly oral cancer as primary site. Males were more involved and had more squamous cell carcinoma. The other primary sites were esophagus, larynx, pharynx, and lung. The lymph node aspirate having extensive necrosis and cystic change might constitute diagnostic problems in cytology [9]. In such cases repeat aspiration or ultrasound guided aspiration might help.

In our study next common category was of metastatic breast (duct carcinoma) cancer, it showed 12/70 cases (17.14%) (Table.3).The axillary nodal metastasis was noted in all cases. The common malignancy was invasive breast carcinoma. All these cases received surgical treatment of modified radical mastectomy. The lymph nodes on histopathology all the cases showed metastatic duct carcinoma. Rathod KM et al [10] reported 10.72% cases of breast cancer metastasis to lymph node. In our institute it was observed that most of the malignancy patient

presented at advanced stage. In our study 10 out of 70(14.28%) cases of metastatic adenocarcinoma was noted (Table. 3). The primary site was from salivary gland, stomach, colon, lung, ovary etc. In addition to these there was one case of each having metastasis from malignant melanoma (Primary site was foot) to inguinal group of lymph nodes. Another case of high grade sarcoma (Calf muscle swelling) metastasis to inguinal group of lymph nodes and case of disseminated transitional cell carcinoma urinary bladder having inguinal group of lymph node metastasis was noted. Two cases with occult primary were positive for metastatic carcinoma cells in lymph node, however on extensive clinical search we could not find out primary site. The metastatic malignancies were common in Indian population with reported incidence varying from 65.7% to 80.4% [6,8] and lymphoma ranging from 2-15% [10, 11]. In our study there were 10 out of 217 cases (4.60%) cases of primary lymphoid malignancies. All were of Non-Hodgkin lymphoma .These cases were clinically correlated and confirmed with biopsy lymph node and immunophenotyping. On FNAC the diagnosis of lymphoma may be influenced by necrosis, fibrosis and smears having dual cellular morphology, such cases may lead to insufficient diagnosis. So, careful evaluation of such cases is essential. The FNAC is useful in evaluation of lymphoma has been recognized, but there are challenges in arriving at a diagnosis, even when modern techniques are used [12, 13].

When primary malignancy is known the cytomorphological features will help in diagnosing lymph node metastasis. The FNAC of palpable lymph node will act as first line of investigation and helpful tool for diagnosis of malignant lesions and to start early and appropriate management [14].

CONCLUSION

Fine needle aspiration of lymph node is an important diagnostic procedure for lymphadenopathies. Interpretation of cytomorphologic features in lymph node aspiration gives most valuable diagnosis in primary and secondary malignant disorders involving lymph node. For the diagnosis of lymphomas, it can suggest a preliminary diagnosis. In our study most common age group affected by malignant lesions was 61-70 years with male predominance. The most common metastatic lesion observed was squamous cell carcinoma. The cervical group of lymph node was common site for metastasis.

REFERENCES

1. Malakar D, Jajoo ILN. A clinical evaluation of fine needle aspiration cytology in the diagnosis of lymphadenopathy. Indian J Tuberculosis.1991; 38: 17-19.
2. Ghartimagar D, Ghosh A, Ranabhat S. Utility of fine needle aspiration cytology in metastatic lymph nodes. Journal of Pathology of Nepal.2011;1:92-95.
3. Howlett DC, Harper B, Quante M, Berresford A et al. Diagnostic adequacy and accuracy of fine needle aspiration cytology in neck lump assessment: results from a regional cancer network over a one year period. J Laryngol Otol. 2007;121(6):571-9.
4. Sun HB, Zheng XF, Zhang J. Diagnostic accuracy of fine needle aspiration biopsy of cervical lymph node: a study of 580 cases. 2008;37(10):693-7.
5. Pandav AB, Patil PP, Lanjewer DN. Cervical lymphadenopathy diagnosed by fine needle aspiration cytology: A study of 219 cases.Asian J Med Res.2012;1,3:79-83.
6. Bagwan IN, Kane SV, Chinoy RF. Cytologic evaluaton of the enlarged neck node: fine needle aspiration cytology utility in metastatic neck disease. Int J Pathol. 2007;6:2.
7. Alam K, Khan A, Siddiqui F, et al. Fine needle aspiration cytology, a handy tool for metastatic lymphadenopathy. Int J Pathol. 2010; 10:2.
8. Hoft S, Muhle C, Brenner W, et al. Fine needle aspiration cytology in head and neck cancer. J Nucl Med 2002.43:1585-90.
9. Mendon ME. Fine needle aspiration cytology of lymph node. Prog Diagn Cytol 1999;32:4532-6
10. Rathod KM, Shah ASA. A study of metastatic lesion of lymph node by fine needle aspiration cytology. Natl J Community Med. 2012;3(4):708-10.
11. Martin MR, Santosh GC. Fine needle aspiration cytology in the diagnosis of superficial lymphadenopathy: a 5 years Brazilian experience. Diag Cytopathol.2006;34:130-4.
12. Meda BA, Geisinger KR, Buss DH, et al. Diagnosis and subclassification of primary and recurrent lymphoma: the usefulness and limitations of combined fine needle aspiration cytology and flowcytometry. Am J Clin Pathol 2000;113:688-699.
13. Das DK. Value a limitations of fine needle aspiration cytology in diagnosis and classification of lymphomas:a review. Diagn Cytopathol.1999;21:2110-2119.
14. Wilkinson AR, Mahore SD, Maimoon SA. Fine needle aspiration cytology in the diagnosis of lymph node malignancies: A simple and sensitive tool. Indian Journal of Medical and Paediatr Oncology. 2012;33,1:21-24.