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Original Research Article

# STUDY ON ROLE OF FINE NEEDLE ASPIRATION CYTOLOGY AS A DIAGNOSTIC TOOL IN PATIENTS WITH HEAD & NECK LESIONS.

***Sandhya Bangaru[1], Meghna Maria Tharakan[2], M. Mark Edward[3], A. Smita Reddy[4], Harika Kalangi[5] Anunayi Jestadi[6]***

*[1]Assistant Professor, Department of Pathology, Government Medical College, Suryapet, Telangana, India.*
*[2]Senior Resident, Department of Pathology, Government Medical College, Suryapet, Telangana, India.*
*[3]Assistant Professor, Department of Pathology, Government Medical College, Suryapet, Telangana, India.*
*[4]Associate Professor, Department of Pathology, Government Medical College, Suryapet, Telangana, India*
*[5]Resident fellow, Mount Sinai Hospital, New York, United States.*
*[6]Professor, H.O.D., Department of Pathology, Government Medical College, Suryapet, Telangana, India.*

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**Corresponding Author:**
**Dr. M. Mark Edward**
Assistant Professor, Department of Pathology, Government Medical College, Suryapet, Telangana, India.
Email: drmarkedward.m@gmail.com

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ABSTRACT

**Background:** Head and neck region is a complex area comprised of multiple anatomical structures ranging from lymph nodes, salivary glands, thyroid and a host of developmental tissues. These lesions range from being infections to malignant and are seen in all age groups. FNAC is inexpensive, safe, outdoor procedure, with rapid reporting. The present study aims to evaluate the diagnostic value of fine needle aspiration cytology in head and neck lesions and to evaluate the pattern of disease in Suryapet, Telangana.

**Materials and Methods:** This is retrospective observational study conducted in Department of Pathology, Government Medical College/ Government General Hospital, Suryapet, Telangana from August 2019 to July 2023 (4 years). Detailed clinical history was taken and FNAC was performed.

**Results:** Out of 547 cases on whom FNAC was done, most of the them were lymph nodes (n = 204; 37.3%) followed by thyroid (n = 144; 26.3%), skin and soft tissue lesions (n =102 18.8%) and from salivary glands (n = 79 ;14.5%). Reactive lymphadenitis, colloid goitre and pleomorphic adenoma were the most common lesions of lymph nodes, thyroid gland and salivary glands respectively.

**Conclusion:** FNAC is simple, rapid, cheap outpatient procedure. It should be used as the first line investigation in the diagnosis of head and neck lesions wherever feasible.

**Keywords:** FNAC, head and neck lesions, lymph nodes, thyroid, salivary glands.

## INTRODUCTION

Clinicians usually come across with lesions of head and neck. The head and neck are areas with complex anatomical structures. Lesions in this area are challenging to the surgeon due to the complicated anatomy and due to the fact that multiple structures lead to difference in origin.

Physical examination of the swelling is of paramount importance, however, when imaging and histological examination aids further in localization of the lesion. Ultrasonography is the most commonly used imaging tool for screening a superficial swelling due to its non-invasive nature, low cost and accuracy. However, when both physical examination and ultrasonography fail to come up with a proper diagnosis, FNAC is the next line of evaluation.[1,2]

FNAC is a minimally invasive method to obtain a cellular diagnosis as an alternative to the more invasive procedures like biopsy. It is used in any situation where the lesion is superficial and accessible and diagnosis requires some amount of tissue or fluid.[3]

Head and neck region accommodates some complex vital structures such as thyroid gland, lymph nodes, salivary glands, etc. Differentiation of palpable head and neck lesions into benign or malignant requires tissue sampling. Early detection with a proper reliable

diagnostic procedure is needed. This is when FNAC comes into play.[4]

FNAC is a simple, safe, affordable method which utilizes minimal tissue to differentiate whether the lesion is benign or malignant. It is an effective screening method, the findings of which can be confirmed using biopsy.

It is a minimally invasive procedure which can be performed on outpatient basis with minimal discomfort to the patient. The procedure involves inserting a thin needle into the lesion to aspirate cells or fluid for examination under a microscope.[5]

It provides relatively rapid results, allowing for prompt diagnosis and early therapeutic decisions. It can further guide management decisions, including the need for surgical excision, additional imaging studies, or referral to specialists for further evaluation.

This study aims to evaluate the role of Fine Needle Aspiration Cytology (FNAC) in
diagnosing lesions of the head and neck region.

## MATERIAL AND METHODS

This retrospective observational study conducted in Department of Pathology, Government Medical College, Suryapet, Telangana over a period of 4 years i.e., from August 2019 to JULY 2023. The study included all patients who presented to various clinical OPD's with complaints of palpable head and neck lesions.

A detailed clinical history of the patient was taken along with a complete physical examination. Local examination of the swelling was done. Details of any investigations like USG, hematological, serological if done were noted. The procedure for FNAC was explained and consent was taken.

Under strict aseptic precautions, a 22-23G needle with 10ml syringe was inserted into the swelling and aspirated. The aspirate was smeared onto glass slides and fixed with 95% Isopropyl alcohol. Smears were then stained with Hematoxylin & Eosin stains and assessed by cytopathologist.

## RESULTS

The present study included 547 patients with palpable head and neck swellings from various clinical departments, who underwent FNAC procedure during the study period. Age group of patients ranged from 1month to 79years.

Peak incidence of cases 137 (25%) was noted in 21-30years age group followed by 31-40years (115 cases, 21%).

Females formed the majority of the study population constituting 60% and males constituted 40%. The male to female ratio was 0.6:1.

Most of the lesions were lymph nodes (37.3%) followed by thyroid lesions (26.3%).

Amongst the lesions of lymph nodes, reactive lymphadenitis was the most common (39%) followed by chronic granulomatous lymphadenitis (28%).

Benign follicular nodule was the commonest of all the thyroid lesions (48%).

Lipoma of head and neck region was the commonest soft tissue swelling observed in present study (58.3%).

Pleomorphic adenoma (56.9%) and squamous cell carcinoma were the most common salivary gland lesions and oral cavity lesions respectively.

**Table 1: Age-wise distribution**

| Age Group(Years) | No. of Cases | Percentage (%) |
|---|---|---|
| <1 yr | 6 | 1% |
| 1-10 yrs | 16 | 3% |
| 11-20yrs | 55 | 10% |
| 21-30 yrs | 137 | 25% |
| 31-40 yrs | 115 | 21% |
| 41-50 yrs | 104 | 19% |
| 51-60 yrs | 59 | 11% |
| 61-70yrs | 44 | 8% |
| 71-80 yrs | 11 | 2% |
| Total | 547 | |

**Table 2: Site wise distribution**

| Site | No of cases | percentage |
|---|---|---|
| Lymph node | 204 | 37.3% |
| Thyroid | 144 | 26.3% |
| Skin & soft tissues | 102 | 18.8% |
| Salivary gland | 79 | 14.5% |
| Miscellaneous | 13 | 2.7% |
| Oral cavity | 05 | 1% |
| Total | 547 | |

**Table 3: Types of lymph node lesions**

| Type of lesion | No of cases | percentage |
|---|---|---|
| Reactive lymphadenitis | 79 | 39% |
| Chronic granulomatous lymphadenitis | 58 | 28% |
| Nonspecific lymphadenitis | 47 | 22.6% |
| Metastasis | 17 | 8% |

| | | |
|---|---|---|
| Lymphoma | 03 | 1.4% |
| Total | 204 | |

**Table 4: Type of thyroid lesions**

| Type of lesion | No of cases | percentage |
|---|---|---|
| Benign follicular nodule | 69 | 48% |
| Thyroiditis | 42 | 29.1% |
| Colloid cyst | 16 | 11.1% |
| Follicular neoplasm | 13 | 9% |
| Malignant lesions | 03 | 2.1% |
| Suspicious for malignancy | 01 | 0.7% |
| Total | 144 | |

**Table 5: Type of soft tissue lesions**

| Type of lesion | No of cases | percentage |
|---|---|---|
| Lipoma | 59 | 58.3% |
| Epidermal cyst | 40 | 38.2% |
| Benign adnexal tumor | 02 | 2.5% |
| Malignant lesions | 01 | 1.1% |
| Total | 102 | |

**Table 6: Type of salivary gland lesions**

| Type of lesion | No of cases | percentage |
|---|---|---|
| Pleomorphic adenoma | 45 | 56.9% |
| Sialadenitis | 24 | 30.4% |
| Cystic lesion | 08 | 10.2% |
| Malignancy | 02 | 2.5% |
| Total | 79 | |

**Table 7: Type of oral cavity lesions**

| Type of lesion | No of cases |
|---|---|
| Squamous cell carcinoma | 01 |
| Benign Salivary gland neoplasm | 01 |
| Benign spindle cell neoplasm | 01 |
| Dentigerous cyst | 01 |
| Mucocele | 01 |
| Total | 5 |

## DISCUSSION

The present study was a retrospective study carried out over a period of 4 years in the Department of Pathology and included 547 patients with head and neck lesions who underwent FNAC.

In present study females were more compared to males. Similar gender distribution was seen in studies by Muddegowda et al,[6] Sangavi A K B et al,[7] and Kapoor S et al.[8]

Amongst all the 547 samples on whom FNAC was done, majority of the masses belonged to the lymph nodes (n= 204). Reactive lymphadenitis was the commonest lymph node lesion followed by chronic granulomatous lymphadenitis. Similar findings were seen in studies done by El Hag et al,[9] Jadhav et al,[10] and Kaur et al.[11]

The Lesions of thyroid gland were the next common site for head and neck lesions. Benign follicular nodule was the commonest thyroid lesion accounting for 69 cases (48%), followed by 12 (22%) cases of inflammatory lesions like Hashimoto's thyroiditis, and chronic lymphocytic thyroiditis. One case of papillary carcinoma thyroid was detected. In comparison with our study, Muddegowda et al,[6] also found colloid Goitre as the predominant finding in thyroid lesions.

Amongst the 79 cases of salivary gland lesions, pleomorphic adenoma was the most common type of lesion. This is in contrast to the study done by Kaur et al,[11] and Suryawansh et al,[12] where chronic sialadenitis was the most common lesion.

## CONCLUSION

In present study, lymph node swellings were the most common lesions of head and neck, owing to the multiple levels of lymph nodes in this area itself. The present study concludes stating that FNAC is a cost-effective tool for diagnosing lesions of head and neck. Early diagnosis, especially to differentiate benign lesions from malignant ones is necessary to educate the patients regarding the course of the disease process and also regarding about the prognosis.

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**Conflicts of Interest**: Nil.

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