

Study and Correlation of FNAC with HPE Report in Head and Neck Swellings

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Abstract:

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 appendages.

Materials and Methods: The material consists of 100 patients with neck swellings coming to the ENT OPD at our hospital, Hyderabad. The period of study was two years. Inclusion criteria include 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 histopathological diagnosis.

Suspected neck masses of vascular origin on clinical examination. According to proforma detailed history was taken, thorough examination will be carried out and basic relevant investigations was done in all the patients to arrive at a provisional diagnosis.

Results: The present study was carried out at the department of ENT, in our institute, from October 2013 to October 2015. Of the 100 cases clinically evaluated, 60 were thyroid swellings, 16 were Salivary gland swellings, 5 were lymph node swellings and 19 were other swelling. 66 were female patients and 34 were male patients. Maximum number of patients were between the age group of 21- 50 Yrs. Thyroid swelling aspiration was carried on in 60 cases, which was the commonest swelling in our study. 52 of these lymph node cytology reports were similar to HPE report. 8 were not similar to HPE. Of the 16 salivary gland aspirates 15 cytological reports were similar to HPE reports and 1 report did not match with HPE reports. Of the 5 lymph node swelling 5 cases matched with the HPE reports. Of the 19 other neck swellings 17 cytological reports were similar to HPE reports and 2 reports were not similar to HPE. In our study, one cytological diagnosed case of nodular goitre turned out to be papillary carcinoma on HPE.

Conclusion: Fine needle aspiration cytology offers a simple method of diagnosis of neoplastic and non neoplastic lesions in the neck. It can be performed as an outpatient procedure. The procedure is acceptable to most of the patients. There is no need for anesthesia and speedy results are available. An accurate diagnosis can be made. It serves as complementary procedure to Histopathological examination.

Key words: neck mass, thyroglossal cysts, branchial cleft cysts, carotid body tumors, cystic hygromas

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I. 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 appendages.¹

Fine needle aspiration cytology (FNAC) is a simple, quick and cost effective method to sample superficial masses found in the neck. The technique is performed in the outpatient clinic. It causes minimal trauma to the patient and carries virtually no risk of complication. Masses located within the region of head and neck including salivary glands and thyroid masses can be readily diagnosed using this technique.^{2,3} 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.⁴ Fine needle aspiration cytology can be performed under local anesthesia and is particularly useful if a neck lump is thought to be malignant. There is no evidence that the tumor spreads through the skin track created by the fine hypodermic needle used in this technique.⁵ FNAC can be both diagnostic and

therapeutic in cystic swellings.⁶

Fine needle aspiration cytology is helpful for the diagnosis of salivary gland tumor where it can differentiate between a benign and malignant tumor with 90% accuracy.⁷ FNAC is particularly helpful in the workup of cervical masses and nodules because biopsy of cervical adenopathy should be avoided until all diagnostic modalities have failed to establish diagnosis.⁸

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.⁴

The purpose of this study was to evaluate the adequacy and accuracy of FNAC in diagnosis of neck mass.

II. Aims Of The Study

- To study the commonest cause of neck swellings in our set up.
- To compare the FNAC over HPE in assessment of cause of neck swellings.

III. Materials And Methods

The material consists of 100 patients with neck swellings coming to the ENT OPD at our hospital, Hyderabad. The period of study was two years.

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 histopathological diagnosis.
Suspected neck masses of vascular origin on clinical examination.

According to proforma detailed history was taken, thorough examination will be carried out and basic relevant investigations was done in all the patients to arrive at a provisional diagnosis.

COLOUR PLATES

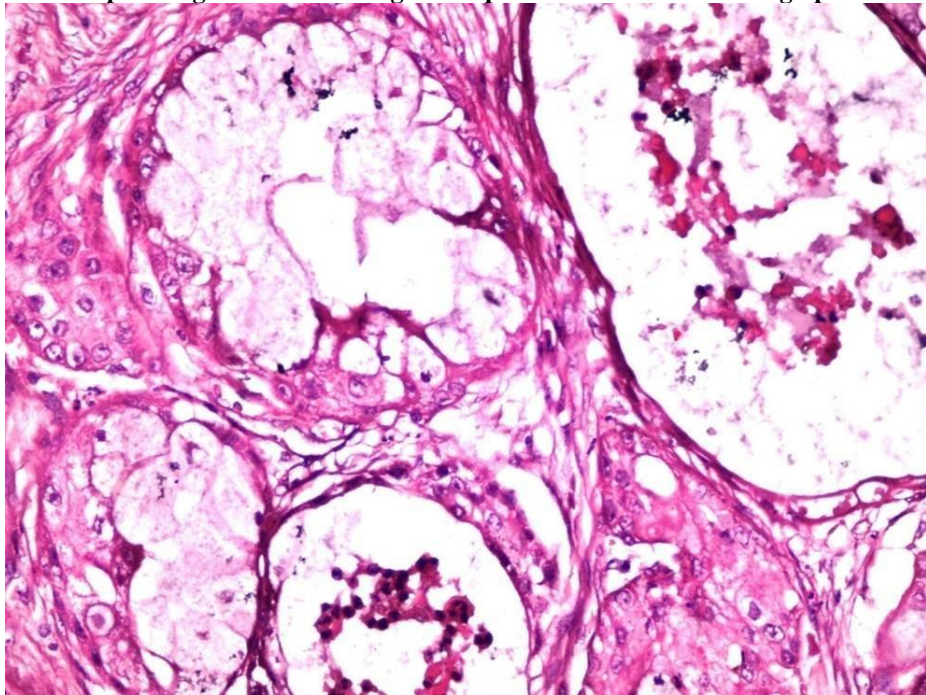
Case-1 - Picture of a case with parotid gland mucoepidermoid carcinoma



Post-operative picture of the specimen excised



Histopathological slide showing mucoepidermoid carcinoma – high power



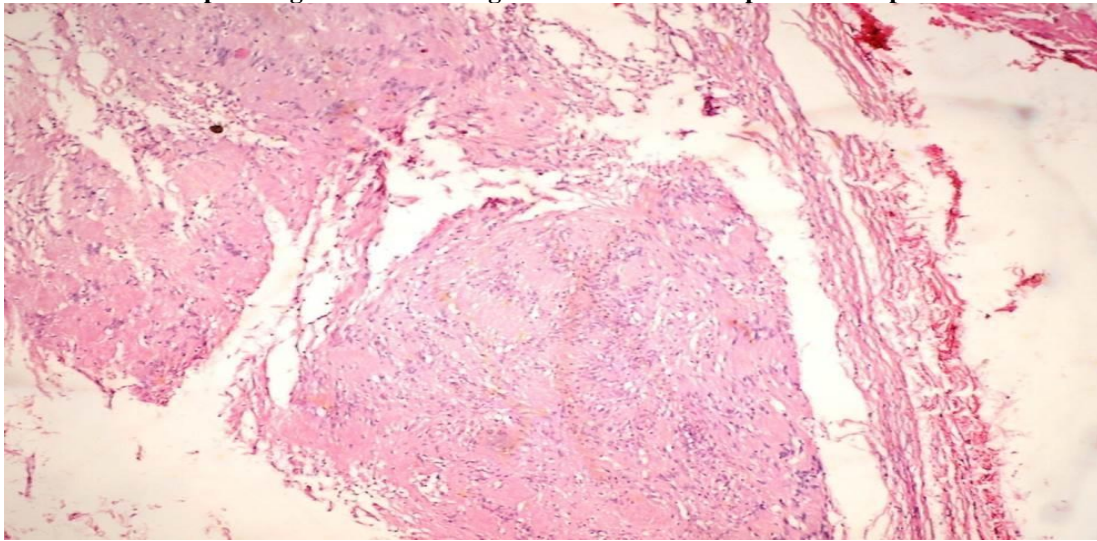
Case-2 – Picture showing lateral neck swelling in a patient



Post-operative picture of the specimen excised



Histopathological slide showing schwannoma with capsule – Low power



IV. Results

Study Design: A Clinico pathological study of neck masses in patients attending ENT outpatient department in our hospital.

Table 2 : Age distribution of patients studied

Age in years	No of patients	%
1-10	2	2
11-20	8	8
21-30	20	20
31-40	31	31
41-50	29	29
51-60	7	7
61-70	3	3
Total	100	100

Graph 1: Age distribution of patients studied

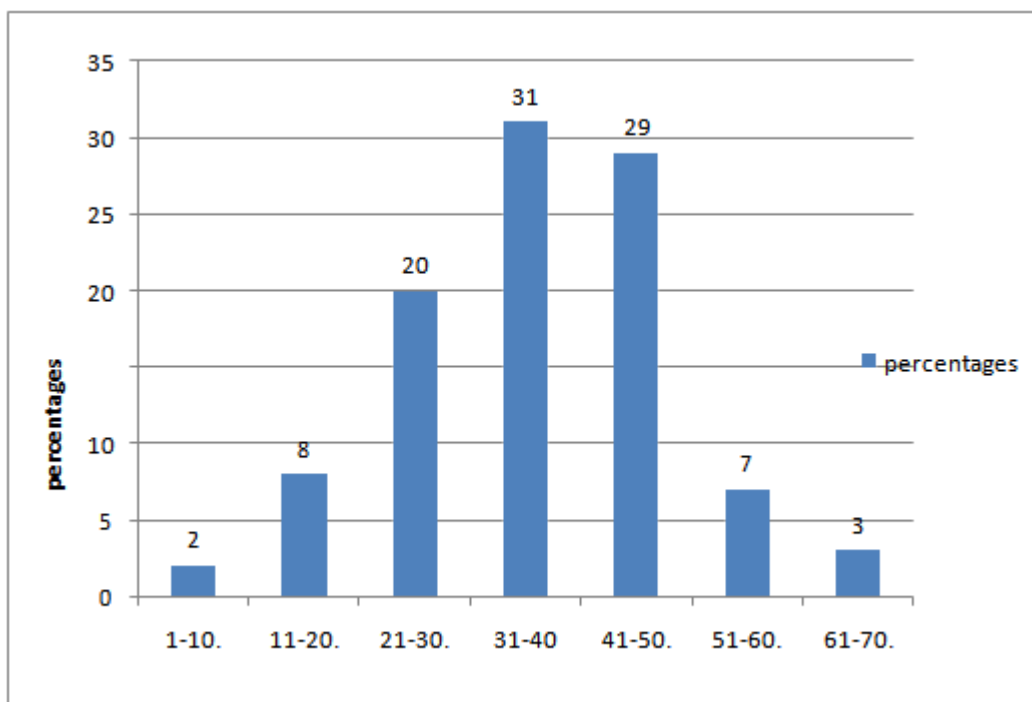


Table 3: Gender distribution of patients studied

Gender	No of patients	%
Male	66	66
Female	34	34
Total	100	100

Graph 2: Gender distribution of patients studied

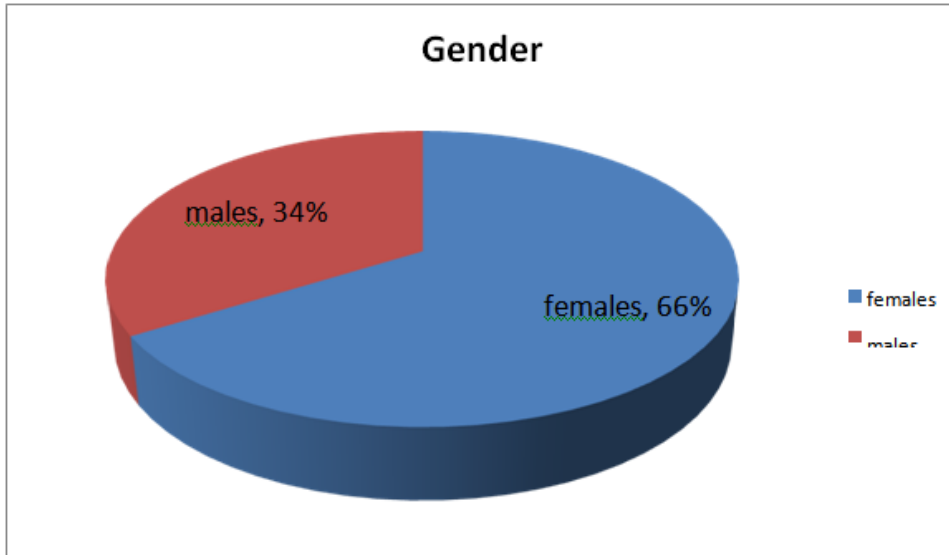


Table 4: Anatomic sites of the swellings

Anatomic sites	Number of patients	%
1.submental triangle	3	3
2.submandibular triangle	5	5
3.upper cervical	12	12
4.middle cervical	4	4
5.lower cervical	4	4
6.posterior triangle	3	3
7.midline swelling	68	68
8.lateral part of neck	1	1

Graph 3: Anatomic sites of the swellings

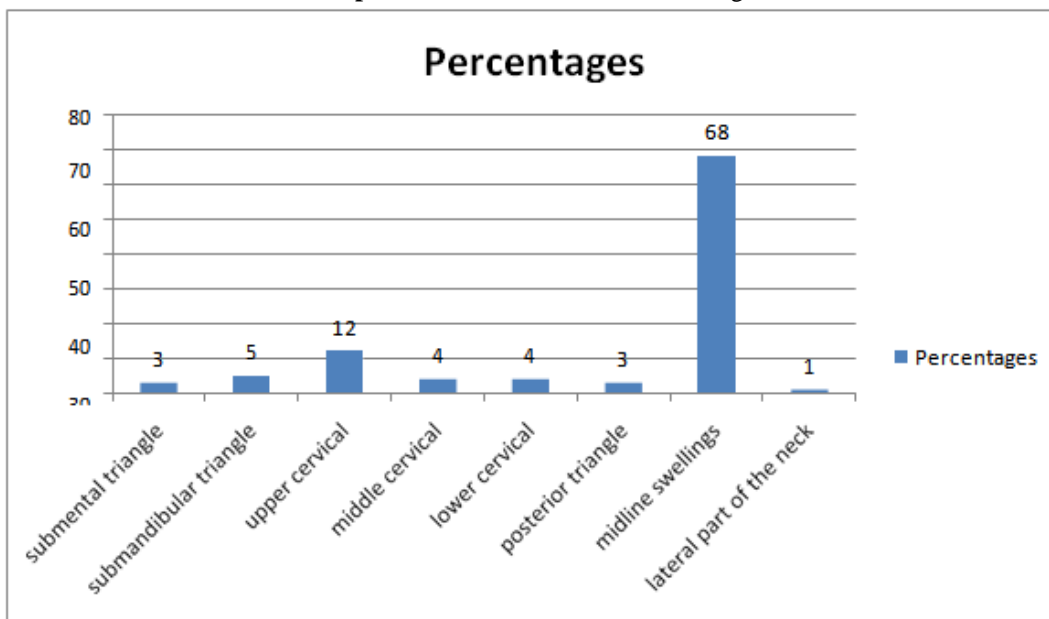


Table 5: Clinical diagnosis of the study patients

Clinical diagnosis	Number of patients (n=100)	%
Thyroid swellings		
• Solitary thyroid nodule	35	35
• Colloid goitre	14	14
• Multinodular goitre	11	11
Salivary gland		
• Chronic sialadenitis	5	5
• Pleomorphic adenoma	11	11
Lymphnodes		
• Acute suppurative lymphadenitis	2	2
• Chronic lymphadenitis	4	4
• Malignant metastasis	3	3
Others		
• Lipoma	5	5
• Thyroglossal cyst	6	6
• Dermoid cyst	4	4

Graph 4: showing types of clinically detected swellings

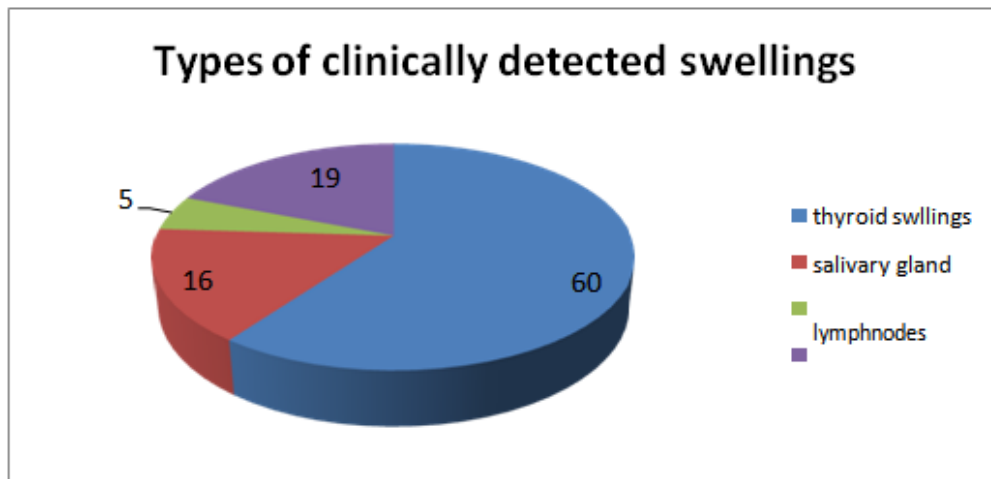
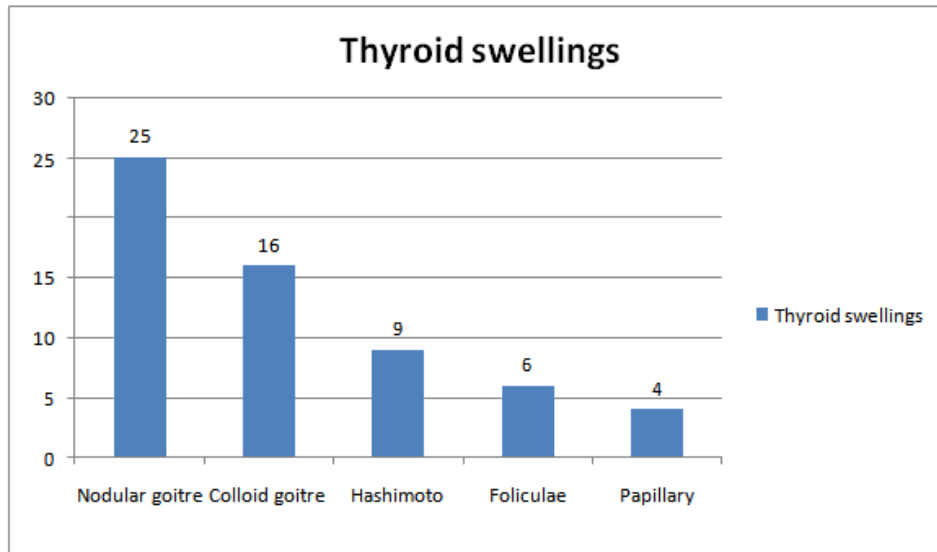


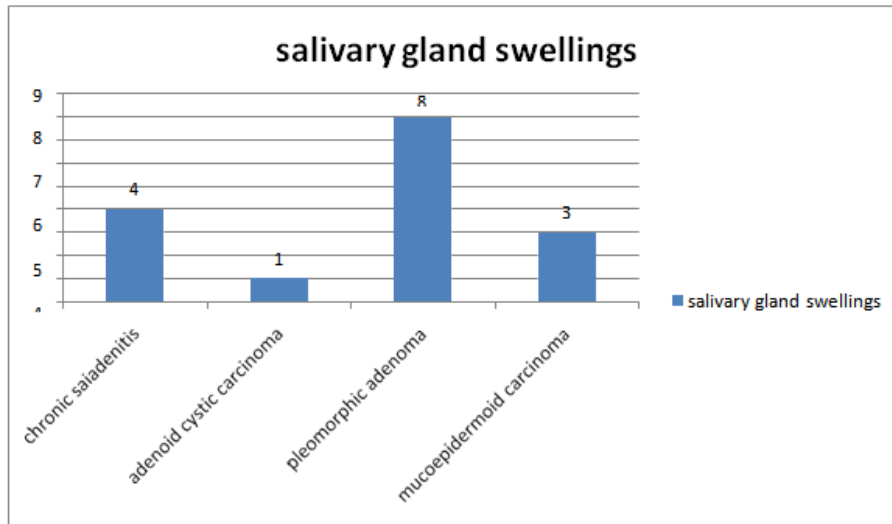
Table 6: FNAC report of patients studied

FNAC report	Number of patients (n=100)	%
Thyroid swellings		
Nodular goitre	25	25
Colloid goitre	16	16
Hashimoto's thyroiditis	9	9
• Follicular neoplasm	6	6
• Papillary carcinoma	4	4
Salivary gland		
• Chronic sialadenitis	4	4
• Adenoid cystic carcinoma	1	1
Pleomorphic adenoma	8	8
• Mucoepidermoid carcinoma	3	3
Lymphnodes		
TB lymphadenitis	1	1
Malignant metastasis	4	4
Others		
Lipoma	5	5
Thyroglossal cyst	7	7
Dermoid cyst	5	5
Neurogenic tumor	2	2

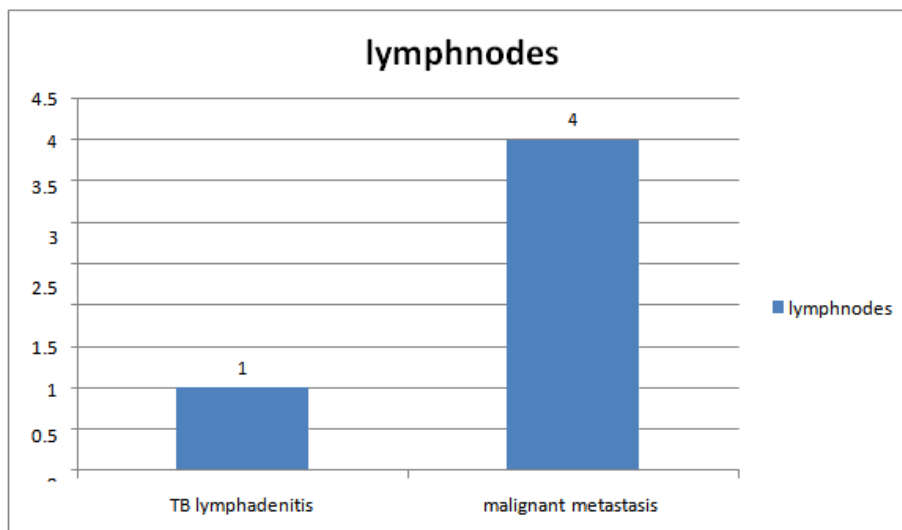
Graph 5: showing FNAC results in thyroid swellings



Graph 6: showing FNAC results in salivary gland swelling



Graph 7: showing FNAC results in Lymph nodes



Graph 8: Showing FNAC reports in other neck swelling

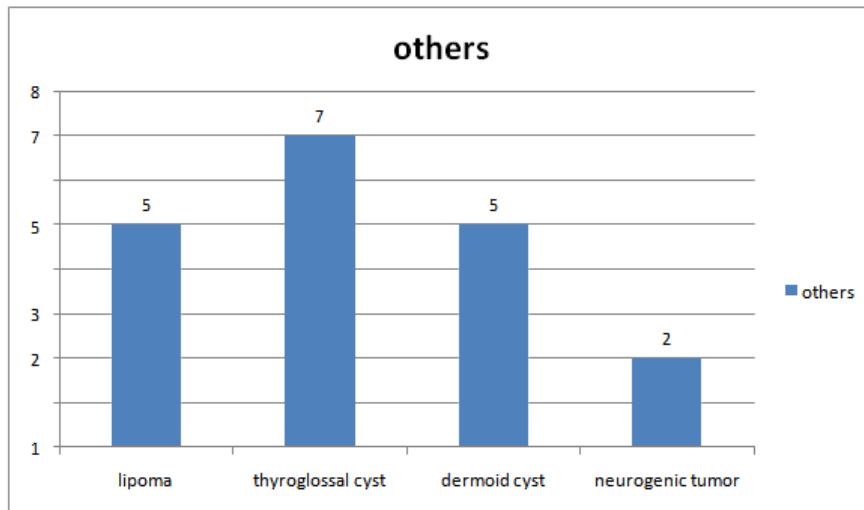
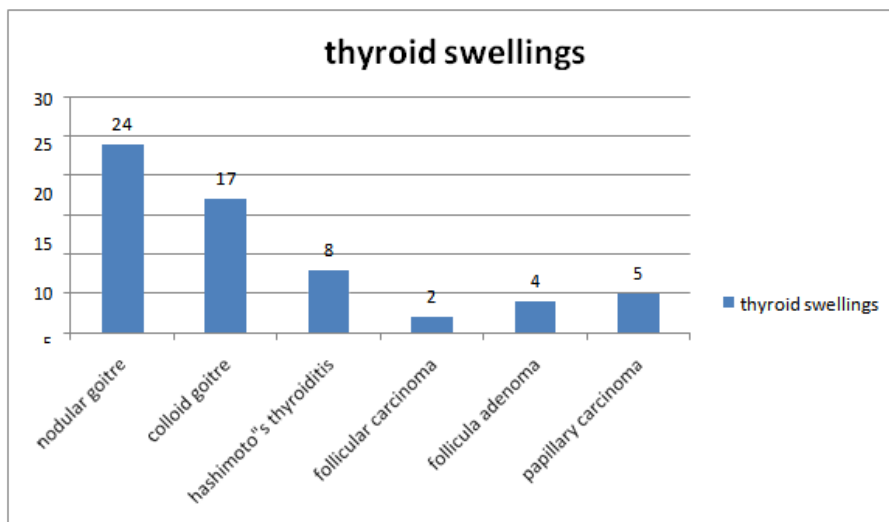


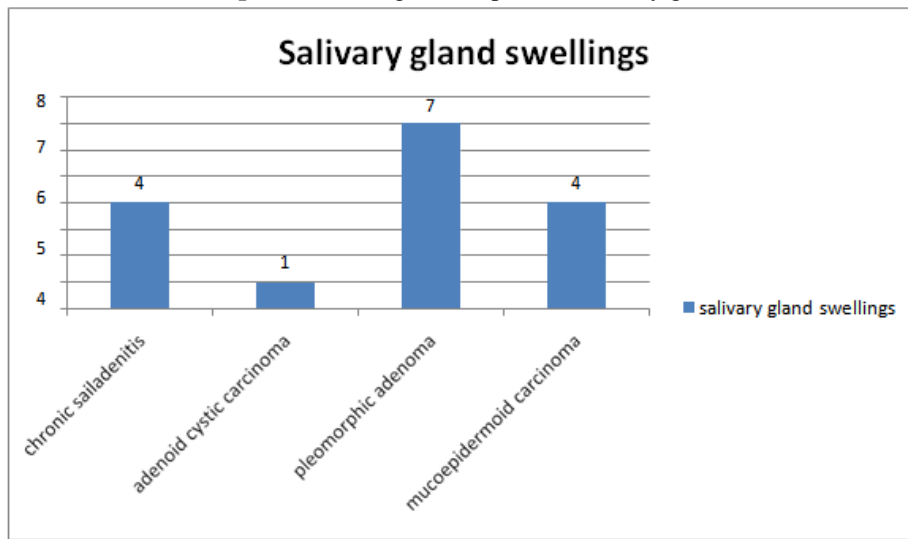
Table 7: HPE report in patients studied

HPE report	Number of patients (n=100)	%
Thyroid swellings		
Nodular goitre	24	24
Colloid goitre	17	17
Hashimoto's thyroiditis	8	8
Follicular carcinoma	2	2
Follicular adenoma	4	4
Papillary carcinoma	5	5
Salivary gland		
Chronic sialadenitis	4	4
• Adenoid cystic carcinoma	1	1
Pleomorphic adenoma	7	7
• Mucoepidermoid carcinoma	4	4
Lymphnodes		
TB lymphadenitis	1	1
Malignant metastasis	4	4
Others		
Lipoma	5	5
Thyroglossal cyst	7	7
Dermoid cyst	3	3
Branchial cyst	2	2
Schwannoma	2	2

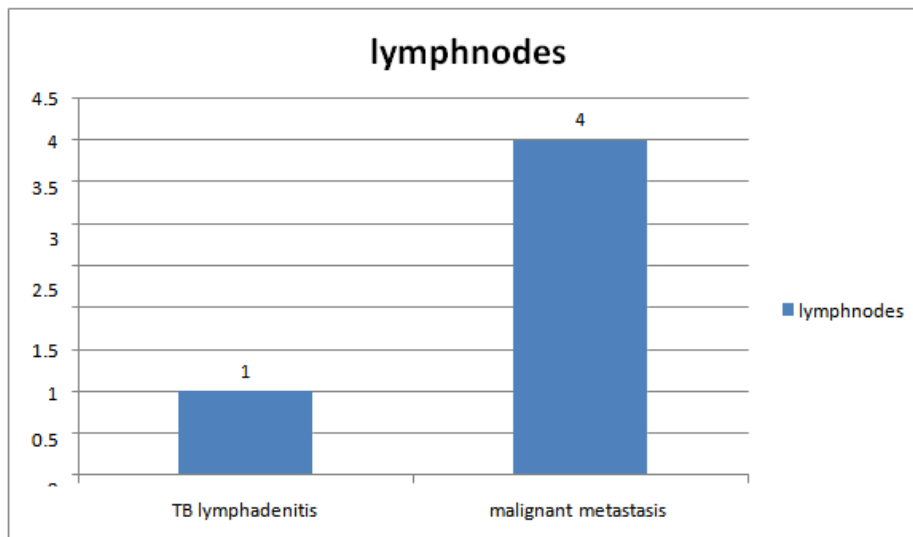
Graph 9: showing HPE reports in thyroid swelling



Graph 10: showing HPE reports in salivary gland



Graph 11: showing HPE report in lymph nodes



Graph 12: showing HPE results in other neck swellings

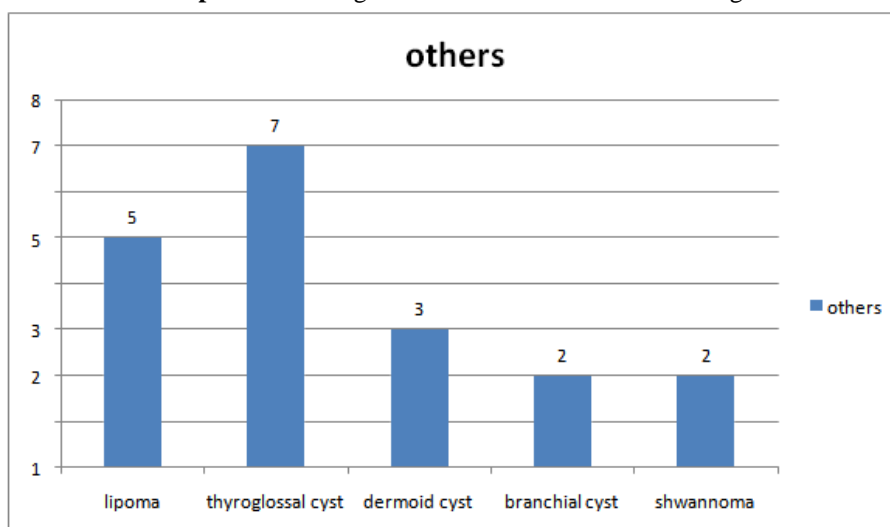


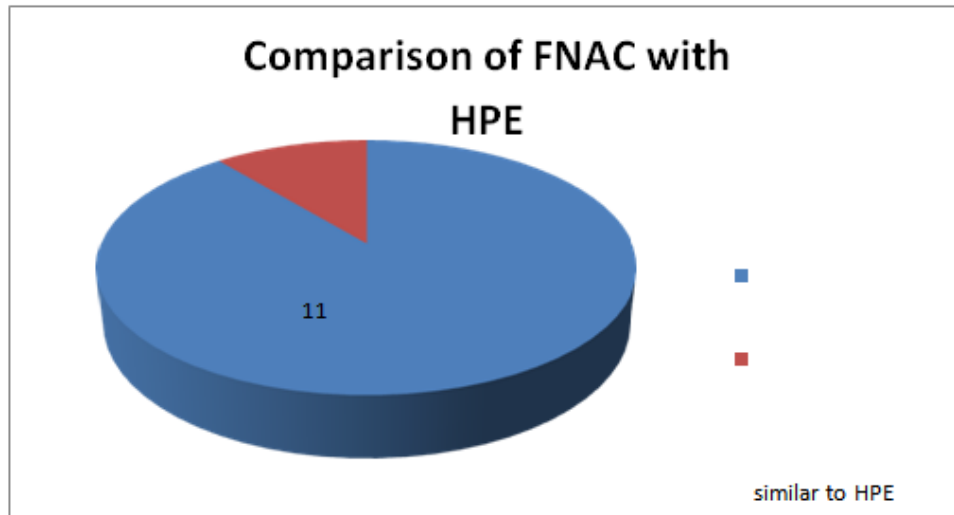
Table 8: Correlation of clinical diagnosis, FNAC report and HPE final diagnosis

FNAC Report	FNAC(n=100)		HPE (n=100)	
	No	%	No	%
Thyroid swellings				
• Nodular goitre	25	25	24	24
• Colloid goitre	16	16	17	17
• Hashimoto's thyroiditis	9	9	8	8
• Follicular neoplasm	6	6	-	-
• Follicular carcinoma	-	-	2	2
• Follicular adenoma	-	-	4	4
• Papillary carcinoma	4	4	5	5
Salivary gland				
• Chronic sialadenitis	4	4	4	4
• Adenoid cystic carcinoma	1	1	1	1
• Pleomorphic adenoma	8	8	7	7
• Mucoepidermoid carcinoma	3	3	4	4
Lymphnodes				
• TB lymphadenitis	1	1	1	1
• Malignant metastasis	4	4	4	4
Others				
• Lipoma	5	5	5	5
• Thyroglossal cyst	7	7	7	7
• Dermoid cyst	5	5	3	3
• Branchial cyst	-	-	2	2
• Neurogenic tumor	2	2	-	-
• Schwannoma	-	-	2	2

CLASSIFICATION OF CYTOLOGICAL REPORTS:

- Similar to HPE
- Not similar to HPE

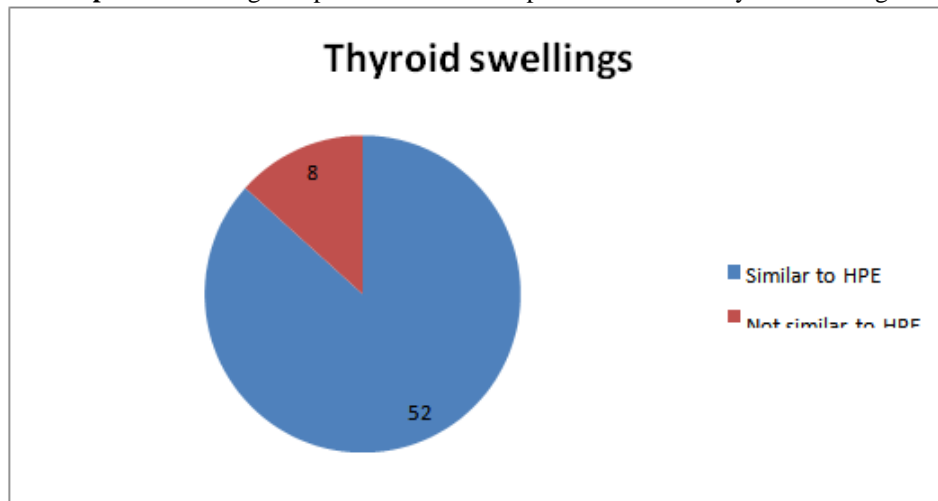
Graph 13: showing comparison of FNAC report with HPE



Thyroid swellings

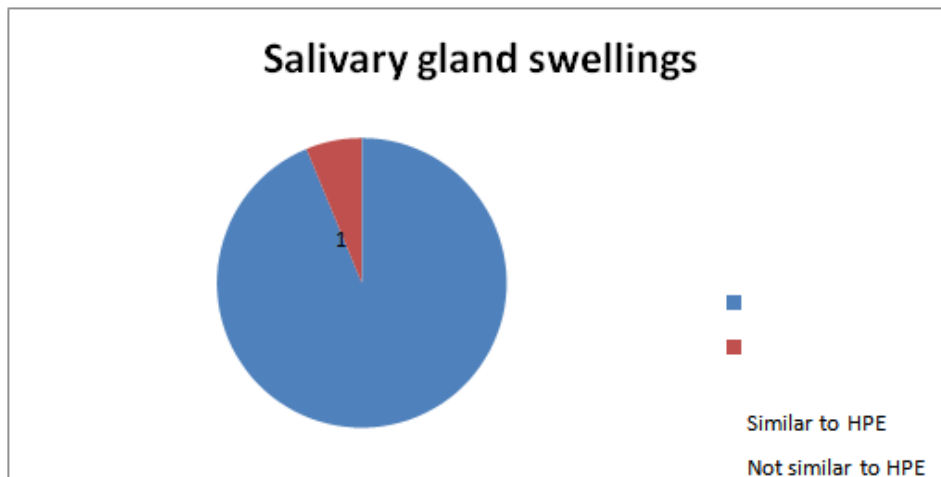
Similar to HPE - 52 Not similar to HPE - 8

Graph 14: showing comparison of FNAC report with HPE in thyroid swellings



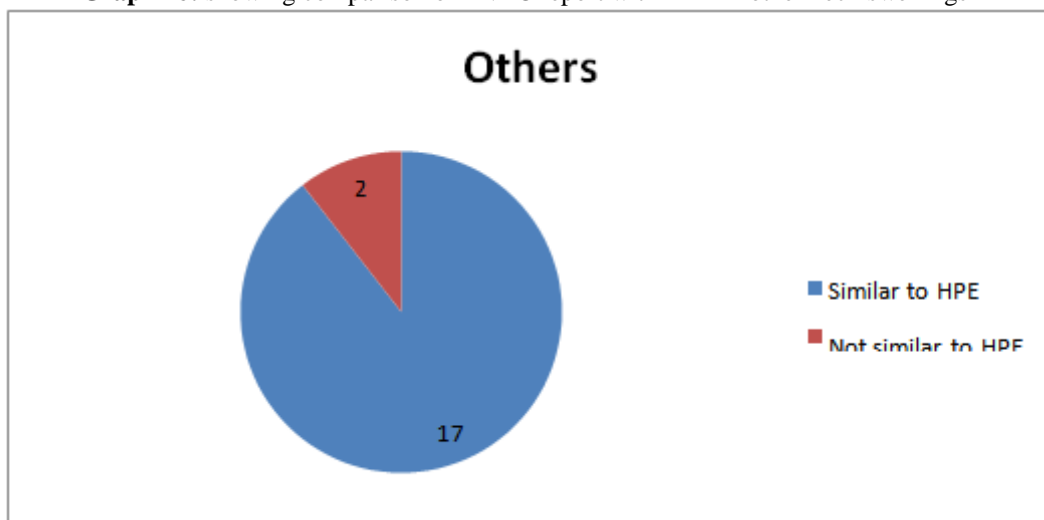
Salivary gland swelling Similar to HPE - 15 Not to similar HPE – 1

Graph 15: showing comparison of FNAC report with HPE in salivary gland swelling



Other neck swellings Similar to HPE - 17 Not similar to HPE - 2

Graph 16: showing comparison of FNAC report with HPE in other neck swellings



FNAC is similar to HPE report in 89% of the cases in this study.

V. Discussion

The present study was carried out at the department of ENT, in our institute, from October 2013 to October 2015.

Of the 100 cases clinically evaluated, 60 were thyroid swellings, 16 were Salivary gland swellings, 5 were lymph node swellings and 19 were other swelling. 66 were female patients and 34 were male patients. Maximum number of patients were between the age group of 21- 50 Yrs.

Thyroid swelling aspiration was carried on in 60 cases, which was the commonest swelling in our study. 52 of these lymph node cytology reports were similar to HPE report. 8 were not similar to HPE.

Of the 16 salivary gland aspirates 15 cytological reports were similar to HPE reports and 1 report did not match with HPE reports. Of the 5 lymph node swelling 5 cases matched with the HPE reports. Of the 19 other neck swellings 17 cytological reports were similar to HPE reports and 2 reports were not similar to HPE. In our study, one cytological diagnosed case of nodular goitre turned out to be papillary carcinoma on HPE.

The causes for false negative results are

- 1) Acellular/ poorly cellular sample as encountered in large cystic papillary CA, in marked desmoplasia and in cases of thick fibrous or calcified capsule.
- 2) Sampling error – in case of small scar carcinoma.
- 3) Thyroid CA may have a macrofollicular areas and yield moderate amounts of colloid on FNAC.

One Case in our study was cytologically diagnosed as hashimoto's thyroiditis turned out to be colloid goitre on HPE.

Cytological picture of tubercular lymphadenitis is divided into 3.

- 1) Smears with epithelial granuloma with/ without giant cells in milieu of parent lymphoid cells.
- 2) Smears with degenerating epitheloid granuloma in the background of cheesy material.
- 3) Smears with degenerating and viable neutrophils in a necrotic back ground occasional degenerating epitheloid cell granuloma.

A definite cytologic diagnosis of TB lymphadenitis can be offered in the smears with first two patterns while the third pattern, in the absence of Ziehl-Neelsen staining, would be dismissed as acute suppurative lymphadenitis.

FNAC is a practical alternative to empirical anti tubercular treatment or routine lymph node biopsy. It is less sensitive than open biopsy for diagnosis of TB, but if diagnosis is made its predictive value is high.

When evaluating test for its ability to identify patients with malignancy, the sensitivity is more important than the specificity since false negative report may encourage delay in further investigation or treatment. Therefore caution is mandatory, clinical suspicion must always take precedence and so negative cytology must be disregarded if there is a strong clinical suspicion. It must be borne in mind that negative result in fine needle aspiration does not rule out cancer. A negative aspiration indicates only that a repeat aspiration may be necessary and/ or that some other procedure such as biopsy, endoscopy or CT scan may be helpful. It cannot be over emphasized that fine needle aspiration is always a part of work up and not final diagnosis.

VI. Conclusion

Fine needle aspiration cytology offers a simple method of diagnosis of neoplastic and non neoplastic lesions in the neck. It can be performed as an outpatient procedure. The procedure is acceptable to most of the patients. There is no need for anesthesia and speedy results are available. An accurate diagnosis can be made. It serves as complementary procedure to Histopathological examination. It is clear that Fine needle aspiration cytology is the best investigation one can ask for with fairly good accuracy which can be achieved with greater experience and expertise. Fine needle aspiration cytology of neck masses with clinical correlation can provide most useful information to surgeon to determine the further mode of management. It is also important to take into consideration clinical symptoms and biochemical tests.

Hence we conclude that Fine needle aspiration cytology is a safe, simple and rapid method that can be done in diagnosing wide range of neck swellings.

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