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Original Research Article

An Observational Assessment of the Metastatic Malignancy in Fine Needle Aspiration Cytology of Lymph Nodes

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Abstract

Aim: To detect and diagnose metastasis in lymph nodes.

Material & Methods: The prospective study of Fine needle aspiration cytology in Lymphadenopathies was conducted between over 5 months at Department of Pathology, Government Medical College, Bettiah, Bihar, India.

Results: Out of 31 cases of metastatic tumors, maximum no. of cases were metastatic squamous cell carcinoma (77.1%). In 20 cases out of 100 cases, histopathological confirmation was available**.**

Conclusions: Fine needle aspiration cytology of lymphadenopathy is a useful tool in diagnosing metastatic lesions with good certainty.

Keywords: Fine needle aspiration cytology, Lymphadenopathy, Metastasis

Introduction

FNAC is rapidly emerging as a useful tool in the diagnosis of metastatic lesions of lymph nodes. Fine Needle Aspiration Cytology (FNAC) is a reliable, simple, safe, rapid and inexpensive method of establishing the diagnosis of lesions and masses at various sites and organs. Lymphadenopathy in an adult patient may be the first presenting clinical sign of non-hematologic malignancy. [1]

FNAC has been used extensively for the diagnosis of primary and secondary malignant disorders involving lymphnode. [2] FNAC not only confirms the presence of metastatic disease, but also gives the clue regarding the nature and origin of primary malignancy, prognosis as well in the management of patient for staging purposes. FNAC is useful for the detection of recurrence and new metastasis. In developing countries, infective lymphadenopathy is quite common, mostly due to high prevalence of tuberculosis. However, still a large percentage of cervical lymphadenopathy in adults turn out to be malignant. [3]

Malignancies in lymph nodes in our country are predominantly metastatic in nature with an incidence varying from 65.7% [4] to 80.4% [5] and lymphomas range from 2% [6] to 15.3% [7] among lymph nodes aspirated from all sites. Although histopathological examination is considered to be gold standard in diagnosis

especially in lymphomas, FNAC maybe the only tool for diagnosis and further management of the patients in some cases of metastatic malignancy.

Malignancies in lymph nodes in our country are predominantly metastatic in nature with an incidence varying from 65.7% to 80.4% and lymphomas range from 2% to 15.3% among lymph nodes aspirated from all sites. [8] Thus, we aim to detect and diagnose metastasis in lymph nodes.

Material & Methods:

The prospective study of Fine needle aspiration cytology in Lymphadenopathies was conducted between over 5 months at Department of Pathology, Government Medical College, Bettiah, Bihar, India.

Total of 100 cases were studied during study period. Aspiration was done by using 22–24-gauge disposable needle and 10 ml syringe, and prepared slides were stained with May Grunwald Giemsa (dry fixation), Papanicolaou (wet fixation) and Hematoxylin and Eosin (wet fixation). Cytomorphological features like the overall cell population, predominant pattern was assessed by examination under low power. Then the individual cell morphology was studied under high power. Wherever necessary special stains like diastase resistant Periodic acid Schiff (PAS), cell block preparation and Immunocytochemistry was done. Final smear was reported after correlating the clinical data and other investigations.

Results:

As shown in Table 1, Out of 31 cases of metastatic tumors, maximum no. of cases was metastatic squamous cell carcinoma (77.1%).

As shown in Table 2, Metastatic tumors were common in cervical region (66 cases). Of these 66 cases, 64 cases were sub typed as Squamous cell carcinoma. 11 cases were aspirated from axillary region while 8 cases from inguinal region.

As shown in Table 3, In 20 cases out of 100 cases, histopathological confirmation was available

Table 1: Distribution of metastatic tumors on FNAC.

Metastatic tumors	No. of cases	%
Squamous cell carcinoma (SCC)	101	77.1
Adenocarcinoma (Adeno)	2	1.53
Papillary thyroid carcinoma (PTC)	1	0.76
Poorly differentiated carcinoma (Poorly diff.)	8	6.11
Germ cell tumors (GCT)	2	1.53
Malignant melanoma (Ma. mela)	3	2.29
Undifferentiated tumors (Undiff)	4	3.05
Mammary carcinoma (Mam ca)	10	7.63
Total	131	100

Table 2: Distribution of different sub types of metastatic tumors according to site of FNAC of lymph node.

Site	Metastatic tumors								Total
	SCC	Adenoca	PTC	Poorly diff	GCT	Ma.mela	Undiff	Mam ca	
Cervical	64	2	1	10	-	-	2	-	79
Axillary	-	1	-	1	-	-	-	0	11
Inguinal	2	-	-	1	1	2	2	-	8
General.	-	-	-	-	1	-	-	-	1
Total	66	3	1	12	2	2	4	3	100

Table 3: Correlation of cytological and histological diagnosis.

No. of cases	Cytological diagnosis	Histological diagnosis	Accuracy rate (%)
14	Mets. SCC	Mets. SCC	100
2	Mets. poorly diff. ca	Mets. poorly diff. ca	100
2	Mets. poorly diff. ca	Undiff. NPC	100
1	Mets. Mam. Ca	Mets. Mam. Ca	100
3	Mets. Mali. Melanoma	Mets. Mali. Melanoma	100
1	Mets. PTC	Mets. PTC	100
1	Mets. GCT	Mets. GCT	100

Discussion:

It is well known that FNAC can provide an accurate diagnosis in FNAC-reactive lymphoid hyperplasia, infectious disease, granulomatous lymphadenitis, and metastatic tumors, as well as assisting in the initiation of rapid treatment without the need for an excisional biopsy. [9]

When supported by clinical and radiological findings, FNAC is a diagnostic method that can prevent unnecessary surgery and distinguish with high accuracy between benign and malignant lesions. [10-11] Although FNA is a simple, fast, and inexpensive method to diagnose head and neck masses and is increasingly used in routine practice, histopathological evaluation is still considered to be the gold standard for the final diagnosis. [12]

Hafes et al. [13] reported that when the presence of atypical lymphoid cells was suspected, FP rates were high because they indicated the possibility of lymphoma, resulting in lower specificity (67.2%).

The incidence of metastasis was more in males (73.1%) as compared to females (26.8%), with male to female ratio 2.6:1. Male preponderance was noted in our study, which correlates with other studies of Khajuria et al and Pandav AB et al. [7, 14]

The primary sites identified in each lymph node group in our study correlated with other similar studies. [15] A full history, radiological investigations and immunohistochemistry in difficult cases may help to arrive at a definitive diagnosis. [16] Specialized investigations such as the combination of lymphosyntigraphy and ultrasonography guided FNAC's of sentinel lymph nodes in the head and neck area have been found to be good in picking up metastases in clinically undetectable lymph nodes. [17, 18]

Conclusion:

Fine needle aspiration cytology of lymphadenopathy is a useful tool in diagnosing metastatic lesions with good certainty.

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