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Original article

Study of comparison between the results of Fine Needle Aspiration Cytology and Excisional biopsy in neck masses

[1]Dr S Vijay Praveen , [2]Dr Karthik Munagala, [3] Dr Baddam Grace Swarupa Charles , [4]Dr Prashanth .N , [5] Dr Azmath Shaik

[1]Assistant Professor, Department of ENT , ESIC Medical College, Sanathnagar

[2]Senior Resident, Department of ENT, ESIC Medical College, Sanathnagar

[3]Associate Professor, Department of DVL, Kamineni Institute of Medical Sciences, Narketpally.

[4]Senior Resident, Department of ENT, RVM Institute of Medical Sciences, Laxmakkapally

[5]Associate Professor, Department of ENT, ESIC Medical College, Sanathnagar

Corresponding Author : Dr Azmath Shaik , Associate Professor, Department of ENT, ESIC Medical College, Sanathnagar , E- mail- drazmath007@gmail.com

Abstract:

Introduction: Fine needle aspiration cytology (FNAC) is one of the most valuable tests in the initial assessment of the patient who presents with a mass in the neck region or where a recurrence is suspected after previous treatment. FNAC is simple, quick and low cost method and is usually performed on the OPD basis.

Methodology: A total of 100 patients with neck masses attending ENT department of SVS Medical college/Hospital were studied. Clinical evaluation of the patient was done by proper history taking and clinical examination. Pathological evaluation was done by FNAC and Excisional biopsy.

Results: In the present out of 49 thyroid masses the Sensitivity of FNAC is 77.78%, Specificity is 97.5%, PPV is 87.5%, NPV is 95.12%. In the present out of 40 lymph node masses the Sensitivity of FNAC is 75%, Specificity is 97.22%, PPV is 75%, NPV is 97.22 In the present study of 100 neck masses the overall Sensitivity of FNAC is 75.00%, Specificity is 97.62%, PPV is 85.71%, NPV is 95.35%.

Conclusion: Hence we conclude that FNAC is a quick, convenient procedure with minimal cost, excellent patient compliance and should be considered as a first line investigation in evaluation of neck masses and it should be followed by Histopathological examination for the confirmation of diagnosis.

Keywords: Neck masses, FNAC, Clinical evaluation

Introduction:

Fine needle aspiration cytology (FNAC) is one of the most valuable tests in the initial assessment of the patient who presents with a mass in the neck region or where a recurrence is suspected after previous treatment. FNAC is simple, quick and low cost method and is usually performed on the OPD basis[1,2]. Masses located within the region of head and neck including lymph nodes, salivary glands and thyroid masses can be readily diagnosed using this technique [3,4]. It causes minimal trauma to the patient and carries virtually no risk of complications and has an excellent patient compliance. The neck masses account for almost one half of all body sites aspirated. To make an accurate and effective surgical intervention, it is essential to make a preoperative assessment of the nature of these lesions. An early differentiation of benign from malignant pathology greatly influences the planned treatment[5]. There is no evidence that the tumour spreads through the skin track created by the fine hypodermic needle used in this technique[6]. FNAC can be both diagnostic and therapeutic in cystic swellings[7]. FNAC is not a

substitute for histopathological examination, especially in determination of nodal architecture in lymphoma, the malignant pattern of follicular thyroid tumour, intracapsular spread in squamous carcinoma or in the distinction of pleomorphic from monomorphic adenoma[4].

Methodology:

Prospective study was carried out in the Department of ENT, SVS Medical College and Hospital, Mahabubnagar, Telangana from 1st November 2016 to 31st October 2018.

A total of 100 patients with neck masses attending ENT department of SVS Medical college/Hospital were studied. Clinical evaluation of the patient was done by proper history taking and clinical examination. Pathological evaluation was done by FNAC and Excisional biopsy.

Inclusion criteria

1. All patients who presented clinically with palpable neck masses in ENT OPD and getting admitted for the same.
2. Those willing to undergo FNAC and Excisional biopsy
3. Those willing to give consent , enroll and abide by the study protocol

Exclusion criteria

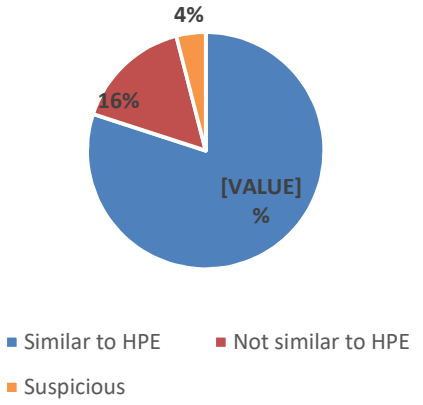
1. Patients not willing to undergo FNAC and Excisional biopsy
2. Patients not willing to give consent for the study.

This study was carried out in the department of ENT, SVS Medical College & Hospital, Mahabubnagar. A total of 100 cases of neck mases were studied, FNAC and Excisional biopsy was done in all the cases and following were the observations noted.

Results:

Graph1: Comparison of FNAC report with HPE

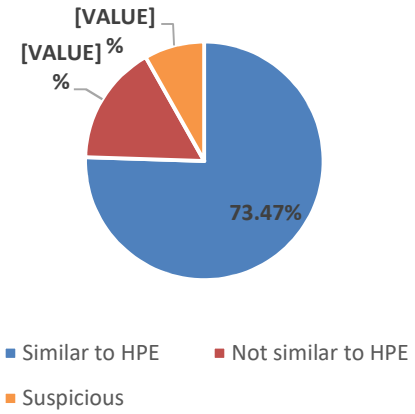
- Similar to HPE – 80
- Not similar to HPE – 16
- Suspicious - 4



In the present study FNAC report is similar to HPE in 80 cases, not similar to HPE in 16 cases and in 4 cases it is suspicious.

Graph 2: Comparison of FNAC report with HPE for thyroid swellings

- Similar to HPE –36
- Not similar to HPE – 9
- Suspicious - 4



In the present study out of 49 thyroid swellings, FNAC report is similar to HPE in 36 cases, not similar to HPE in 9 cases and suspicious in 4 cases.

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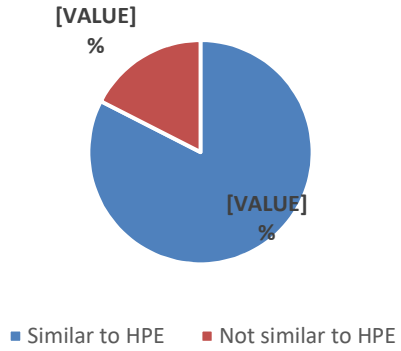
Graph 3: Comparison of FNAC report with HPE for lymph node swellings

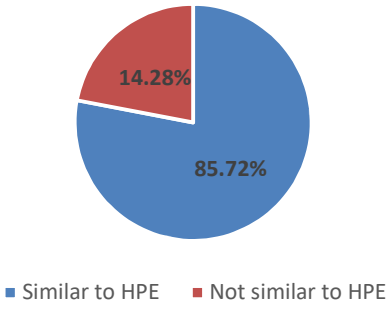
- Similar to HPE –33
- Not similar to HPE – 7



In the present study out of 40 lymph node swellings, FNAC report is similar to HPE in 33 cases, not similar to HPE in 7 cases.

Graph 4: Salivary gland swellings

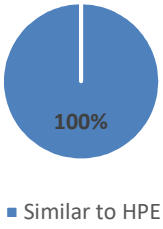
- Similar to HPE – 6
- Not similar to HPE – 1



In the present study out of 7 salivary gland swellings, FNAC report is similar to HPE in 6 cases, not similar to HPE in 1 case.

Graph 5: Other swellings

- Similar to HPE – 4
- Not similar to HPE – 0



In the present study out of 4 other swellings, FNAC report is similar to HPE in all the 4 cases.

Graph 6 : Sensitivity, Specificity, PPV, NPV of FNAC of neck masses

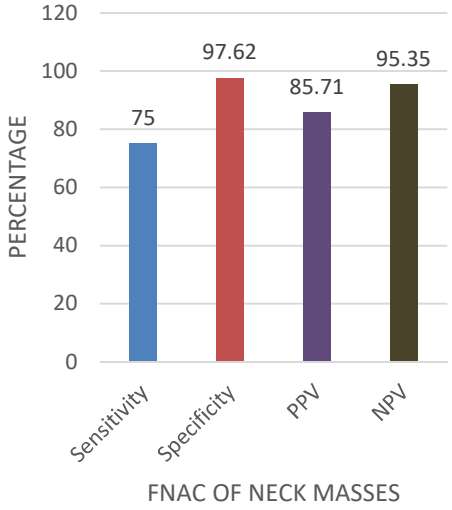


Table 1: Showing Sensitivity, Specificity, PPV,NPV of FNAC of individual swellings

	Thyroid swellings	Lymph node swellings	Salivary gland swellings
Sensitivity	77.78%	75%	66.67%
Specificity	97.5%	97.22%	100%
PPV	87.5%	75%	100%
NPV	95.12%	97.22%	80%

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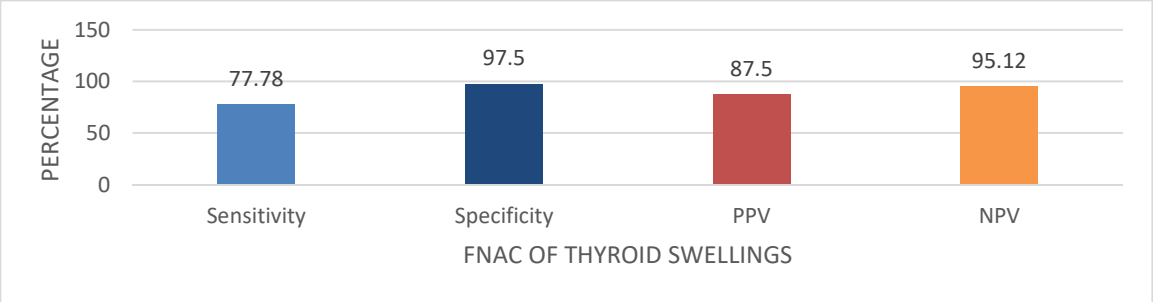
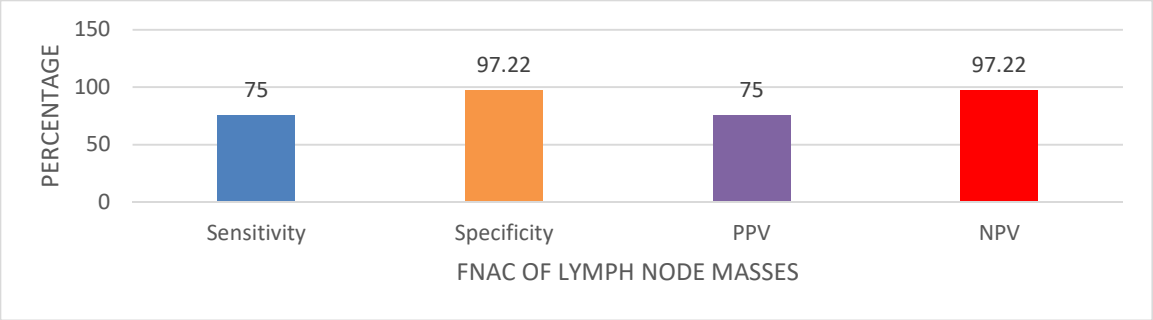
Graph 7 : Sensitivity, Specificity, PPV, NPV of FNAC of thyroid masses



In the present out of 49 thyroid masses the Sensitivity of FNAC is 77.78%, Specificity is 97.5%, PPV is 87.5%, NPV is 95.12%.

Graph 8: Sensitivity, Specificity, PPV, NPV of FNAC of lymph node masses



In the present out of 40 lymph node masses the Sensitivity of FNAC is 75%, Specificity is 97.22%, PPV is 75%, NPV is 97.22

Graph 9: Sensitivity, Specificity, PPV, NPV of FNAC of salivary gland masses

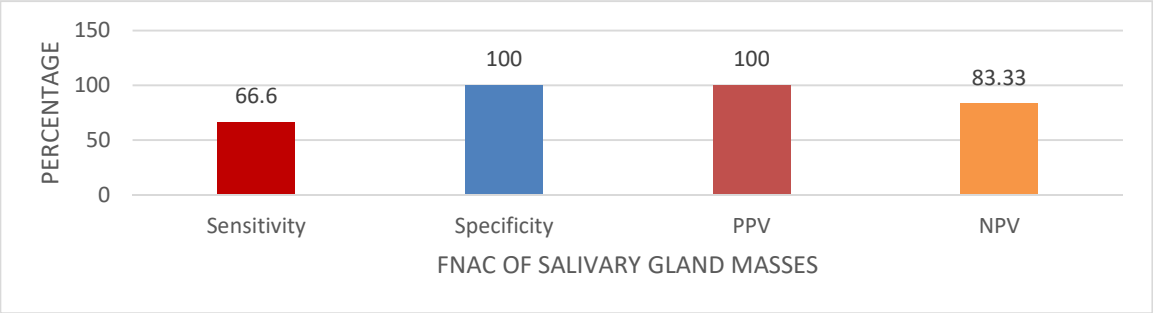


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Table 2 : Histopathological reports of the patients studied

HPE Report	Number of patients	Percentage
Thyroid Swellings		
• Hashimoto's Thyroiditis	6	6.00
• Colloid goitre	11	11.00
• Colloid goitre with cystic degeneration	3	3.00
• Nodular colloid goitre	1	1.00
• Papillary carcinoma	8	8.00
• Follicular Adenoma	6	6.00
• Follicular Carcinoma	1	1.00
• Multinodular goitre	7	7.00
• Nodular goitre	2	2.00
• Benign cystic lesion	2	2.00
• Adenomatous goitre	2	2.00
Salivary gland swellings		
• Chronic sialadenitis	1	1.00
• Pleomorphic adenoma	3	3.00
• Adenocystic carcinoma	3	3.00
Lymph nodes		
• TB lymphadenitis	24	24.00
• Malignant metastasis	2	2.00
• Reactive lymphadenitis	8	8.00
• Non-Hodgkin's lymphoma	1	1.00
• Chronic lymphadenitis	4	4.00
• Hodgkin's lymphoma	1	1.00
Others		
• Lipoma	2	2.00
• Thyroglossal cyst	2	2.00
Total	100	100.00

Table 3 : Showing FNAC reports of the patients studied

FNAC Report	Number of patients	Percentage
Thyroid Swellings		
• Hashimoto's Thyroiditis	5	5.00
• Colloid goitre	16	16.00
• Colloid goitre with cystic change	2	2.00
• Benign cystic lesion	3	3.00
• Papillary carcinoma	7	7.00
• Follicular neoplasm	4	4.00
• Nodular goitre	9	9.00
• Adenomatous goitre	3	3.00
Salivary gland swellings		
• Chronic sialadenitis	1	1.00

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• Pleomorphic adenoma	3	3.00
• Adenocystic carcinoma	2	2.00
• Sialadenosis	1	1.00
Lymph node swellings		
• TB lymphadenitis	19	21.00
• Malignant metastasis	2	2.00
• Reactive lymphadenitis	9	9.00
• Non-Hodgkin's lymphoma	2	2.00
• Chronic lymphadenitis	8	8.00
Other swellings		
• Lipoma	2	2.00
• Thyroglossal cyst	2	2.00
Total	100	100.00

Discussion:

In the present study overall sensitivity and specificity of FNAC are 75% and 97.62% respectively. In the present study out of the 49 thyroid swelling aspirates 36 were similar to HPE reports and 9 reports did not match with HPE reports and 4 were inconclusive. 1 cytologically diagnosed case of colloid goitre turned out to be papillary carcinoma on HPE.1 cytologically diagnosed case of benign cystic lesion turned out to be papillary carcinoma on HPE. 1 cytologically diagnosed case of papillary carcinoma turned out to be Hashimoto's thyroiditis on HPE. 2 cytologically diagnosed cases of colloid goitre turned out to be Follicular adenoma on HPE. 1 cytologically diagnosed cases of colloid goitre turned out to be nodular colloid goitre on HPE. Out of 4 cases cytologically diagnosed as follicular neoplasm, 1 was follicular carcinoma and 3 were follicular adenoma on HPE.

In the present study out of the 40 lymph node aspirates 33 were similar to HPE reports and 7 reports did not match with HPE reports.4 cytologically diagnosed cases of chronic lymphadenitis turned out be TB lymphadenitis on HPE. 1 cytologically diagnosed case of reactive lymphadenitis turned out to be TB lymphadenitis on HPE. 1 cytologically diagnosed case of NHL turned out be HL on HPE. In the present study out of the 7 salivary gland aspirates 6 were similar to HPE reports and 1 report did not match with HPE reports. 1 cytologically diagnosed case of Sialadenosis turned out be Adeno cystic carcinoma on HPE.

In the present study out of the 4 other aspirates all the 4 were similar to HPE reports. In the study by S Soni et al[8] overall sensitivity and specificity of FNAC were 83.01% and 78% respectively. In the study by Tilak et al[9] overall sensitivity and specificity of FNAC were 90.01% and 93.18% respectively. In the study by Howlett DC et al overall sensitivity and specificity of FNAC were 89% and 57% respectively.[10,11] We should consider this with comparison of other studies. [12]

From this study, we found -

1. Fine needle aspiration cytology offers a simple method of diagnosis of neoplastic and non-neoplastic lesions in the neck.
2. It is a minimally invasive procedure which can be performed as an outpatient procedure. There is no need for anesthesia and quick results are available with a very good accuracy.
3. FNAC with clinical correlation can provide most useful information to surgeon to determine the further mode of management.

Conclusion:

Hence we conclude that FNAC is a quick, convenient procedure with minimal cost, excellent patient compliance and should be considered as a first line investigation in evaluation of neck masses and it should be followed by Histopathological examination for the confirmation of diagnosis.

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