



CLINICOPATHOLOGICAL STUDY AND DIAGNOSTIC ROLE OF FNAC IN NECK SWELLINGS

ENT

Dr. G. Raja Mohan MBBS, MS(ENT) Assistant professor, E. N. T Department, R. V. M Medical college, Laxmakkapally, Siddipet, Telangana.

Dr. D. Sampath Rao* MBBS, MS(ENT), Assistant professor of ENT, Government Medical College Mahabubnagar, Telangana. *Corresponding Author

ABSTRACT

BACKGROUND: - The evaluation of a neck mass is a common clinical dilemma and a condition to which an ENT clinician routinely encounters. In the head and neck region, FNAC is of great value because of the multiplicity of accessible organs and heterogeneous pathologies encountered. An early differentiation of benign from malignant pathology greatly influences the planned treatment. The purpose of this study was to evaluate the adequacy and accuracy of FNAC in diagnosis of neck mass.

AIMS AND OBJECTIVES: - to know the commonest cause of neck swellings in the study area, and to compare the accuracy of FNAC over open biopsy.

METHODOLOGY: - It is Descriptive, observational, hospital based study. Study conducted in out-patient department R.V.M hospital, R.V.M MEDICAL COLLEGE, Laxmakkapally, Siddipet, Telangana, from DEC 2017 to NOV 2018 for a period of 1 year. All patients attending ENT OPD with neck swelling of both sexes and all age group were included with 100 sample size.

RESULTS:- Most of the study population belongs to 31-40 years, Mean age is 34.25 years and Male predominance (74%). Neck swellings were asymptomatic, most common site was midline. Lymph nodes (43%), thyroid swellings (41%) were majority among all. Average Sensitivity of 66.32%, and specificity of 70.40% recorded with FNAC.

CONCLUSION; - FNAC is proved to be the promising diagnostic tool with less discomfort and minimal trauma when compared with biopsy.

KEYWORDS

Neck swellings, Fine Needle aspiration cytology (FNAC), Thyroid swelling, Lymphadenitis, sensitivity, specificity, Accuracy.

INTRODUCTION:-

The evaluation of a neck mass is a common clinical dilemma and a condition to which an ENT clinician routinely encounters. Commonly presenting neck masses occur within lymph nodes, thyroid, parotid and other salivary glands. Less common pathologies presenting as neck swellings are from thyroglossal cysts, branchial cleft cysts, carotid body tumors, cystic hygromas, pharyngeal pouch abnormalities and lumps of skin appendages¹. In the head and neck region, FNAC is of great value because of the multiplicity of accessible organs and heterogeneous pathologies encountered. An early differentiation of benign from malignant pathology greatly influences the planned treatment.² FNAC can be both diagnostic and therapeutic in cystic swellings.³ FNAC is clearly no substitute for histology, especially in determination of nodal architecture in lymphoma, the malignant pattern of follicular thyroid tumor, intracapsular spread in squamous carcinoma or in the distinction of pleomorphic from monomorphic adenoma.² The purpose of this study was to evaluate the adequacy and accuracy of FNAC in diagnosis of neck mass.

AIMS AND OBJECTIVES:-

Present study is to know the commonest cause of neck swellings in the study area, and to compare the accuracy of FNAC over open biopsy in assessment of cause of neck swellings.

MATERIAL AND METHODS:-

STUDY AREA: - Study conducted in out-patient department R.V.M MEDICAL COLLEGE, Laxmakkapally, Siddipet, Telangana.

STUDY DESIGN: - This current study is Descriptive, observational, hospital based study. **TIME FRAME:** - The study is conducted From DEC 2017 to NOV 2018 for a period of 1 year. **STUDY**

POPULATION:- sample size 100, Inclusion Criteria: All patients attending ENT OPD with neck swelling of both sexes and all age group. Exclusion Criteria: Patient who underwent FNAC but did not undergo subsequent histo pathological diagnosis. Suspected neck masses of vascular origin on clinical examination.

DATA COLLECTION TECHNIQUE:- History was taken by interview method with Pretested semi structured questionnaire used. All the cases of neck swellings was sent to department of pathology where fine needle aspiration biopsy was done with 21-23 gauge needle attached to the 10ml plastic disposable syringe.

DATA ANALYSIS: Data was entered in MS-excel 2007 and data was analysed using SPSS software trail version 22. Relevalant statistical tests were applied and $p < 0.05$ is considered as statistical significance.

ETHICAL CLEARENCE: - Ethical clearance taken from ethical committee of R.V.M Medical college, and informed consent taken from the study subjects (parents/guardians) before doing this study. There was No conflict of interest in this study.

RESULTS:-

AGE: AND SEX: - Most of the study population belongs to 31-40 years followed by 21 to 30 years of age group. Mean age is 34.25 years (Mean \pm SD: 34.25 \pm 14.24) and most of the study population (74%) belongs to Male gender

TABLE 1:- Associated Clinical Symptoms in study population.

Associated Clinical Symptoms	No. of Patients	Percentage
Nil	68	68%
Fever	15	15%
Weight loss	15	15%
Pain	10	10%
Palpitation	2	2%
Hoarseness of voice	2	2%
Upper respiratory tract infection	1	1%
Dysphagia	1	1%
Epistaxis	1	1%

TABLE 1 is showing, clinical symptoms associated in study population, where majority (68%) were not associated with any symptoms. Fever and Weight loss were most common (15%) followed by pain.

TABLE 2:- ANATOMICAL SITE OF NECK SWELLING

Anatomic Site	No. of Patients (n = 100)	Percentage
Anterior part of neck / midline swelling	51	51%
Upper cervical	29	29%
Submandibular triangle	8	8%
Posterior triangle	5	5%
Submental triangle	3	3%
Middle cervical	2	2%
Lower cervical	1	1%
Lateral part of neck	1	1%

TABLE 2, showing most common (51%) anatomical site of neck swelling is Anterior part of neck / midline swelling followed by upper cervical site (29%)

TABLE 3:- CLINICAL EXAMINATION FINDINGS OF NECK SWELLINGS

	No. of Patients (n = 100)	Percentage
Tender:		
Yes	25	25%
Consistency:		
Firm	78	78%
Fluctuant	7	7%
Hard	6	6%
Cystic	5	5%
Soft	3	3%
Pulsatile	1	1%

TABLE 3, On Clinical Examination most of Neck Swellings were non tender(75%), firm (78%), and fluctuant (7%).

FIG: - 1 SHOWING FNAC RESULTS AMONG STUDY POPULATION

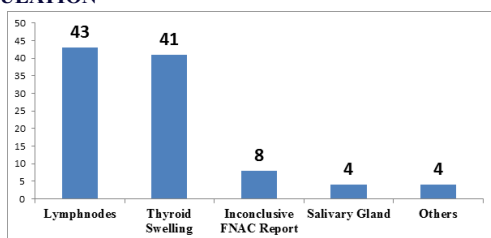


FIG 1, FNAC results of the neck swellings were showing Lymph nodes (43%), thyroid swellings (41%) as majority. There were 8 cases with inconclusive report. Only 4 cases of salivary gland related swellings were seen.

TABLE 4:- CYTOLOGY BY FNAC AMONG STUDY POPULATION

FNAC Report-Cytology	No. of Patients (n = 100)	Percentage
THYROID SWELLING:	41	41%
Colloid Goiter	19	19%
Nodular Colloid Goiter	5	5%
Papillary Carcinoma	4	4%
Nodular Goiter	3	3%
Follicular Neoplasm	3	3%
Multi nodular Goiter	2	2%
Lymphocytic Thyroiditis	2	2%
Hashimoto's Thyroiditis	2	2%
Anaplastic Carcinoma	1	1%
SALIVARY GLAND:	4	4%
Chronic Sialadenitis	3	3%
Adenoid Cystic Carcinoma	1	1%
LYMPHNODES:	43	43%
TB Lymphadenitis	17	17%
Chronic Lymphadenitis	8	8%
Acute Suppurative Lymphadenitis	7	7%
Malignant Metastasis	7	7%
Granulomatous Lymphadenitis	1	1%
Non-Hodgkin's Lymphoma	1	1%
Lymphoma Abscess	1	1%
TB Abscess	1	1%
OTHERS:	4	4%
Lipoma	2	2%
Thyroglossal Cyst	2	2%
INCONCLUSIVE FNAC REPORT:	8	8%
Inflammatory Exudates	5	4%
Bloody Aspirate	1	1%
Malignant Lesion	1	1%
Lymphoproliferative Disease	1	1%

TABLE 5, is showing diagnostic value of FNAC when histopathology was considered as gold standard. There were values for different diseases so they are represented as Ranges and Averages of them. Results were showing Average Sensitivity 66.32%, specificity 70.40%, accuracy 68.5%, PPV-67%, NPV-69%, PLR-0.95, NLR-0.93.

DISCUSSION: -

swellings on neck are a common problem and it's readily visibility creates havoc among patients. This study was carried out to find out the relative frequencies of various pathologies presenting as lump in the neck in the ENT department. Fine needle aspiration cytology was performed to achieve the desired objective. The results achieved in the present study were compared with different national and international studies.

AGE: - Most of the study population with neck swellings belongs to 31-40 years followed by 21 to 30 years of age group in the present study. Mean age is 34.25 years (Mean ± SD: 34.25 ± 14.24). **Samreen Naz et al¹** (2015) studied on salivary glands swellings showed mean age of presentation is 42 years which nearly similar to the present study findings.

A study done by **Sanjay chauhan et al⁵** in 2016 showed most common age group for neck swellings were in between 11 to 20(25%), followed by 21 to 30 (23%), which is not coinciding with our present study. A similar study done by **Gunvati B. Rahode et al⁶** in 2012 also had 21 to 30 years of age group with maximum neck swellings and Another study of **Manjula K et al⁷** (2011) showed mean age of presentation of 24.5 years age, which are not similar with present study.

GENDER: - Present study had male predominance (74%), and this is supported by **Gunvati B. Rahode et al⁶** (Male- 59%), **Manjula K et al⁷** (Male – 59.21%), **Tippu ishar et al⁸** (M:F 1.5:1). But female predominance is seen in studies done by **Tariq et al⁹** (Females-68%), **Sanjay chauhan et al⁵** (Females-56%). **Samreen Naz et al¹** study had equal distribution (M: F 1:1) of gender.

Clinical presentation: - Most of the neck swellings were asymptomatic (68%), painless. That might be the reason of late recognition of disease (Mean age is 34.25 years), and most common site is midline, thus it is easily visible and recognized by the patients when compared to other sites. It may be also because natural anatomical site of organs (thyroid, lymph nodes etc.)

Cytology by FNAC:-

Among all neck swellings Lymph nodes (43%), thyroid swellings (41%) were predominant and only 4 cases of salivary gland swellings were seen in the Present study. These findings were supported by **Sanjay chauhan et al⁵** (lymph nodes-51%), **Tippu ishar et al⁸** (lymph nodes-68.75%), **Tariq et al⁹** Tuberculosis lymphadenitis 18 (36%). But findings of **Gunvati B. Rahode et al⁶** study showed more number of Thyroid swelling than Lymph nodes (Lymph nodes - 28.5%, Thyroid swelling – 84%) which is not coinciding with our study.

Diagnostic value of FNAC:-

Average Sensitivity of 66.32% and specificity of 70.40% was noted for FNAC when compared with the gold standard method that is Histopathology (biopsy). TABLE 6,shows nearly similar and high levels of sensitivity, specificity, and accuracy in other studies.

TABLE 6:- COMPARISON OF DIAGNOSTIC VALUE OF FNAC WITH OTHER STUDIES

Similar Studies	Sensitivity	Specificity	Accuracy	Year Of Study
Tippu et al ⁸	93.47%	-	-	2012
Tilak et al ¹⁰	90.90%	93.18%	92.73%	2002
Bista M et al ¹¹	70%	97.50%	92%	2011
Samreen Naz et al ¹	68.50%	91%	83.80%	2015
Present study	66.32%	70.40%	68.50%	2017

CONCLUSION:-

Most of the study population belongs to 31-40 years, Mean age is 34.25 years and Male predominance (74%). Neck swellings were asymptomatic, most common site was midline. Lymph nodes (43%), thyroid swellings (41%) were majority among all. With Average Sensitivity of 66.32%, and specificity of 70.40%, FNAC is proved to be the promising diagnostic tool with less discomfort and minimal trauma when compared with biopsy.

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