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Study of metastatic malignancy in fine needle aspiration cytology of lymph nodes

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Abstract
Introduction: Fine Needle Aspiration Cytology (FNAC) of the lymph node is a widely applied technique for rapid and accurate diagnosis. It is minimally invasive, cost effective and widely accepted technique.
Aims and objectives: Categorization of various metastatic malignancies diagnosed on FNAC of lymph nodes and their correlation with addiction.
Materials and methods: Conducted on patients attending the cytopathology section of Pathology department of B. J Medical College, Ahmedabad in between January 1st, 2019 and August 31st, 2019. Addiction history was obtained in each case.
Results: Out of 60 cases, 35 cases show metastatic squamous cell carcinoma, 14 cases show metastatic poorly differentiated carcinoma, 6 cases show metastatic breast carcinoma, 3 cases show metastatic adeno carcinoma, 1 case show metastatic necrotizing squamous cell carcinoma and 1 case show metastatic papillary carcinoma of thyroid.
Conclusion: FNAC is a minimally invasive, cost effective and quick method of diagnosing malignant involvement of draining lymph nodes which helps the clinician plan management of patients more effectively.

Keywords: FNAC, Lymph node, Metastatic malignancy

Introduction
Fine Needle Aspiration Cytology (FNAC) of the lymph node is a widely applied technique for rapid and accurate diagnosis. It is also Minimally invasive, cost effective and widely accepted technique [1].
Lymph nodes are the common sites of metastasis in GI malignancy, Breast malignancy, head and neck malignancy etc.
Unexplained lymphadenopathy may be the first presenting symptom of malignancy in an elderly patient.
FNAC of lymph nodes is very useful in distinguishing an inflammatory lesion from malignant lesion [2].
Helps with detection site of primary lesion: In difficult cases, ancillary techniques like immunocytochemistry further helps in diagnosis [1].

Aims and objectives
This study was conducted to find out
1. Categorization of various metastatic malignancies diagnosed on FNAC of lymph nodes.
2. Their correlation with addiction.

Materials and methods
The present study was conducted on patients attending the cytopathology section of Pathology department of B. J Medical College, Ahmedabad in between January 1st, 2019 and August 31st, 2019. Fine Needle Aspiration of lymph nodes was done and smears were prepared. H & E, Papanicolaou (PAP) and May - Grunwald Giemsa (MGG) stained slides were studied. Cases diagnosed as metastatic malignancy were selected for further study. Addiction history was obtained in each case.

Results

60 cases were included in the study which were studied in detail.

Table 1: Types of metastatic malignancy diagnosed in the present study using FNAC (60 cases)

Types of metastatic malignancy	No. of Cases	% of Cases
Squamous cell carcinoma	35	58
Poorly differentiated carcinoma	14	23
Breast carcinoma	6	10
Adeno carcinoma	3	5
Necrotizing SCC	1	2

There were 39 males and 21 females in the study with male to female ratio 2:1.

In table 1 as mentioned, highest no. Of metastatic malignancy seen is squamous cell carcinoma followed by poorly differentiated carcinoma, metastatic breast carcinoma, metastatic adeno carcinoma followed by necrotizing SCC and papillary thyroid carcinoma.

Table 2: Various lymph nodes involved in present study

Lymph node site	No. Of cases	% of cases
Nodes of Cervical triangle	47	78.3
Supraclavicular nodes	7	11.7
Axillary nodes	6	10

In table 2 as mentioned, most commonly cervical lymph nodes are involved followed by supraclavicular nodes and axillary nodes.

Table 3: Distribution of cases according to age and sex of the patients

Age (years)	Male	Female	Total
11 - 20	0	1	1
21 - 30	1	0	1
31 - 40	2	1	3
41 - 50	8	5	13
51 - 60	17	8	25
61 - 70	8	5	13

In table 3, overall cases show Male predominance. Maximum number of cases are seen in the age group of 51-60 years followed by 41-50 and 61-70 years.

Table 4: Age wise distribution of various subtypes of metastatic malignancy

Sub types	11-20 years	21-30 years	31-40 years	41-50 years	51-60 years	61-70 years	>70 years	Total (%)
SCC	-	-	2	6	18	7	2	35 (58%)
Poorly diff.	-	1	-	5	2	5	1	14 (23%)
Breast ca.	-	-	-	1	4	1	-	6(10%)
Adeno ca.	-	-	-	1	1	-	1	3(5%)
Necrotisi ng ca.	-	-	1	-	-	-	-	1(2%)
Papillary ca. Thyroid	1	-	-	-	-	-	-	1(2%)
Total	1(1.7%)	1(1.7%)	3(5%)	13(21.7%)	25(41.5%)	13(21.7%)	4(6.7%)	60(10m0%)

In table 4 as mentioned, the maximum number of squamous cell carcinoma cases are seen in the age group 51 - 60 years.

Table 5: Distribution of cases according to the addiction history of patients

Subtype	Smoking	Tobacco chewing	Alcohol	Alcohol + Tobacco	No Addiction
SCC	15	7	1	4	8
Poorly diff.	8	3	-	2	1
Breast ca.	1	-	-	-	5
Adeno ca.	1	1	-	1	-
Necrotizing SCC	-	1	-	-	-
Papillary ca. Thyroid	-	-	-	-	1
Total	25(41.7%)	12(20%)	1(1.7%)	7(11.7%)	15(25%)

In table 5 as mentioned, the history of addiction is well correlate with occurrence of metastatic malignancy in lymph node.

Discussion

FNAC of lymph nodes is an important diagnostic tool for detecting metastatic malignancies and it also provides clues to the possible primary tumor. Indicators of the primary site are patients age and sex, anatomical site of the involved node, tumor cytomorphology, cytochemical stains and immunoprofile [3].

In this study 51 (85%) patients belonged to fifth to seventh decade of their lives which is similar to the results of a study conducted by Ghazala Mehdi *et al*. in which 78.5% patients belonged to this age group [4].

In the present study SCC was found to be more common among males with male to female ratio being 4:1 which might be due the greater prevalence of addiction among males 87.2% (34 out of 39 males). Naresh N Rai *et al*. also noted a greater male to female ratio [2].

Cervical (78.3%) lymph nodes were most commonly involved followed by supraclavicular (11.7%) and axillary (10%) lymph nodes. Cervical, supraclavicular and axillary lymph nodes were involved in 48%, 32% and 12% of the

cases respectively in a study conducted by D.Gartimagar *et al*. [5]

73.3% patients were addicted to tobacco and out of them 61.4% patients had SCC which correlates well with a study conducted by Dholakia *et al*. in which 69.1% of tobacco addicts were diagnosed with SCC on FNAC [6].

Despite the advantages of FNAC in detecting metastasis in lymph nodes, it can give false negative results in case of micrometastasis, small metastatic deposits in a reactive lymph nodes or in cases of partial lymph node involvement [3].

Subtypes	Present study (%)	Arun *et al*. (%)	Naresh *et al*. (%)	Gartimagar *et al*. (%)	Mehdi *et al*. (%)
SCC	58	43.3	45.08	15	53.4
Poorly diff.	23	6.7	3.05	-	13.8
Breast Ca.	10	10	7.46	3	-
Adeno Ca.	5	33.3	19.36	67	26.7
Papillary Ca Thyroid	2	3.3	1.36	2	-

Conclusion

FNAC is a minimally invasive, cost effective and quick method of diagnosing malignant involvement of draining lymph nodes which helps the clinician plan management of patients more effectively.

65% patients were male.

41.7% patients were in the sixth decade of life. Cervical lymph nodes were involved in 78.3% cases.

SCC is the most common type of metastatic malignancy with 58% cases. 73.3% patients were addicted to tobacco.

61.4% of the tobacco addicts had SCC.

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