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Diagnostic Utility of Fine Needle Aspiration Cytology in Head and Neck Lesion: A Retrospective Study

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ABSTRACT

Fine needle aspiration cytology is a very simple, quick, inexpensive and minimally invasive technique used to diagnose different types of swelling like lymph node, thyroid, soft tissue, and salivary glands in head and neck region. A timely FNAC plays an important role in early diagnosis. The objective was to assess the frequency and incidence of different sites, age, sex and distribution of benign, reactive and malignant lesion.

Methodology:

A retrospective study was done at Department of pathology, SSMC, Rewa, MP, from January 2018 to November 2018. This study included total of 158 cases of FNACs done on palpable head and neck swelling over a 12 month period.

Result:

Out of 158 patients 56.4% were male and 43.6% were female. Maximum incidence were observed in the age group of 31 to 45 years. Higher incidences of lesion are in the neck region (79 cases) than in the head region.

Conclusion:

From above study we came to conclude that FNAC is a simple, quick, inexpensive and minimally invasive technique to diagnose different type of head and neck lesion.FNAC should be recommended as a first line of investigation in the diagnosis of palpable swelling to rule out malignancies.

Keywords: FNAC, Head and Neck swelling

INTRODUCTION

The art and science of cytology and cytopathology has been implemented and recognized as early as the 18th and 19th century.[1-5] Science of cytopathology is currently well standardized with two major branches-exfoliative and aspiration cytology.[6] FNAC as a diagnostic technique to evaluate head and neck lesions was first introduced by Martin in 1930.[7] Palpable head and neck lesion varies from benign to malignant in nature. A wide age group is involved from 1 to 95 years of age. It is also a common site for metastatic deposits. In this situation especially when financial resources are limited, early diagnosis with reliable diagnostic technique is needed. Fine Needle Aspiration Cytology (FNAC) is a very simple, quick, and cost-effective method of sampling of superficial palpable masses found in the head and neck.[8] FNAC is widely used in the head and neck swellings frequently encountered in general practice, such as in the lymph node, thyroid, major salivary glands, and other neoplastic lesions.[9,10,11]

The present study was done to use FNAC to detect the organ wise, gender wise, site wise distribution of head and neck lesion. The study also detected the frequency of various pathological conditions in head and neck.

MATERIAL AND METHODS

This retrospective study includes cases of both IPD & OPD patients in SGMH, Rewa, MP, done over 12 month from 1st January to 31st December, in the cytology section of Department of Pathology in SGMH & SSMC, Rewa, MP. Total of 158 cases presented with Head and neck lesion included in this study. Cases with lesions within Oral cavity and scrap cytology were excluded from the study. We explained about the procedure and its indication.

Reassurance has been done to the patient about safety and simplicity of the procedure. Consent has been taken. The area to be aspirated was cleaned with spirit. 22 or 23 gauge needle with 10ml or 20 ml syringe was inserted at convenient angles to the lesions. Multiple hits were made within the lesion with sufficient negative pressure. The needle was removed and the pressure was applied to the area of aspiration to avoid bleeding. The aspirated material was smeared on clean glass slide, fixed in ethyl alcohol and stained by H& E stain.

RESULTS

Table 1:- Age wise Distribution of cases

Age Group	No. of cases	% of cases
1-15 yrs	33	20.9%
16-30yrs	41	25.9%
31-45yrs	48	30.4%
46-60 yrs	27	17.08%
61-75yrs	9	5.69%

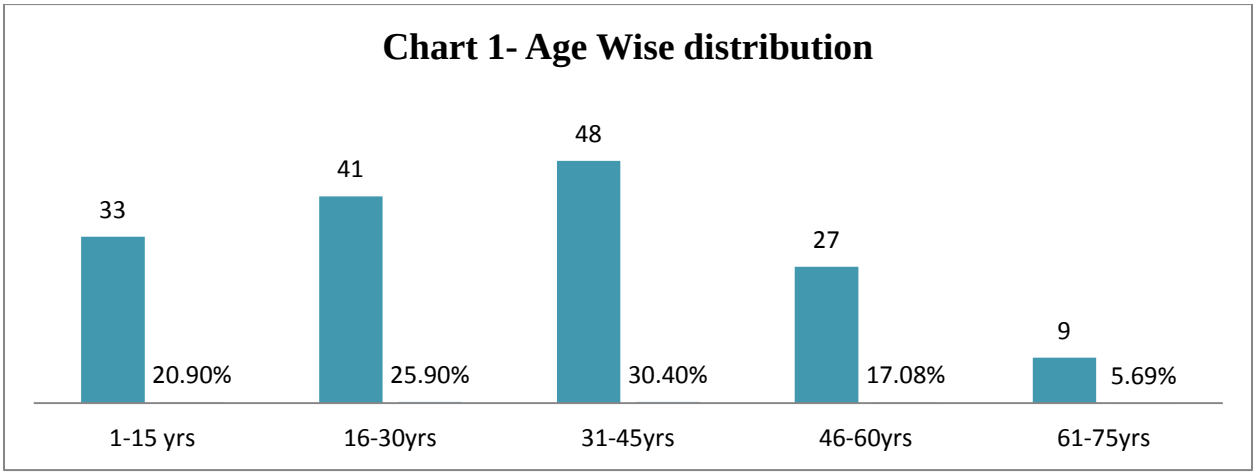

Table 2:- Distribution of cases according to site involvement in head and neck lesion

Site of involvement	No. of cases	% of cases
Scalp & forehead	13	8.2%
Salivary gland	5	3.2%
Cervical region	86	54.4%
Thyroid region	44	27.80%
Nape of neck and supraclavicular	10	6.30%

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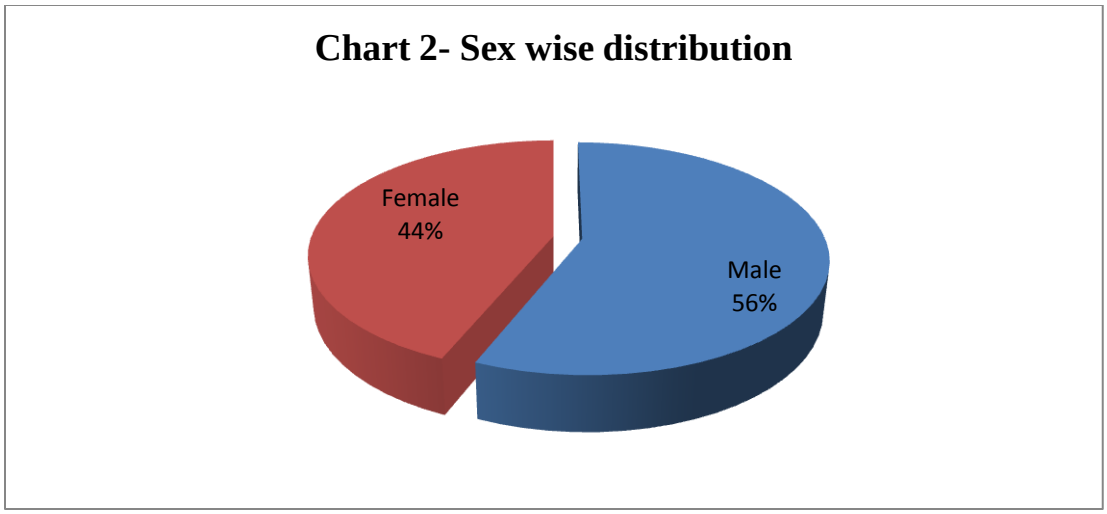
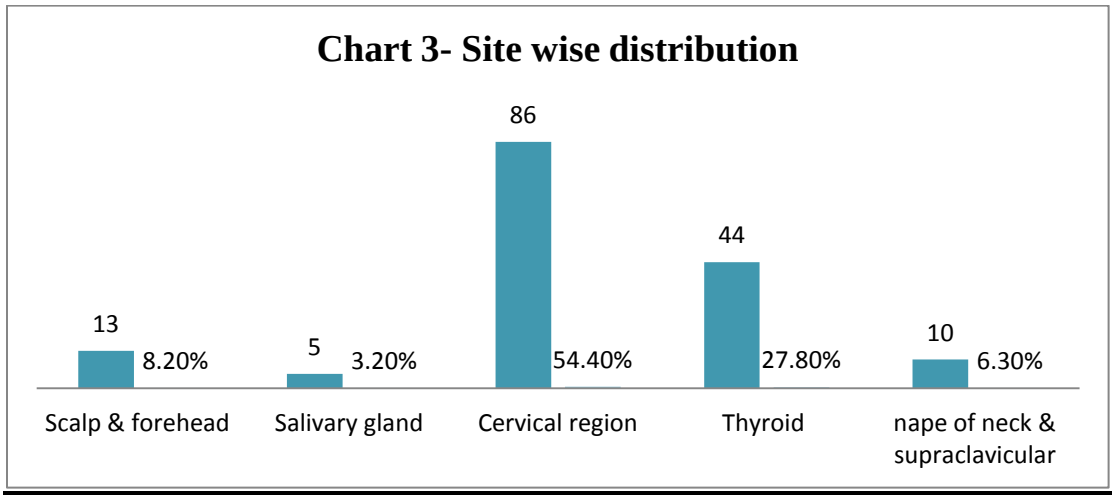


Table 3:- Distribution of head and neck lesions according to cytological diagnosis

Lesions	No. of cases	% of cases
Reactive lymphadenitis	35	22.10%
Non-specific lymphadenitis	15	9.40%
Granulomatous lymphadenitis	32	20.20%
Metastatic LN	6	3.70%
Colloid goiter	31	19.60%
Thyroglossal cyst	2	1.20%
Hashimoto thyroiditis	7	4.40%
Medullary Carcinoma thyroid	1	0.60%
Sialadenitis	1	0.60%
Pleomorphic adenoma	6	3.80%
Lipoma	10	6.30%
Sebaceous cyst	12	7.50%



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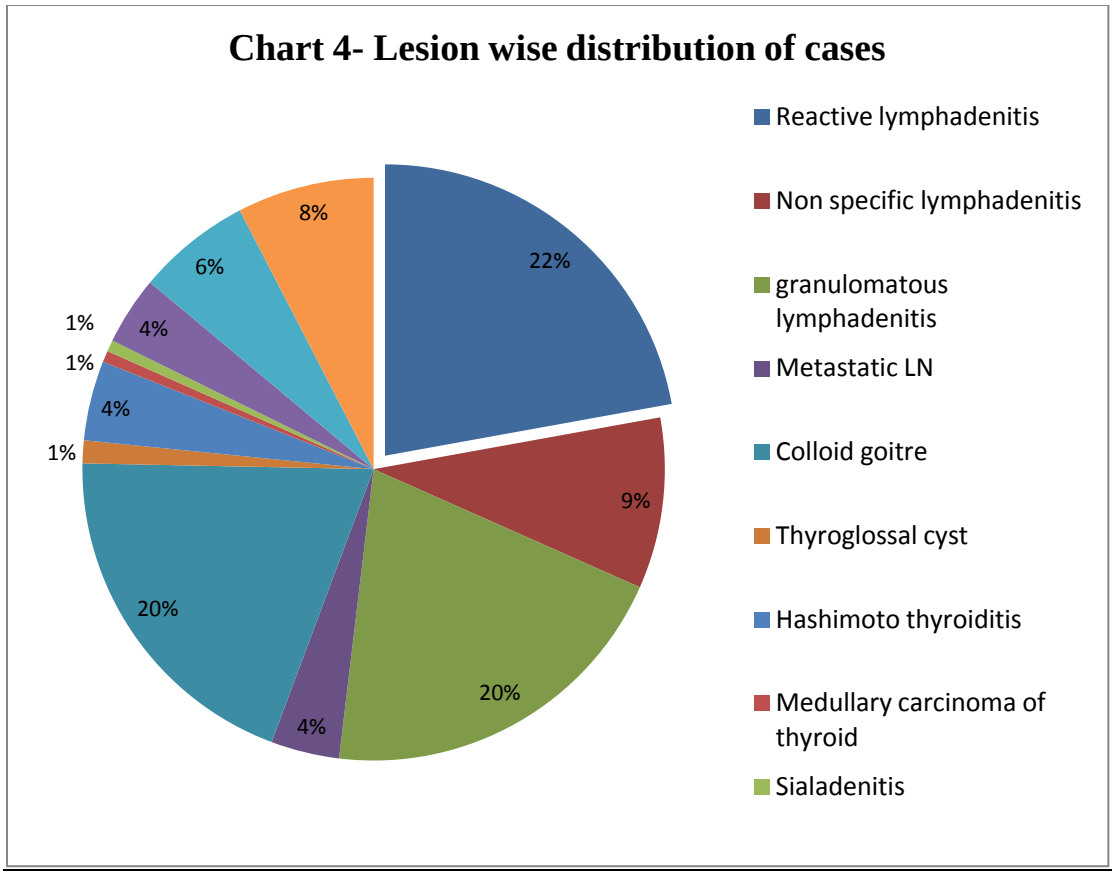

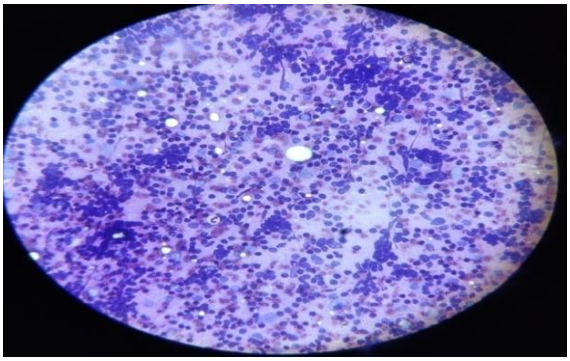

Fig. 1- Reactive lymphadenitis.(H& E)

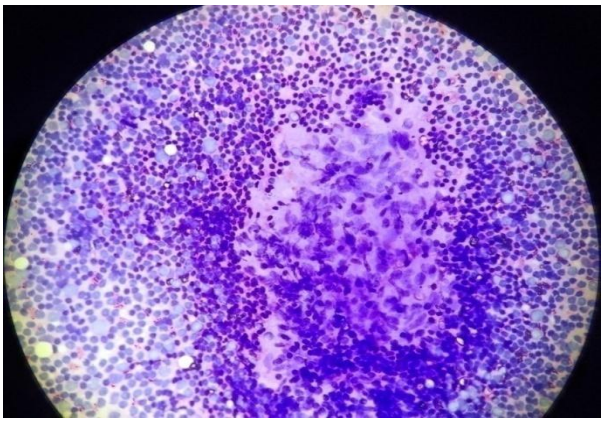

Fig. 2: Epitheliod cell granuloma (Granulomatous lymphadenitis) (H & E)

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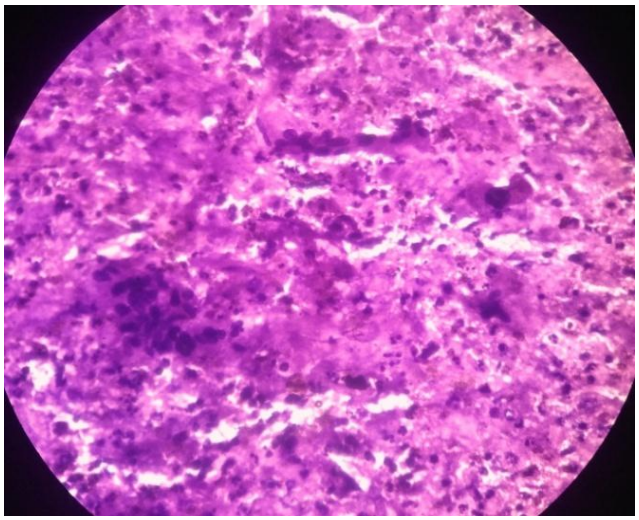

Fig.3 Metastatic carcinoma in Lymph node, showing sheets of dysplastic cells.(H& E)

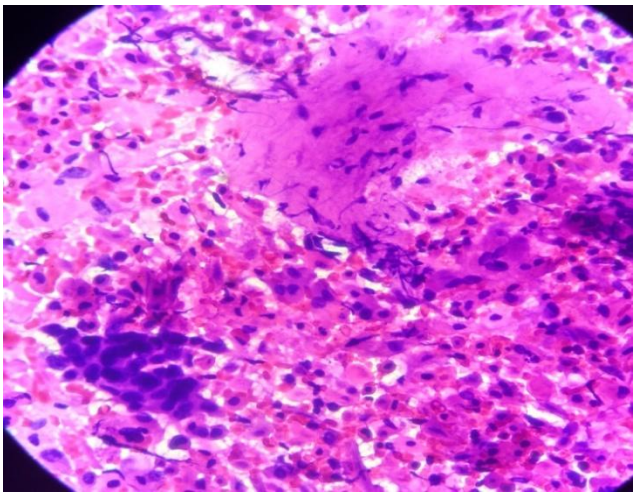

Fig 4: Pleomorphic adenoma of Parotid gland, showing sheets of epithelial cells and fibromyxoid stroma.(H & E)

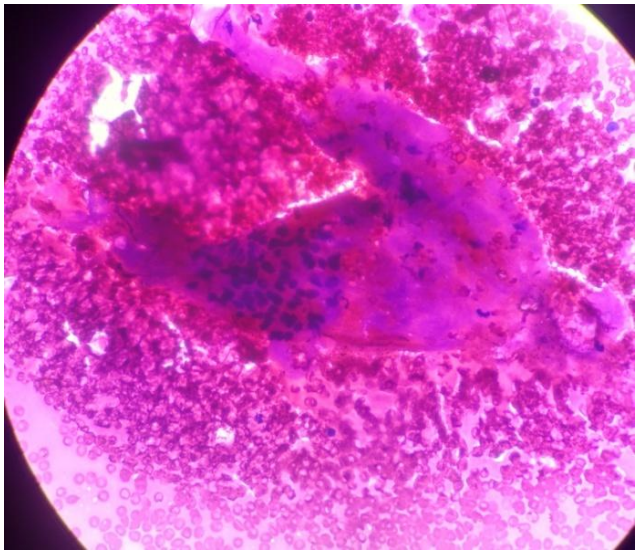

Fig.5: Colloid goiter of thyroid, showing follicular epithelial cells and colloid. (H&E)

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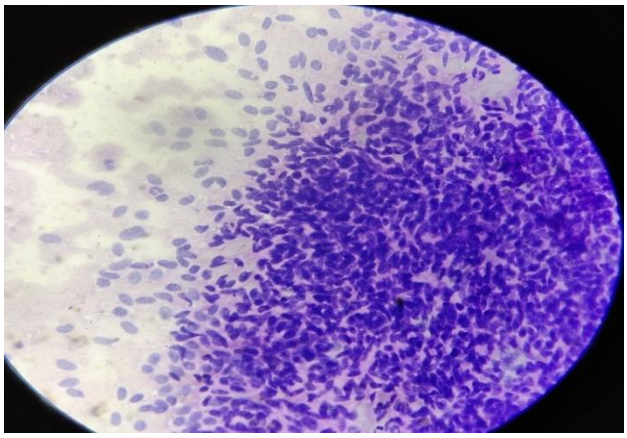

Fig-6 Medullary carcinoma of thyroid (spindle cell type). (H& E)

DISCUSSION

In the present study of 158 cases of various head and neck swellings included in the study. M:F ratio was 1.3:1. Different data were obtained like age incidence, sex incidence etc. The results achieved in the present study were compared with other studies. Most commom involved organ was lymph node (57%) followed by thyroid gland (27.8%). Reactive lymphadenitis was found to be the most common pathology in our study accounting for 22.1 % cases, granulomatous lesion found in 20.2% cases, Non specific lymphadenitis was seen in 9.4% cases and Metastatic LN was seen in 3.7% cases. In thyroid most common lesion was colloid goiter (19.6%) followed by hasimoto thyroditis (4.4%). In salivary gland, most common lesion was pleomorphic adenoma (3.8%) followed by sialadenitis (0.6%).In soft tissue lesion was most common lesion was lipoma (6.3%). In skin lesion sebaceous cyst (7.5%) was most common.

Table 4- Comparison of gender wise distribution-

Study	No. of cases	Male	Female
Present study	158	89	69
William study[12]	284	135	149
Khetrapal S et al[13]	290	128	162
Shekhar H et al[6]	200	114	86

Table 5- Comparison of organ wise distribution-

Organ	Khetrapal S et al[13]	Shekhar H et al[6]	Present Study
Lymph node	64.1%	42%	57%
Thyroid	16.9%	18%	27.8%
Salivary gland	3.3%	15.5%	3.2%

Table 6- Comaprison of lesion wise distribution-

Lesion	Khetrapal S et al[13]	Shekhar H et al[6]	Present study
Reactive	23.8%	16%	22.1%

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lymphadenitis			
Granulomatous lymphadenitis	31.4%	15%	20.2%
Metastatic LN	-	5.5%	3.7%
Colloid Goitre	8.6%	8.0%	19.6%
Pleomorphic adenoma	2.0%	4.5%	3.8%
Sialadenitis	0.7%	3.5%	0.6%
Lipoma	-	8.5%	6.3%

CONCLUSION

From this study we come to conclude that FNAC is a simple, quick, inexpensive, and minimally invasive technique to diagnose different types of Head and neck lesion. It could differentiate the infective process from neoplastic one and avoids unnecessary surgeries. FNAC confirms the presence of metastatic disease and also gives the clue regarding the nature and origin of primary malignancy, prognosis as well in the management of patient for staging purposes. FNAC can be recommended as a first line of investigation in the diagnosis of head and neck swellings. FNAC is not only diagnostic but can also be therapeutic especially in cystic lesion. FNAC serves as a Complementry diagnostic procedure to Histopathological examination in the diagnosis of palpable head and neck lesions.

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