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Spectrum of cytomorphological diagnosis of palpable head and neck lesions - in Central India.

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ABSTRACT:

Back ground: Lump in head and neck lesions are one of the most common lesions attending OPD of various departments making patients become very anxious. FNAC is a quick and non-invasive OPD procedure help patients to relieve anxiety and surgeon for early differentiation of inflammatory, infective, benign and malignant lesions.

Objective: To assess the spectrum of various pathological lesion of head and neck mass by FNAC.

Method: This prospective study included 115 patients with palpable head and neck mass in pathology from Sep 2015 to August 2016. The detailed history and examination of swelling were done after informed consent. FNAC was performed and smear stained with Giemsa, H&E stain. Zeihl Neelsen stain done whenever required.

Result and Conclusion: Male were affected more commonly (68.51%) with lymph node lesions, which is significant statistically ($\varkappa^2$ -13.31, p value 0.000026). Thyroid lesions in females were significantly ($\varkappa^2$- 26.30, p value 0.00001) and more commonly affected (85.71%). Distribution of head and neck mass lesion shows lymph node (46%) as predominant site of FNAC followed by thyroid lesion (30.43%), soft tissue (18.26%) and salivary glands lesion (4.34%). Among lymph nodes metastatic lesion were most common (46.49%) followed by chronic granulomatous lymphadenitis (27.22%) and chronic non-specific lymphadenitis (16.16%). In respect of thyroid lesion colloid goitre (74.28%) most common followed by sub-acute thyroiditis (8.57%) and granulomatous thyroiditis (5.71%).Chronic non-specific sialadenitis and pleomorphic adenoma each contribute 40% among salivary gland lesion while malignant only in 20%. Among soft tissue and miscellaneous lesion epidermal cystic constitute 33% followed by acute inflammatory cystic lesion 14.28%.

Conclusion: It was concluded that lymph node lesions were most common followed by thyroid in head and Neck region. Among lymph node lesion metastatic deposits were most common followed by tubercular lymphadenitis. Colloid goitre mostly encounter in thyroid in our study. Owing to its simplicity, rapidity, accuracy and cost effectiveness, we recommend FNAC as the first line investigation in diagnosing head and neck swellings.

Keywords: Key word: FNAC, lymph node, thyroid, metastatic deposit, granulomatous lymphadenitis, colloid goitre

1. Introduction

Fine needle aspiration cytology is a simple, quick and inexpensive method that is used to diagnose superficial masses like those found in the neck and is usually performed in the out patient clinic. It causes minimal trauma to the patient and

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carries virtually no risk of complications. Fine needle aspiration cytology (FNAC) was first used as diagnostic tool in 1904 by Greig and Gray and by Martin and Ellis who developed it for the diagnosis of malignancy[1].

Head and neck swellings are of great clinical significance as underlying disease may range from a treatable infectious etiology to malignant neoplasm. It can also detect metastatic lesion in head and neck, thus guiding clinician to search for the primary site and help them manage early. Swellings in head and neck region can arise from various structures like, lymph nodes, salivary glands, thyroid, soft tissues, vessels and nerves and being easily accessible, the swellings can be aspirated without difficulty. FNAC is now a prerequisite for various neck swellings as the procedure is non-traumatic, easily accessible, inexpensive, excellent compliance and avoids the anaesthetic complications and requirement of open surgical biopsy[2-3]. FNAC is particularly helpful in the work-up of cervical masses and nodules because biopsy of cervical adenopathy should be avoided unless all other diagnostic modalities have failed to establish a diagnosis [4].

Aim of the study was to assess the spectrum of various pathological conditions detected by FNAC in patients presenting with palpable head and neck lesions in central India and to evaluate the role of FNAC and its utility in their diagnosis.

Material & Method:

This prospective, cross-sectional study was conducted between August 2015 and July 2016 in the Department of Pathology of the NSCB Medical College Jabalpur where we included patients present with Head and Neck mass.

The inclusion criteria:

All cases came with palpable Head and Neck swellings during study period.

Exclusion criteria:

Patients with haemorrhagic diathesis and sample with unsatisfactory smear.

The study was approved by the Ethics Committee of the NSCB Medical college Jabalpur. The procedure was explained to all patients and a written consent was obtained in each case.

Fine-needle aspiration was performed by a pathologist, using a 23-G needle and a 10-mL syringe. The aspirated material was spread onto the slides then few slide were immediately fixed by immersion in 95% ethylic alcohol and other slides were left on room temperature for few minute for air dried . Wet slides stained with haematoxylin and eosin stain and Air dried slides stained with Giemsa stain. Acid fast bacilli staining done wherever required .The stained slide were evaluated by consultant pathologist with help of clinical and radiological finding .The data was tabulated and analysed statistically by chi square test.

Result:

The study included 115 patients with palpable head and neck swellings from OPD and IPD of various departments over a period of one year. Maximum numbers of patients were in the age group of 40-49 year (20.9%) followed by20-29 year (19.1%) and 50-59 years (18.3%) with mean age 39.70 ± 17.29 year.

There were (n= 58) 50.4% males and (n=57) 49.6% Females patients with 1:1 ratio. Proportion of lymph node lesion was seen higher (n=37) 68.51% in male compared to female (n=17) 31.49% which is also significant statistically (x2 -13.31,Pvalue-0.000026).For the thyroid lesions difference was also observed in male(n=5)14.29% and Female(n=30) 85.71% where lesions more among female , which is statistically significant(x2- 26.30,p Value-0.00001).Table No.-01

Table 1: Sex wise distribution of different lesions (N=115)

Site	Male		Female				Total
	No. of case	%	No. of case	%	X^2	P value	
Lymph node	37	68.51	17	31.49	13.31	0.00026	54(46.95%)
Thyroid	5	14.29	30	85.71	26.30	0.00001	35(30.43%)
Salivary gland	3	60	2	40	0.2272	0.63362	5(4.34%)
Soft issue	13	61.90	8	38.10	1.35	0.2449	21(18.26%)
Total	**58**	**50.40**	**57**	**49.60**			**115(100%)**

Distribution of head &Neck mass lesion shows lymph node (46%) as pre dominant site of FNAC followed by thyroid lesions (30.43%), soft tissue (18.26%) and salivary gland lesions(4.34%). (Table No.-1)

Table 2: Distribution of various lymph node lesions (N= 54)

Serial No.	Lesions (cytological diagnosis)	No. of cases	Percentage
1	Acute(supurative)non-specific lymphadenitis	6	11%
2	Chronic non –specific lymphadenitis	9	16.66%
3	Chronic 11ddwmcn granulomatous lymphadenitis(tubercular)	12	22.22%
4	Primary neoplasm (lymphoma)	2	3.7%
5	Metastatic lymph node	25	46.49%
	Total	**54**	**100%**

As per table no-2, Among 54 cases of lymph node lesions metastatic lesions were most common 46.49% followed by chronic granulomatous lymphadenitis (Tubercular) 22.22%, chronic non-specific lymphadenitis 16.66%, acute (suppurative) non-specific lymphadenitis 11%,and primary neoplasm(lymphoma) 3.7% .

Table 3: Distribution of various thyroid lesions (N=35)

Serial No.	Lesions (cytological diagnosis)	No. of cases	Percentage
1	Colloid goitre	25	71.42%
2	Acute thyroiditis	1	2.87%
3	Sub-acute thyroiditis	3	8.57%
4	Granulomatous thyroiditis	2	5.71%
5	Follicular neoplasm	3	8.57%
6	Malignancy (papillary carcinoma)	1	2.87%
	Total	35	100%

Out of 35 cases of thyroid lesion 26 cases (74.28%) were of colloid goitre, followed by sub-acute thyroiditis (8.57%) , granulomatous thyroiditis 5.71% and acute thyroiditis 2.87%. Follicular neoplasms constitute about 8.57% and papillary carcinoma 2.87%. (Table No-03)

Table 4: distribution of salivary lesion (N=5)

Serial No.	Lesion (cytological diagnosis)	No. of cases	Percentage
1	Chronic non-specific Sialadenitis	2	40%
2	Pleomorphic adenoma(benign)	2	40%
3	Malignant neoplasm	1	20%
	Total	5	100%

As per table No.-04 chronic non-specific sialadenitis and pleomorphic adenoma each constitute 40% of salivary gland lesion. Malignant neoplasm constituted 20% of salivary gland lesion.

Table 5: Distribution of soft tissue lesion and miscellaneous lesion (N=21)

Serial No.	Cytological diagnosis		No of cases	%
1	Inflammatory cystic lesion	Acute inflammatory cystic lesion	3	14.28%
		Chronic non-specific inflammatory cystic lesion	1	4.7%
2	Non – Inflammatory Cystic lesion	Epidermal cyst	7	33.33%
		Retention cyst	1	4.7%
		Dermoid cyst	1	4.7%
3	Benign lesion	Lipoma	1	4.7 %
		Haemangioma	1	4.7 %
		Admantinoma	1	4.7 %
4	Malignant lesion	Squamous cell carcinoma	1	4.7%
		Soft tissue sarcoma	1	4.7%
	Total		21	100%

Soft tissue consist of (n=21) 18.26 % of all head and lesion out of which epidermal cyst 33% most commonly encountered. (Table-05)

Discussion:

Fine needle aspiration cytology most commonly used, quick and simple OPD based investigation of head and neck swelling We included FNAC in 115 patient with head and neck swelling of all the age group, found that Maximum numbers of patients 53% were in between 20-50 year age with mean age 39.70± 17.29 year.

Maniyar AU et al found the mean age was 45.84 years[5] .Taviad DS et al, Patel DN et al observed maximum incidence in the age group 31- 40 years[6-7]. Suryavanshi KH et al 21-40 years, Mohammad MH et al the mean age was 34 years[8-9] . The present study results are comparable and similar to others.

Valia LG et al, Goswami RR et al were Male: Female ratio 1.1:1. Nanik J et al, Sharma R et al and Maniyar et al were similar gender distributions observed [10-13] .

While in the study of Tilak V et al sex ratio was 1:2.4. Fernandes H et al observed Male: Female

ratio 1:4.41. Rajbhandari M et al ratio of Male: Female 1: 1.6, all these studies showing female preponderance [14-16] . In these above studies higher incidence of thyroid lesions reported. The possibility could be due to study were conducted in iodine deficiency goitre endemic areas.

Predominant site of FNAC in head & neck swelling was lymph-node (n=54) 46.95% followed by thyroid (n=35) 30.43% .In contest of lymph-node swelling showed male predominance (n=35) 68.51% which are statistically significant (p value-0.00026). Similarly founded by Bhagat et al (53%), Patel DN et al (64%),chauhan S et al (67.8%) lymph-node most common site for FNAC in head and neck swelling. But Fernandes H et al 71.31%, Rathod GB et al (52%) founded thyroid most common site than lymph-node, probably these study were conducted in iodine deficiency area [7,15-19] .(Table-01)

Present study In lymph-node lesions, metastatic deposit of squamous cell carcinoma have most common contribution (n=25) 46.49 % followed by granulomatous lymphadenitis (Tubercular) is (n=12) 22.22% and reactive lymphadenitis (n=9) 16.66% but primary lymphoid malignancy (lymphoma) contribute only (n=2) 3.7%.

Patel DN et al, Goswami RR et al and Valiya GL et al found that metastatic lesion in lymph node 27%,20.5 % and 19.8 % respectively with male predominant [7,10-11] .In our study lymph-node metastatic deposits quit high due to we have cancer referral canter .(Table-02)

In respect of thyroid lesion on FNAC, collide goitre contribute (n=25)71.4% with female predominant is most common. After that sub-acute thyroiditis and follicular neoplasm each have (n=3) 8.7% contribution while papillary carcinoma has least incidence(n=1) 2.87%. Colloid goitre most common entity in thyroid lesion FNAC also founded by chauhan S et al (85%) , Modi P et al (83%) and Goswami RR et al (67.3%). Among malignant lesion (papillary carcinoma) comparable to Goswami RR et al (5.4%)and Rathor GB et al [11,18-20] .(Table-03)

Among salivary gland lesions, sialadenitis and pleomorphic adenoma (benign neoplasm) commonest lesion each contribute(n=2) 40% and malignancy of salivary gland was (n=1)20% .Similar finding were reported by Prabhakar N et al sialadenitis (35.72%),pleomorphic adenoma (50%) and malignancy was 14.28%[10] . Nanik J et al reported sialadenitis (43.2%) ,Benign neoplasm (45.9%) but malignancy only 2.7% while Valiya GL et al was found sialadenitis 35.90 % ,benign neoplasm 18.96% [10,12] .(Table-04)

In our study FNAC of soft tissue and miscellaneous lesion of Head and Neck ,epidermal cyst (n=7) 33.33% was most common followed by acute inflammatory cystic lesion(n=3)14.28%.Goswami RR et al (40.61%) , Valiya GL et al(36.21%) ,Prabhakaran N et al (29.03%) also founded Epidermal cyst as commonest finding in soft tissue and miscellaneous lesions [10-11,21]. (Table-05)

Conclusion:

Present study conclude that lymphadenopathy most common swelling in head and neck masses followed by thyroid and soft tissue .Metastatic deposits most commonly encountered in lymphadenopathy. Colloid goitre in thyroid lesion and epidermal cyst in soft tissue lesion were most common. Epidermal cyst is benign cystic lesion that creates unnecessary apprehension to patients due to fear of malignancy.

FNAC is simple ,quick and inexpensive out door procedure for head and neck lesion that can differentiate infective lesion from neoplastic lesion and benign from malignancy most of the time ,so that avoid surgery to take biopsy ,stay at hospital and mental stress to patients and relative .Overall reduce cost of treatment and improve working hour. FNAC have some limitation particularly in case lymphoma to reach final diagnosis, for that lymph-node biopsy to histological examination and immunehisto chemistry needed to reach final diagnosis.

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