VOLUME-6 | ISSUE-2 | FEBRUARY-2017 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 78.46

Study of FNAC finding in cervical lymph nodes for metastatic lesions

Pathology

KEYWORDS: FNAC, cervical, inflammatory lesion, metastatic.

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ABSTRACT

Introduction: Cervical lymphadenopathy is a common problem which is usually meeting the clinicians, clinical recognition and urgent diagnosis of palpable lymphadenopathy is of paramount importance specially to differentiate between inflammatory lesions or metastatic.

Objective: To establish the role of FNAC as a diagnostic tool in the interpretation of metastatic lymphadenopathy. To helps surgeons in detecting metastasis and staging of certain tumours. To provide early and OPD based reports.

Material & Methods : Present study was carried out in the Department of Pathology, B. J. Medical College, Civil Hospital, Ahmadabad, on 125 subjects , during period from 2008-2010.

Results: Among FNAC of cervical swellings maximum incidence is in the age group of 41.50 and 51.60 years with male preponderance. Metastatic nasopharyngeal carcinoma and papillary carcinoma of thyroid are common in below 40 year of age.

Conclusion: FNAC is ideal procedure for diagnosing the multiple swellings eg.To detect metastasis with accuracy more than that of true cut biopsy.

Introduction:

Cells make up the basic structural unit of the human body. Study of cells, is therefore helpful not only in understanding the normal structure but also in analysing various disease processes.Cervical lymphadenopathy is a common problem which is usually meeting the clinicians, [1] it may results from a variety of different diseases. [2] Cervical lymph nodes are common site of metastasis for different cancers. Thus clinical recognition and urgent diagnosis of palpable lymphadenopathy is of paramount importance specially to differentiate between inflammatory lesions or metastatic or primary neoplastic tumour Metastatic squamous cell carcinoma being the most common. [3]

Although open biopsy with histological examination of excised tissue still remains the golden standard for diagnosis of lymph node tumour, yet FNAC (Fine Needle Aspiration Cytology) has now become an integral part of the initial diagnosis and management of patients presenting with lymphadenopathy. [4,5]This simple technique has gained wide acceptance since it offers a high degree of accuracy safe, simple, lending itself to out patients diagnosis and thus reducing the cost of hospitalisation. Due to lack of above literature we were decided this study. The purpose of this study was t o introduce fine needle aspiration cytology as a routine diagnostic procedure in cervical lymph node enlargement. Establish the role of FNAC as a diagnostic tool in the interpretation of metastatic lymphadenopathy. To help the surgeons in detecting metastasis and staging of certain tumours and provide early and OPD based reports.

Material and Methods:

The material for the present study was collected from the Department of Pathology, B. J. Medical College, Civil Hospital, Ahmadabad, during period from 2008-2010.125 fine needle aspirated were obtained from patients who presented with cervical lymphadenopathy. Fine needle aspiration was correlated with detail of relevant clinical findings and investigations. Patient must be explained about the procedure and its indications. Maximum efforts were made to re-assure the patient as to the safety, simplicity of the procedure and minimal discomfort. A formal written consent was taken. When positioning the patient for the aspiration, he or she was comfortable and swelling was palpable and easily grasped during aspiration.

Results:

The present study included 125 cases of cervical lymph node swellings in which fine needle aspiration cytology was performed. The distribution of cases in relation to age and sex, their nature and anatomic origin was as Maximum incidence observed in the age group of 51-60 and 41-50 years.Among 125 cases 103 cases were above 40 years and 22 cases below 40 years.Maximum incidence in male observed in age of 51-60 and in females in age group of 31-40 years.77% higher incidence in males than female. There was higher incidence of squamous cell carcinoma metastasis in cervical lymph nodes. Squamous cell carcinoma was most common in age group 51-60 years. Adenocarcinoma was most common in age group 41-60. Poorly differentiated carcinoma was most common age group 61-70 years. Nasopharyngeal carcinoma and thyroid carcinoma were more common in age below 40 years. Germ cell tumour affected younger age group, in age group of 21-30 years. In Our study level 3 and level 4 included in anterior triangle of neck. Squamous cell carcinoma was more associated with smoking and tobacco chewing.

In our study level and was more involved than other site and 10 cases presented with bilateral and multiple swellings. Posterior triangle and supraclavicular regions were almost equally involved. Incidence of well differentiated squamous cell carcinoma was higher in our study and moderate differentiation was not mentioned. In squamous cell carcinoma secondary changes most commonly occurs. In squamous cell carcinoma necrotization was most common. Incidence of metastasis of papillary carcinoma of thyroid is highest than the other carcinomas.

Incidence of papillary carcinoma of thyroid was higher in male than females.In our study in most patients the primary site was occult, and FNAC was done as a first diagnostic procedure. In both studies males

are affected more than females. In our study 63.6% males with squamous all carcinoma having history of smoking. Both studies are comparable with age. In our study nasopharyngeal and metastatic papillary carcinoma of thyroid occurs in earlier age. In all studies metastatic squamous cell carcinoma is more common.

Table – 1 : Distribution among different age and sex

Age (Years)	Male no. (%)	Female no. (%)	Total no. (%)
0 – 10	0	0 (0)	0
11 – 20	1 (0.8)	0 (0)	1 (0.8)
21 – 30	5 (4)	0 (0)	5 (4)
31 – 40	12 (9.6)	4 (3.2)	16 (12.8)
41 – 50	31 (2.48)	3 (2.4)	34 (27.2)
51 – 60	32 (25.6)	3 (2.4)	35 (28)
61 – 70	24 (19.2)	3 (2.4)	27 (21.6)
71 – 80	6 (4.8)	1 (0.8)	7 (5.6)
Total	**111 (88.8)**	**14 (11.2)**	**125 (100)**

Maximum incidence observed in the age group of 51-60 and 41-50 years.

Table -2 : Distribution according to lesion

Lesion	NO. of cases	Percentage (%)
Squamous cell carcinoma	88	70.4
Adenocarcinoma	16	12.8
Poorly differentiated carcinoma	08	6.4
Nasopharyngeal carcinoma	05	04
Thyroid carcinoma	05	04
Breast carcinoma	02	1.6
Germ cell tumour	01	0.8

There was higher incidence of squamous cell carcinoma metastasis in cervical lymph nodes.

Table – 3: Distribution according to lesion and age lesion

Lesion	AGE (Years)								
	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	Total
Squamous cell ca.	-	0	1	9	24	27	22	5	88
Adenocarcinoma	-	-	-	3	5	5	2	1	16
Poorly differentiated ca.	-	-	-	1	2	1	3	1	8
Nasopharyngeal ca.	1	1	1	2	-	-	-	-	5
Thyroid Ca.	-	-	2	1	-	1	-	-	4
Breast Ca.	-	-	-	1	-	1	-	-	2
Germ cell tumour	-	-	1	-	-	-	-	-	1
Total	0	1	5	16	33	36	27	7	125

Table – 4 : Distribution of lesions according to sex.

Lesion	Male	Female
Squamous cell carcinoma	83	5
Adenocarcinoma	13	3
Poorly differentiated carcinoma	06	2
Nasopharyngeal carcinoma	04	1
Thyroid carcinoma	04	1
Breast carcinoma	00	2
Germ cell tumour	01	0
Total	**111**	**14**

In both sexes squamous cell carcinoma was more common.

Table – 5 : Distribution According to site of lesion

Lesion	Angle of Mandible	Ant. Triangle	Post Triangle	Submandibular	Supraclavicle	Multiple B/L	Total
Squamous cell	42	16	09	06	09	06	88
Adenocarcinoma	01	03	03	03	06	00	16
Poorly differentiated carcinoma	01	02	02	01	01	02	09
Nasopharyngeal carcinoma	00	04	00	00	00	01	05
Thyroid carcinoma	02	02	00	00	00	01	05
Breast carcinoma	00	00	01	00	00	00	01
Germ cell tumour	00	00	00	00	01	00	01
Total	46	27	15	10	14	10	125

In Our study level 3 and level 4 included in anterior triangle of neck.

Table – 6 : Distribution according to differentiation in squamous cell carcinoma.

Differentiation	No. of cases	Percentage
Well differentiated	79	89.7
Poorly differentiated	09	10.2

Incidence of well differentiated squamous cell carcinoma was higher and moderate differentiation was not mentioned.

Table – 7 : Distribution of squamous cell carcinoma according to history of smoking & tobacco chewing.

Smoking / Tobacco Chewing	No. of cases	Percentage
Yes	56	63.6
No	32	36.3

Squamous cell carcinoma was more associated with smoking and tobacco chewing.

Table – 8 : Distribution according to secondary change chewing.

Secondary Changer	No. of Cases	Percentage
Necrotization	15	17.04
Abscess Formation	1	1.1
Cystic Change	2	2.2
Total	18	20.47

In squamous cell carcinoma secondary changes most commonly occurs. In squamous cell carcinoma necrotization was most common.

Table – 9 : Distribution of lesions in thyroid carcinoma

Lesion	Male	Female	Total
Papillary Ca.	3	0	3 (60)
Follicular Ca.	0	1	1 (20)
Anaplastic Ca.	1	0	1 (20)

Incidence of metastasis of papillary carcinoma of thyroid is highest than the other carcinomas.

Incidence of papillary carcinoma of thyroid was higher in male than females.In our study in most patients the primary site was occult, and FNAC was done as a first diagnostic procedure.

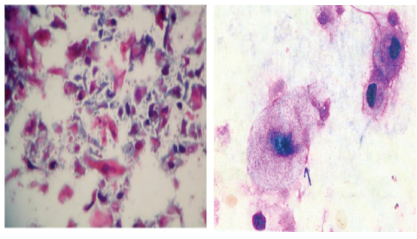

Fig .1 Metastatic squamous cell carcinoma

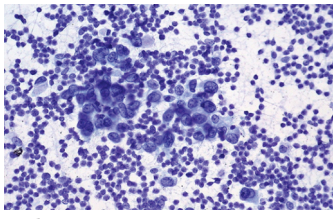

Fig- 2 Metastatic Adenocarcinoma

VOLUME-6 | ISSUE-2 | FEBRUARY-2017 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 78.46

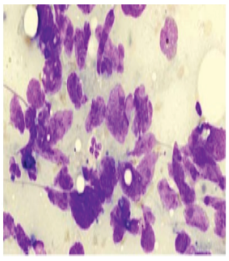

Fig- 3Metastatic Nasopharyngeal (Undifferentiated) carcinoma

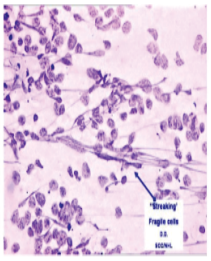

Fig- 4Poorly differentiated carcinoma

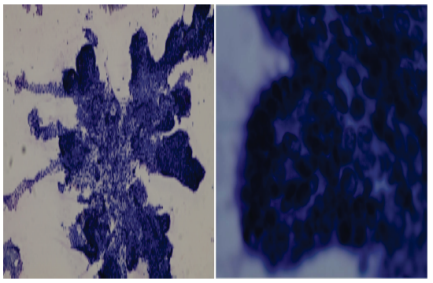

Fig- 5 Metastatic Papillary carcinoma of thyroid

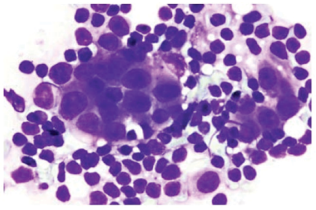

Fig- 6 Metastatic Ductal Carcinoma of breast

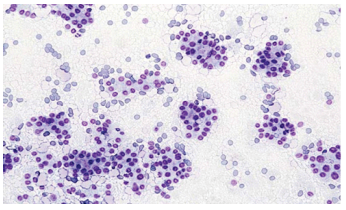

Fig- 7 Metastatic follicular carcinoma of thyroid

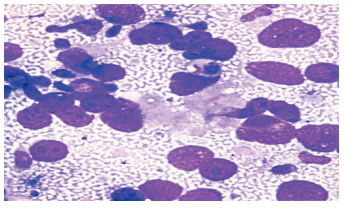

Fig- 8 Metastatic Germ cell tumour

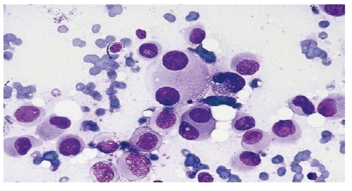

Fig.- 9 Metastatic Malignant melanoma

Discussion:

In present study of 125 cases of various cervical lymph node swelling, different data were obtained like age, incidence, sex incidence, etc.Lymph node aspiration has a very important role in the diagnosis of malignant lymphadenopathies especially in a developing country like ours where the cost of hospital stay and surgical procedures cannot be borne by the patients. [35]The accuracy of FNAC of lymph nodes in the diagnosis of metastatic malignancy is influence by many factors such as size and site of node, fibrosis, necrosis, previous irradiation and the number of punctures made.

In present study there were comparison of metastatic lymphadenopathy with sex in male and female 91.2 and 8.8 respectively. This was similar with the study of Izhar N. Bagwan according to them male and female 66.9 and 33.06 respectively. In both studies males are affected more than females. In our study 63.6% males with squamous all carcinoma having history of smoking. [8]

present study overall frequency of malignancy was found to be higher in male. 77% higher incidence in male observed. This may be because of decreased incidence of various addictions in females. Similar Observations were made by Haque and Talukder[8] , steel et al[9]and Izhar N. Bagwan. [10]

in present study there were between 10-80 years this was similar with other study according to that maximum cases was found in 18-75 years of age. [8] Both studies are comparable with age. In our study nasopharyngeal and metastatic papillary carcinoma of thyroid occurs in earlier age.The maximum number of cases were abow 40 years. Because malignancies present in late age with nodal metastasis. In female patient's metastasis detected in age group between 31-40 years than male between 51-60 years. Among the metastatic lesions squamous cell carcinoma being most common, followed by adenocarcinoma.

In all studies metastatic squamous cell carcinoma is more common. In I.N. Bagwan et al study incidence of germ cell tumour metastasis in cervical lymph node was 0.6% and in our study 0.8%.[9][10] .our study were similar with the other study . In both studies metastatic carcinoma present with lymph node size more than 2 cm. Because most squamous cell carcinoma present late and with nodal metastasis. Secondary changes are most of common in squamous cell carcinoma like, abscess formation and necrosis.

Second most common metastatic lesion in our study is adenocarcinoma. In most patients, the first investigation was FNAC. Radiological investigation helps to find out the primary sites, cytological features may give clues to the site of adenocarcinoma.[11] Metastatic nasopharyngeal carcinoma presented mostly before before 40 years. Metastatic papillary carcinoma is more common than with other thyroid carcinoma, it presented with occult primary site and in men. Germ cell tumour metastasis is more common in supraclavicular lymph node.[12] Among various group of lymph node involvement level-2 group of lymph nodes are involve more than the others; which help to find primary sites. This indicates metastasis more from the nasal, pharyngeal and laryngeal cancers [13].

conclusion: Among FNAC of cervical swellings maximum incidence is in the age group of 41.50 and 51.60 years with male preponderance. Among the cervical groups lymph nodes at the angle of mandible (Level- II) and at anterior triangle of neck (level- III) are most common site To detect metastasis with accuracy more than that of true cut biopsy. FNAC is safe, simple, sensitive, specific, and suitable for almost all sites, skills required are learnt with some practice, saves time, money and hospital theatre time. FNAC is very useful for pre-operative diagnosis of lymph node metastasis and thus helps surgeon in selecting the patient for palliative or surgical management. More than 90% of lymph node metastasis are diagnosed by initial aspiration.

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