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Research Article

A study of metastatic lesions of cervical lymphadenopathy by fine needle aspiration cytology

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ABSTRACT

Background: cervical lymphadenopathy is a common clinical presentation in many diseases. Metastatic lymphadenopathy is common in old age group patient. FNAC is simple, cost effective, reliable and rapid method for diagnosis of metastatis in cervical lymphnodes. FNAC not only give the diagnosis but also give the clue regarding the origin of primary tumor.
Methods: Total 144 cases of metastatic lesions of cervical lymphnode were studied from Aug.13 to July 14 by FNAC in cytology section of pathology department in P.D.U. medical college, Rajkot, (Gujarat) India.
Result: Squamous cell carcinoma was the most common metastatic lesions of cervical lymphnode comprising (75 %). Metastatic lesions of cervical lymphnode occur more commonly after age of 40 years and more common in male. In anterior cervical lymphnodes, level I and II lymphnodes usually involved where primary was in mouth – buccal mucosa,tongue and level V lymphnodes (supraclavivular lymphnode) involved where primary was in lung.
Conclusion: FNAC is a cost effective, reliable, rapid and inexpensive method for diagnosis of lymphadenopathy. Cytology of Metastatic lesions in cervical lymph nodes gives clue to nature & origin of tumors.

Keywords: FNAC, Lymphadenopathy, Metastatic lesion

INTRODUCTION

Cervical Lymphadenopathy is common clinical presentation in many infectious and neoplastic diseases in any age group. Most common lesions are reactive lymphoid hyperplasia, tuberculous lymphadenitis, lymphomas and metastatic lesions. Metastatic malignancy is a more common etiology of peripheral lymphadenopathy than lymphoma, especially in patients over 40 years of age.[1] For diagnosis of metastatic lymphadenopathy FNAC not only give diagnosis but give the clue regarding the nature and origin of primary malignancy.

Tuberculosis is the commonest cause of lymphadenopathy in developing countries, like in our country India, in young age group populations. In old age group, metastatic lymphadenopathy is commonest cause.[2]

The use of FNAC for diagnosis of metastatic malignancy in cervical lymphnodes is well established method.[3] FNAC is a very cost effective, simple procedure, free of complication, well tolerated by patients done on outpatient basis and easily repeatable.[4] Aim of this study is to study various metastatic lesions in cervical lymphnodes in known and occult primary tumors.

Clinical history, physical examination, relevant correct performance of FNA and proper handling of aspirate are the major component in management of patient with lymphadenopathy.[5]

A Correct diagnosis helps in starting specific therapy in time thus reducing morbidity and mortality.[5]

The cause of metastatic lesions of cervical lymphnodes are carcinomas includes squamous cell carcinoma (SCC),

adenocarcinoma, small cell anaplastic carcinoma, large cells anaplastic ca, Papillary carcinoma of thyroid. Mainly anterior cervical lymphnode level – I & level ll are involved by primary malignancy in tongue, buccal mucosa, Wherever level V (supraclavicular) lymphnodes are involved by primary malignancy in lung. Other distant sites such as kidney, GIT, testis, and liver also show metastasis in cervical lymphnodes.

METHODS

The study was conducted over a period of 1 year for Aug2013 to July 2014 by FNAC in cytology section of pathology department at P.D.U. medical college, Rajkot. All patient with complained of cervical Lymphadenopathy sent for FNAC included in this study.

The clinical history including personal history regarding smoking and tobacco chewing, physical examination and relevant other investigations were noted. Procedure was explained and written consent was taken. FNAC was performed by using 23G needle attached with 10 ml syringe. Smears were prepared from aspirated material. Both air dried and ethanol fixed smears were prepared.

The air dried smears were routinely stained by Giemsa stain and alcohol fixed smears stained by H & E stain & Pap stain.

All stain smears were evaluated by cytopathologist and reported. At the end of study, data were analyzed. Only patient with metastatic lymphadenopathy included in this study.

RESULT

Out of total of 2629 of FNAC performed during this 12 months study, 773cases (29.4%) were done from cervical lymphnodes. Among them 144 cases were reported as metastatic.

The age of patient ranged from 18 years to 70 years. The peak incidences were seen at the age of 61 to 70 yrs(30.56%) and 51 to 60 years(29.17%). There were 5 cases below 30years of age (3.4%) (Table 1).

Table 1: Distribution of no. cases according to age of patient.

Sr no.	Age in years	No of cases	percentage
1	15 to 20	1	0.69%
2	21 to 30	4	2.78%
3	31 to 40	12	8.33%
4	41 to 50	23	15.97%
5	51 to 60	42	29.17%
6	61 to 70	44	30.56%
7	>71	18	12.5%
		Total: 144	

The most common site was level I (22.22%) and level II lymphnodes (19.44%) followed by level V supraclavicular lymphnode (17.36%) (Table 2).

Table 2: Distribution of no. cases according to site of cervical LN involved.

Sr no.	Site of cervical lymphnodes	Level of lymph nodes	No of cases	Percentage
1	Anterior triangle lymphnodes	Level I	32	22.22%
2		Level II	28	19.44%
3		Level III	12	8.33%
4		Level IV	13	9.82%
5		Level V	25	17.36%
6	Posterior triangle lymphnodes		18	12.5%
7	Bilateral		16	11.11%

Table 3: Distribution of different microscopic types of metastasis.

Sr no.	Microscopic types	No of cases	percentage
1	Sqamous cell carcinoma	108	75%
2	Adenocarcinoma	16	11.11%
3	Small cell anaplastic carcinoma	9	6.25%
4	Large cell anaplstic carcinoma	3	2.08%
5	Papillary carcinoma of thyroid	1	0.69%
6	Undifferentiated Malignant tumors	4	2.78%
7	Suspicions for malignancy	3	2.08%
	Total :	144	

In our study as per Table 3, squamous cell carcinoma (Figure 1 & 2) was the most common metastatic lesion (75%), others are metastatic adenocarcinoma (11.11%) (Figure 3), small cell anaplastic carcinoma(6.25%) (Figure 4). Four (2.78%) cases were reported as malignant aspirated which were unclassified due to undiffferentied types and 3 cases were reported suspicious because of low cellularity and mild atypia and advice histopathology examination. One case of low grade polymorphus adenocarcinoma of minor salivary gland in palate showed metastasis in level II lymphnode and one case of papillary carcinoma of thyoroid show metastasis in level III lymphnode (Figure 5 & 6).

The incidence of metastasis were more in males (88.89%) as compared to females (11.11%).

In level I & level II lymphnodes metastasis from primary tumor in tongue and buccal mucosa were common while

in level V (supraclavivular LN) metastasis from lung malignancy was common.

Out of 144 cases, 68 cases (47.23%) had personal history of smoking and 12 cases (8.34%) had tobacco chewing.

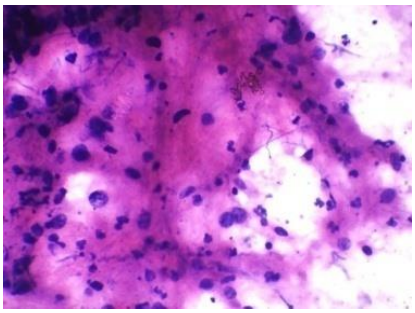

Figure 1: Keratinizing SCC 40x (H&E stain).

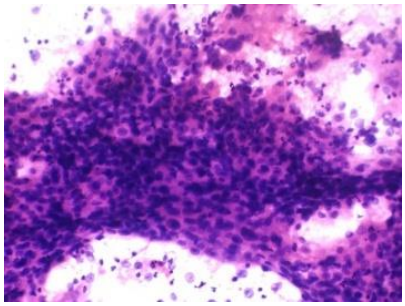

Figure 2: Non -Keratinizing SCC 40x (H&E stain).

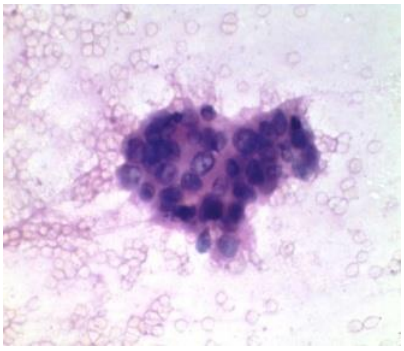

Figure 3: Adenocarcinoma 40x(H&E stain).

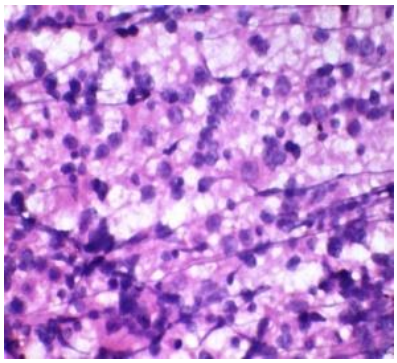

Figure 4: Small cell anaplastic carcinoma 40 (H&E stain).

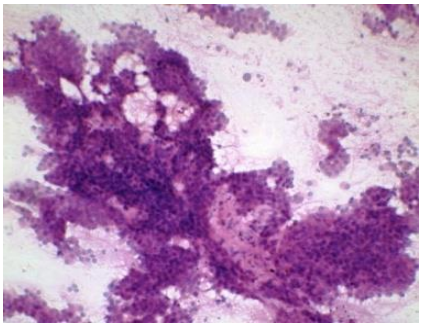

Figure 5: Papillary ca. Thyroid 10x (H&E stain).

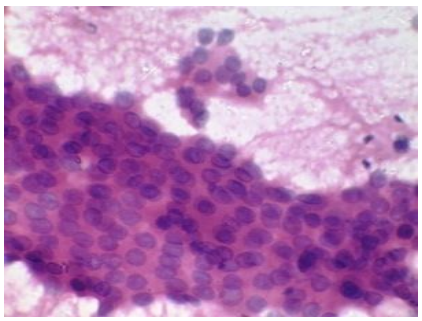

Figure 6: Papillary ca. Thyroid 40x (H&E stain).

DISCUSSION

FNAC is of considerable value in disease staging and documentation of metastasis in known primary and occult tumor. FNAC is a reliable diagnostic tool for lymphadenopathy in adult patient who are suspected for malignancy as it has less complication, is a simple invasive procedure can be repeated easily.[7] Our study was attempt to study the cytological diagnosis of metastatic cervical lymphadenopathy and also give idea about nature and origin of primary tumor.[4]

The frequency of metastatic lymphadenopathy was observed 18%,[7] 19.7%,[8] 24.7%[9] and 31.3%[10] while in our study metastatic lymphadenopathy contributed to 29.40%.

In current study, with the help of FANC and other clinical data including radiological investigation, primary site should be identified in 67 cases (46.52%).

Most of the studies have reported SCC as the most common metastatic tumor.[12,13]

The frequency of metastatic squamous cell carcinoma was 75% in our study which was very near to 80%[11] and metastatic adenocarcinoma was 10.42% while in other study frequency was 4.28%.[11]

With help of clinical history, physical examination and radiological investigation primary site was identified in 67(46.52%) cases. Out of them, 17 cases had lung mass (25.38%) in which metastatic small cell anaplastic carcinoma and adenocarcinoma were common. Most common site involved was supraclavicular level V

lymphnodes by lung metastasis. Similar primary site were found in study of mitra et al., 2011.[14]

In 19 cases (28.36%) patient had lesion in buccal mucosa, tongue, tonsil where metastatic squamous cell carcinoma was common. Other studies also show similar findings where primary site was head and neck (mouth, larynx, and pharynx) and their metastatic cervical nodes show squamous cell carcinoma.[4,15,7]

In our study most common site was level I (22.22%) and level II (19.44%) and followed by level V (supraclavicular) lymphnode (17.36%)

CONCLUSION

Lymph node metastasis is one of the major prognostic factors in malignant tumors that influence the treatment plan and also the outcome of patients. FNAC is simple, easy, reliable method for diagnosis of metastasis and staging of malignant lesion in known primary and occult tumors. Thus diagnosis of metastatic lymphadnopathy by FNAC helpful in planning the initial management and also assessing the response to therapy. Thus FNAC is important tool in the diagnostic work of metastatic lymphadenopathy which in hands of experienced and skilled cytopathologist, can avoid the need for excision biopsy.

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