



## SPECTRUM OF CASES ON FNAC (FINE NEEDLE ASPIRATION CYTOLOGY) IN HEAD AND NECK LESIONS: AN INSTITUTIONAL EXPERIENCE

### Pathology

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### ABSTRACT

**Background-** In the head and neck region, FNAC is of great value because of the multiplicity of accessible organs and heterogenous pathologies encountered. Swellings in head and neck region can arise from various structures like lymph node, salivary glands, thyroid, soft tissues, vessels, nerves and being easily accessible, the swellings can be aspirated without difficulty. **Objectives:** To find out spectrum of various head and neck lesions at ESIC Medical College, Kalaburagi. **Material & Methods-** A retrospective study was conducted at ESIC Medical College, Kalaburagi from Jan 2020 to Jan 2022. A total of 256 cases were included. Institutional Ethical Committee clearance was obtained. Details were collected from Cytology and histopathology records of Department of Pathology. Statistical analysis was done using SPSS version 16 and the data was analyzed and tabulated. Results- Among 256 cases, Lymph node was found to be the predominant site 103 cases (40.23%) with Tubercular lymphadenitis (49 cases) as the commonest lesion. Thyroid was the second most common site with 82 cases (32.03%) followed by salivary gland with 38 cases (14.84%), soft tissue and miscellaneous with 33 cases (12.89%). **Conclusion-** Lymph node is the commonest site involved in Head and neck lesions. FNAC is a rapid and reliable diagnostic tool which can differentiate non neoplastic lesions from neoplastic lesions, thus eliminating need of surgical intervention in the lesions which can be treated conservatively.

### KEYWORDS

Cytology, Fnac, Head And Neck, Lymph Node.

### INTRODUCTION

Head and neck swelling is a frequently encountered complaint in the outpatient department. A wide plethora of conditions give rise to head and neck lumps. Sometimes the diagnosis of these lesions is apparent from the site and associated features, while at other times the cause for mass in this region can be confusing.<sup>1</sup>

Fine needle aspiration cytology is a technique for obtaining cells from a lesion for cytological examination and evaluation. Aspiration cytology was first reported by Kun M in 1847. In India, fine needle aspiration cytology was first introduced during the early 1970's<sup>2</sup>.

In the head and neck region, FNAC is of great value because of the multiplicity of accessible organs and heterogenous pathologies encountered. Swellings in head and neck region can arise from various structures like lymph node, salivary glands, thyroid, soft tissues, vessels, nerves and being easily accessible, the swellings can be aspirated without difficulty.<sup>2,3</sup>

FNAC is a prerequisite for various neck swellings as procedure is nontraumatic, easily accessible, inexpensive, excellent compliance, avoids anaesthetic complications and requirement of open surgical biopsy. FNAC differentiates non neoplastic lesions from neoplastic lesions thus eliminating need of surgical intervention in these lesions which can be treated conservatively<sup>4</sup>.

The present study aimed at studying the spectrum of various lesions presenting in the head and neck region based on cytological findings.

### MATERIALS AND METHODS:

Details of diagnosed cases of head and neck (HN) swellings from the period of Jan 2020 to Jan 2022 were obtained from Department of Pathology at ESIC and Medical College and Hospital Kalaburagi. A total of 256 cases were included.

**Study design:** Retrospective study.

#### A. Inclusion Criteria

- All patients attending the Department of Pathology, presenting with palpable Head and Neck lesions, were evaluated.
- Ultrasound (USG) guided FNACs were also included.

#### Exclusion Criteria

- Patients presenting with swelling on sites, other than Head & Neck region.
- Cases where repeated aspirate yielded unsatisfactory/ haemorrhagic smears.

Statistical analysis was done using SPSS version 16.

### RESULTS

**Table 1: Distribution Of Head And Neck Lesions (total= 256 Cases)**

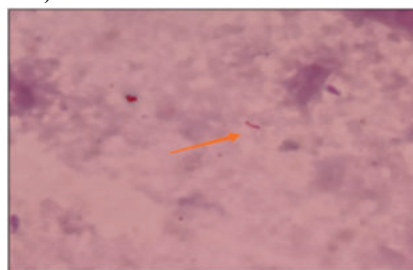
| SITE                        | NO. OF CASES | PERCENTAGE (%) |
|-----------------------------|--------------|----------------|
| Lymph Node                  | 103          | 40.23          |
| Thyroid gland               | 82           | 32.03          |
| Salivary gland              | 38           | 14.84          |
| Soft tissue & miscellaneous | 33           | 12.89          |

In our study, out of 256 cases, the predominant site was found to be lymph node with a total of 103 cases (40.23%) followed by thyroid gland with 82 cases (32.03%), salivary gland with 38 cases (14.84%), soft tissue & miscellaneous with 33 cases (12.89%). (Table 1)

**Table 2: Distribution Of Lymph Node Lesions (= 103)**

| LESIONS                | NO. OF CASES                       | PERCENTAGE (%) |
|------------------------|------------------------------------|----------------|
| Reactive lymphadenitis | 37                                 | 35.92          |
| Inflammatory           | Non specific 13<br>Tuberculosis 49 | 12.62<br>47.57 |
| Malignant              | Lymphoma 01<br>Metastasis 03       | 0.97<br>2.92   |
| Total                  | 103                                | 100            |

Out of 103 cases involving lymph node, the most common pathology found on FNAC was Tubercular lymphadenitis with 49 cases (47.57%) followed by Reactive lymphadenitis with 37 cases (35.92%) and Non-specific inflammation with 13 cases (12.62%). Zeihl- Neelsen (ZN) staining was done in cases of Tubercular lymphadenitis to detect AFB Acid Fast Bacilli. (Figure 1). Among malignant lesions, 1 case of Lymphoma and 3 cases of metastasis to the lymph node were noted. The metastasis was from upper aero-digestive tract in these cases. (Table 2)



**Figure 1: Zn Stain In A Case Of Tubercular Lymphadenitis (arrow Points Towards Afb Bacilli)**

**Table 3: Distribution Of Thyroid Lesions (N = 82)**

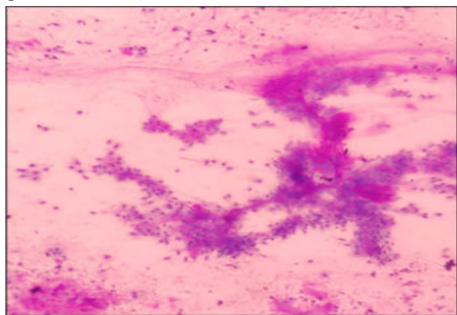
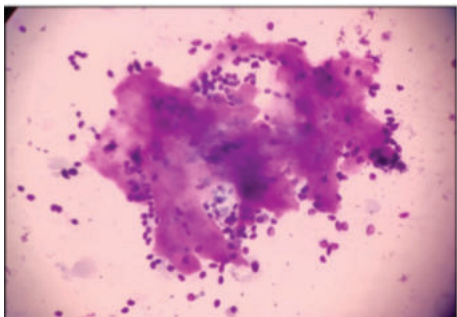
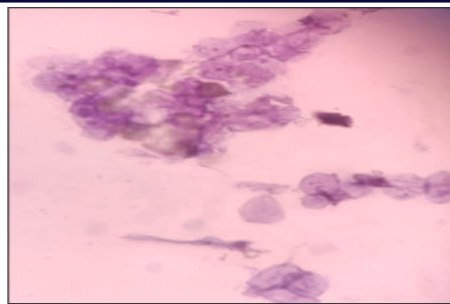
| LESIONS      |                      | NO. OF CASES | PERCENTAGE (%) |
|--------------|----------------------|--------------|----------------|
| Inflammatory |                      | 22           | 26.83          |
| Benign       | Colloid goiter       | 42           | 51.22          |
|              | Thyroglossal cyst    | 05           | 6.09           |
|              | Follicular neoplasm  | 07           | 8.54           |
| Malignant    | Papillary carcinoma  | 04           | 4.87           |
|              | Follicular carcinoma | 02           | 2.45           |
| Total        |                      | 82           | 100            |

Out of 82 cases involving thyroid gland, Colloid goiter was the predominant pathology noted with 42 cases (51.22%), followed by inflammatory lesions with 22 cases (26.83%). The inflammatory lesions included Hashimoto's thyroiditis and Chronic lymphocytic thyroiditis. Thyroglossal cyst and Follicular neoplasm was seen in 05 (6.09%) and 07 cases (8.54%) respectively. Among malignant neoplasms, we found 04 (4.87%) cases of Papillary carcinoma and 02 (2.45%) cases of Follicular carcinoma. (Table 3)

**Table 4: Distribution Of Salivary Gland Lesions (N = 38)**

| LESIONS      |                                | NO. OF CASES | PERCENTAGE (%) |
|--------------|--------------------------------|--------------|----------------|
| Inflammatory |                                | 07           | 18.42          |
|              |                                | 13           | 34.21          |
| Benign       | Pleomorphic adenoma            | 09           | 23.68          |
|              | Warthin's tumor                | 02           | 5.26           |
|              | Benign lymphoepithelial lesion | 03           | 7.89           |
|              |                                |              |                |
| Malignant    | Ca ex Pleomorphic adenoma      | 01           | 2.64           |
|              | Mucoepidermoid carcinoma       | 02           | 5.26           |
|              | Anaplastic carcinoma           | 01           | 2.64           |
|              |                                |              |                |
| Total        |                                | 38           | 100            |

Out of 38 cases involving salivary gland, the most common pathology found was Chronic sialadenitis with 13 cases (34.21%), followed by Pleomorphic adenoma with 09 cases (23.68%) (Figure 2) ,Acute sialadenitis 07(18.42%), Benign Lymphoepithelial lesion 03(7.89%) and Warthin's tumor 02(5.26%) (Figure 3). Among malignant lesions, we found 02 cases of Mucoepidermoid carcinoma and 1 case of Ca ex Pleomorphic adenoma. (Table 4)

**Figure 2: Pleomorphic Adenoma-Myoepithelial Cells And Stromal Component. The Stromal Component Is Typically Chondromyxoid.****Figure 3: Warthin's Tumor- Oncocytic Cells In A Lymphoid Background.****Figure 4: Epidermoid Cyst- Anucleate Squamous Cells****Table 5: Distribution Of Soft Tissue And Miscellaneous (N = 33)**

| LESIONS   |                               | NO. OF CASES | PERCENTAGE (%) |
|-----------|-------------------------------|--------------|----------------|
| Benign    | Lipoma                        | 07           | 21.21          |
|           | Epidermoid cyst               | 19           | 57.58          |
|           | Benign adnexal tumor          | 01           | 3.03           |
| Malignant | Squamous cell carcinoma (SCC) | 03           | 9.09           |
|           | Metastatic epithelial tumor   | 03           | 9.09           |
| Total     |                               | 33           | 100            |

Among soft tissue and miscellaneous lesions, the most common pathology encountered on FNAC was Epidermoid cyst with 19 cases (57.58 %) (Figure 4), followed by 07(21.21%) cases of Lipoma. Among malignant lesions, 03 cases of Squamous cell carcinoma (SCC) and 03 cases of Metastatic epithelial tumor were found. (Table 5)

## DISCUSSION

Palpable lesions in the region of the head and neck include a wide differential diagnosis including inflammatory lesions and neoplasms, both benign and malignant. FNAC of the salivary glands, and the head and neck region is a generally well-accepted technique that has a high specificity. It offers clear advantages. It is minimally invasive, produces a speedy result and is inexpensive.<sup>2</sup>

In our study, out of 256 cases, the predominant site was found to be lymph node with a total of 103 cases (40.23%). It was similar to the studies conducted by Laxman B et al<sup>1</sup> who found 251 cases (55.04%), Kishor H et al<sup>5</sup> who found 114 cases (39.58%) and Nidhi Verma et al<sup>6</sup> with 1382 cases (74.4%).

The predominant pathology identified in lymph node lesions in our study was Tubercular lymphadenitis with 49 cases (47.57%). This result was similar to the study conducted by Kishor H et al<sup>5</sup> with 54 cases (47.36%) of Tubercular lymphadenitis. It was different from the studies conducted by Laxman B et al<sup>1</sup> and Nidhi Verma et al<sup>6</sup>, who found Reactive lymphadenitis as the most common pathology in Lymph nodes with 203 cases (44.5%) and 485 cases (26.12%) respectively. Tubercular lymphadenitis was the second most common pathology noted in both of these studies with 25 cases (05.48%) and 390 cases (21%) respectively.

The second most common site in our study was Thyroid gland with 82 cases (32.03%) which is similar to the studies conducted by Laxman B et al<sup>1</sup>, Kishor H et al<sup>5</sup> and Nidhi Verma et al<sup>6</sup> who found 98 cases (21.49 %), 90 cases (31.25 %) and 218 cases (11.7 %) respectively. Colloid goiter was the predominant pathology found in our study with 42 cases (51.22%). This result was similar to the studies done by Laxman B et al<sup>1</sup>, Kishor H et al<sup>5</sup> and Nidhi Verma et al<sup>6</sup> who found 77 cases (16.88 %), 43 cases (47.77 %) and 175 cases ( 09.42 %) of colloid goiter respectively.

In the present study, salivary gland was the third most common site with 38 cases (14.84%). This result was similar to the study conducted by Kishor H et al<sup>5</sup> and different from the studies conducted by Laxman B et al<sup>1</sup> and Nidhi Verma et al<sup>6</sup> who found skin & subcutaneous tissue and Miscellaneous groups as the third most common site. The predominant pathology noted in salivary gland lesions was Chronic Sialadenitis with 13 cases (34.21%), this was similar to the studies conducted by Laxman B et al<sup>1</sup> and Kishor H et al<sup>5</sup> who found 14

cases (11.09 %) and 24 cases (44.44 %). It was different from the study conducted by and Nidhi Verma et al<sup>6</sup> who found Pleomorphic adenoma as the commonest pathology in salivary glands with 08cases (0.43%). In our study, among soft tissue and miscellaneous lesions, the most common pathology encountered on FNAC was Epidermoid cyst with 19 cases (57.58 %), this was similar to the studies conducted by Kishor H et al<sup>5</sup> and Nidhi Verma et al<sup>6</sup> who found 12 cases (57.14 %) and 125 cases ( 6.73 %) of epidermoid cyst.

## CONCLUSION

Lymph node is the commonest site involved in Head and neck lesions, followed by Thyroid gland. FNAC is a rapid and reliable diagnostic tool which can differentiate non neoplastic lesions from neoplastic lesions, thus eliminating need of surgical intervention in the lesions which can be treated conservatively.

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## REFERENCES

1. Dr Laxman Banstola, Dr Swasti Sharma, Dr Bijaya Gautam. MJPAS Jul-Dec 2018. 1(2), 83-86.
2. Dr. Swati Arora, Dr. Kuldeep Singh, Dr. Ravi Kumar. Fine needle aspiration cytology of the head and neck masses: one year prospective study. Int. J. Adv. Res. 2018 6(10), 793-797
3. Cristallini EG, Ascani S, Farabi R, Liberati F, Maccio T, Peciarolo A, et al. Fine needle aspiration biopsy of salivary gland, 1985-1995. Acta Cytol 1997; 41(5): 1421-5.
4. Klijanienko J. Head and Neck and Salivary gland. In: Layfield LJ, editor. Atlas of Fine Needle Aspiration Cytology. 1st edn. New Delhi: Jaypee Publishers; 2014. p. 11.
5. Kishor H. et. al Spectrum of FNAC in Palpable Head and Neck Lesions in a Tertiary care hospital in India – a 3 years study. Indian J Pathol Oncol Jan- Mar 2015; 2(1): 7-13
6. Nidhi Verma et al. JMSCR October 2020; 8(10): 20-30
7. Chauhan S, Rathod D, Joshi DS. FNAC of swellings of head and neck region. Indian Journal of Applied Basic Medical Sciences 2011; 13(17): 1-6.
8. Taviad DS, Jadav K, Nikhra P, Panchal A, Patel V. Role of fine needle aspiration cytology in head and neck swelling. Int J Res Med 2014; 3(2): 131-134.