



APPRAISAL OF FNAC OVER HISTOPATHOLOGY IN NONTHYROIDAL NECK SWELLINGS

General Surgery

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ABSTRACT

Background and objectives: Neck swellings are a common clinical finding presenting to surgical OPD affecting all age groups. In the management of various neck swellings, cytological diagnosis by FNAC helps in planning the further management. FNAC helps to differentiate between inflammatory process, neoplastic and benign swellings. In the present study, we aim to assess the accuracy of FNAC in comparison with open biopsy which is considered as gold standard.

Methods: 50 cases of non-thyroidal neck swellings presenting to MVJMC were subjected to FNAC and concomitant open biopsy to assess the accuracy of FNAC over open biopsy in diagnosis of non-thyroidal neck swellings.

Results: Out of the 50 cases studied, the age group of subjects ranged from 18 to 79 years with majority of patients in the age group of 41 to 50 years. Majority of patients were males(60%) while females accounted for 40% of the cases. 48% were lymph node swellings, 36% were benign soft tissue swellings, 4% were salivary gland tumours and 12% were miscellaneous. Out of the lymph node swellings, majority of cases were lymphomas accounting for 37.5% of cases. Out of benign soft tissue swellings, majority were lipoma accounting for 77.8% cases. The sensitivity of FNAC in lymphoma was 77.7%, metastatic 100%, primary malignancy 100%, benign 94.7%, miscellaneous 88.9%, tubercular lymphadenitis 85.7%. The overall sensitivity, specificity, PPV, NPV, accuracy in present study were 76.47%, 100%, 100%, 89.19% and 92% respectively.

KEYWORDS

FNAC, open biopsy, specificity, sensitivity, non-thyroidal neck swellings

INTRODUCTION

The diagnostic evaluation of neck mass requires a planned approach that does not compromise the effectiveness of future treatment option. The differential diagnosis of a neck mass is dependent on its location and patient's age .In Adult Population, a neck mass >2cm in diameter has a >80% probability of being malignant¹

Lesions of head and neck are comprised of developmental, inflammatory and neoplastic conditions. Most commonly seen swellings are branchial cysts, thyroglossal cysts, dermoid cysts, lymphangioma, haemangioma, lymphadenitis, sialadenitis and neoplastic pathologies²

Head and neck neoplasms is a major form of cancer in India accounting for 23 % of all cancer in males and 6 % in females³

FNAC is of particular relevance in the head and neck area because of easy accessibility of the target site, excellent patient compliance, minimally invasive nature of the procedure and helping to avoid surgery in non-neoplastic lesions, inflammatory conditions and also some tumors⁴.

FNAC with or without the assistance of ultrasound or CT guidance, can provide valuable information for early treatment planning¹

Martin introduced this technique in the evaluation of head and neck lesions in 1930 and the procedure has since then become increasingly popular and is being frequently used in the evaluation of swellings of this region^(5,6). The FNAC has a accuracy rate exceeding 92%⁷

Salivary gland FNAC has gained wide spread acceptance with reported sensitivity and specificity for diagnosing neoplasm more than 90%⁸.FNAC has been most accurate at diagnosing epithelial cysts⁹.

FNAC can be performed in outpatient clinic and it causes minimal trauma to patient and virtually has no risk of complications. FNAC is considered to be gold standard in selection of patient for surgery.

Histopathological examination is gold standard for diagnosis in case of non-thyroidal neck masses and it cannot be replaced by FNAC, especially in determination of nodal architecture in lymphoma, extracapsular spread in squamous carcinoma and in distinction of pleomorphic from monomorphic adenoma.

METHODOLOGY

The study includes 50 cases of non-thyroidal neck swellings coming to MVJ medical college bengaluru surgical outpatient department.

All cases of non-thyroidal neck swellings were subjected to FNAC in pathology department

FNAC which was suggestive of metastatic squamous cell carcinoma or adenocarcinoma were subjected to triple endoscopy(upper gastrointestinal endoscopy, direct laryngoscopy, posterior rhinoscopy). Cases which did not yield any malignant growth in the endoscopy were included and cases which were diagnosed with primary disease were excluded

INCLUSION CRITERIA

1.age group of patient between 18-80 years presenting with non-thyroidal neck swellings

EXCLUSION CRITERIA

1. Patients presenting with thyroidal neck swellings, acute inflammatory swellings, abscess
2. Patients with bleeding diathesis
3. Age less than 18 years or more than 80 years
4. Patients presenting with metastatic lymph node disease with known primary

STATISTICAL ANALYSIS

Data was entered into Microsoft excel data sheet and was analyzed using SPSS 22 version software. Categorical data was represented in the form of Frequencies and proportions. Chi-square test was used as test of significance for qualitative data.

Continuous data was represented as mean and standard deviation. Independent t test was used as test of significance to identify the mean difference between two quantitative variables.

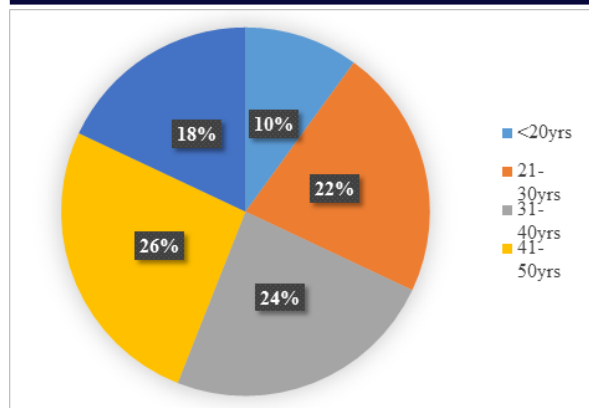
Graphical representation of data: MS Excel and MS word was used to obtain various types of graphs such as bar diagram, Pie diagram.

Screening of disease

Screening test results	Diagnosis		Total
	Diseased	Healthy	
Positive	a (True positive)	b (False Positive)	a+b
Negative	c (False Negative)	d (True Negative)	c+d
Total	a + c	b + d	a+b+c+d

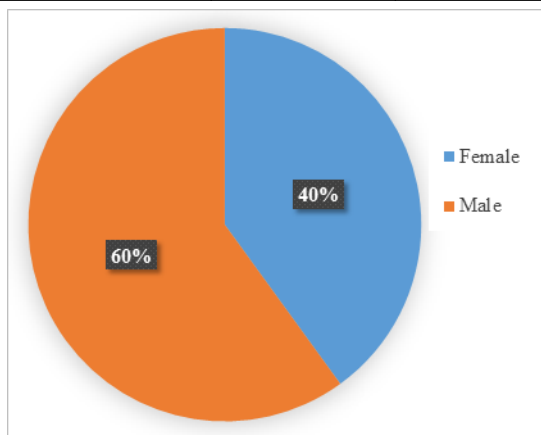
RESULTS

Age Group	Frequency	Percent
<20yrs	5	10.0
21-30yrs	11	22.0
31-40yrs	12	24.0
41-50yrs	13	26.0
>50yrs	9	18.0
Total	50	100.0



26% of the subjects were in 41-50yrs age group followed by 24% were in 31-40yrs, 22% were in 21-30yrs, 18% were in >50yrs and only 10% were <20yrs

SEX	Frequency	Percent
Female	20	40.0
Male	30	60.0
Total	50	100.0



Duration of swelling	Frequency	Percent
0-1yrs	30	60.0
>1yrs	20	40.0
Total	50	100.0

Majority of the swelling 24% were in Nape of the neck followed by Right carotid triangle 18% ,Right submandibular and Right supraclavicular 14% each,

Consistency	Frequency	Percent
CYSTIC	5	10.0
FIRM	22	44.0
HARD	19	38.0
SOFT	4	8.0
Total	50	100.0

	Frequency	Percent
L CAROTID TRIANGLE	2	4.0
L MUSCULAR TRIANGLE	1	2.0
L POSTERIOR TRIANGLE	2	4.0
L SUBMANDIBULAR	2	4.0
L SUBMENTAL TRIANGLE	1	2.0
MIDLINE ANT TRIANGLE OF NECK	1	2.0
NAPE OF NECK	12	24.0
R CAROTID TRIANGLE	9	18.0
R CAROTID TRIANGLE AND L POSTERIOR TRIANGLE	1	2.0
R MUSCULAR TRIANGLE	1	2.0
R POSTERIOR TRIANGLE	2	4.0
R SUBMANDIBULAR	7	14.0
R SUBMANDIBULAR AND CERVICAL	1	2.0
R SUBMENTAL	1	2.0
R SUPRACLAVICULAR	7	14.0
Total	50	100.0

	Frequency	Percent
INFECTIVE		
CASEATING GRANULOMATOUS LYMPHADENITIS S/O TB	7	14.0
MALIGNANT		
HODGKINS LYMPHOMA		
A. CLASSICAL HODGKINS LYMPHOMA	2	4.0
B. LYMPHOCYTE DEPLETED HODGKINS LYMPHOMA	1	2.0
C. NODULAR SCELROSIS HODGKINS LYMPHOMA	2	4.0
NON HODGKINS LYMPHOMA		
a. DIFFUSE LARGE B CELL LYMPHOMA	1	2.0
b. FOLLICULAR LYMPHOMA	3	6.0
METASTATIC SCC	5	10.0
SQUAMOUS CELL CARCINOMA OF SUBMANDIBULAR GLAND	1	2.0
BENIGN		
LIPOMA	8	16.0
FIBROLIPOMA	6	12.0
PILOMATRICOMA	1	2.0
PLEOMORPHIC ADENOMA OF SUBMANDIBULAR GLAND	1	2.0
SCHWANNOMA	2	4.0
PARAGANGLIOMA	1	2.0
MISCELLANEOUS		
DERMOID CYST	2	4.0
EPIDERMAL INCLUSION CYST	2	4.0
KIMURA'S DISEASE	1	2.0
LYMPHATIC CYST	1	2.0
THYROGLOSSAL CYST	1	2.0
SARCOIDOSIS	2	4.0
Total	50	100.0

CASES WHERE DISCORDANCE BETWEEN FNAC AND HPE WAS NOTED

FNAC	HPE DIAGNOSIS
Granulomatous lymphadenitis with foreign body cell granuloma	Pilomatrixoma
Necrotising lymphadenitis	Granulomatous caseating lymphadenitis s/o tuberculosis
Necrotising lymphadenitis	Non Hodgkin's lymphoma
Granulomatous non caseating lymphadenitis s/o histoplasmosis	Granulomatous caseating lymphadenitis s/o tuberculosis

DISCUSSION

The present study was aimed at assessing the sensitivity, specificity of FNAC when compared with histopathological examination in non-thyroidal neck swellings.

In our present study conducted, 48% cases were of lymph node origin, 4% were of submandibular salivary gland tumors, 48% were of miscellaneous lesions. Among lymph node swellings, most common was lymphoma (37.5%), tubercular lymphadenitis (29.2%), 20.8 % were metastatic squamous cell carcinoma, 8.3% were of sarcoidosis, 4.2% were of kimura disease. Among submandibular salivary gland, 50% were of squamous cell carcinoma and 50% were of pleomorphic adenoma. Among miscellaneous lesions 58.3% were lipoma, 8.3% were dermoid cyst, 8.3% were epidermal inclusion cyst, 8.3% were schwannoma, 4.2% were paraganglioma, 4.2 were thyroglossal cyst, 4.2% were lymphatic cyst, 4.3% were pilomatrixoma which is discordant with other quoted studies comparison of sensitivity of FNAC according to diagnosis.

Diagnosis	Present study	Tippu Ishar et al	Kaiser Khan et al	Alina Iacob et al	Akhavan-Moghadam, Jamal et al
Lymphoma	77.8%	100%	100%	100%	85.7%
Metastatic neck disease	100%		100%	100%	90%
Benign	94.7%	94.7%	90%	86.7%	94.1%
Miscellaneous	88.8%	100%	100%	71.4%	
Tubercular lymphadenitis	85.7%		95.23%		
Primary malignancy	100%	100%	100%	75%	100%

CONCLUSION

FNAC is considered the first line investigation in non thyroidal neck swellings and helps in planning the further course of management.

FNAC helps in distinguishing between neoplastic and inflammatory lesion and avoids unnecessary surgical intervention and anaesthetic risk complication FNAC which are suggestive of metastatic deposits necessitates further work up of primary malignancy with upper gastrointestinal endoscopy, direct laryngoscopy and posterior rhinoscopy.

In cases of lymphomas, excision biopsy is warranted to subclassify the type of lymphoma and the required immunochemistry for subsequent management with chemotherapy.

In cases of metastatic deposits unknown primary, further management would be with modified radical neck dissection and Adjuvant chemotherapy In cases of tuberculous lymphadenitis, FNAC along with AFB staining and CBNAAT were done and FNAC showing granulomatous caseating lymphadenitis with either AFB positive or CBNAAT positive were started on Anti tuberculous drugs without need for excision biopsy FNAC is safe, quick, reliable, accurate, minimally invasive for diagnosis of non-thyroidal swellings.

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