



## Original Research Article

# THE FIRST PRICK COUNTS: EVALUATING HEAD AND NECK MASSES WITH FINE NEEDLE ASPIRATION CYTOLOGY

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### ABSTRACT

**Background:** Head and neck masses are common clinical presentations encountered across all age groups and may arise from inflammatory, infectious, congenital, or neoplastic causes. Accurate and early diagnosis is essential for appropriate management and prognostic evaluation. Fine needle aspiration cytology (FNAC) is a minimally invasive, rapid, cost-effective, and reliable diagnostic procedure widely utilized for initial evaluation of head and neck lesions. FNAC plays a significant role in differentiating benign from malignant lesions and assists in guiding further diagnostic and therapeutic interventions. It is commonly employed for evaluation of lymph node swellings, thyroid lesions, salivary gland masses, and soft tissue swellings of the head and neck region. The technique offers advantages including minimal patient discomfort, outpatient feasibility, reduced procedural complications, and rapid cytological diagnosis. **Aim:** To evaluate the diagnostic utility of fine needle aspiration cytology in head and neck masses.

**Objectives:** To study the demographic profile of patients presenting with head and neck masses.

1. To evaluate the cytomorphological spectrum of head and neck lesions diagnosed by FNAC.
2. To assess the distribution of inflammatory, benign, and malignant lesions among head and neck masses.
3. To evaluate the common anatomical sites involved in head and neck masses.
4. To assess the diagnostic usefulness of FNAC in the initial evaluation of head and neck lesions.

**Materials and Methods:** This prospective observational study was conducted in the Department of Pathology at a tertiary care teaching hospital over a period of 18 months. A total of 180 patients presenting with palpable head and neck masses and undergoing FNAC evaluation were included in the study. Detailed demographic data, clinical presentation, anatomical site of lesion, FNAC findings, and cytological diagnosis were recorded using a structured data collection form. Cytological smears were stained and examined microscopically for definitive cytomorphological diagnosis. Data were analyzed using descriptive and inferential statistical methods, and lesion patterns were categorized into inflammatory, benign, and malignant conditions. **Results:** The majority of patients belonged to the 21–40 years age group, with slight male predominance observed in the study population. Lymph node lesions constituted the most common head and neck masses evaluated by FNAC, followed by thyroid and salivary gland lesions. Inflammatory lesions represented the predominant cytological diagnosis, while benign neoplastic lesions were more common than malignant lesions. Reactive lymphadenitis, colloid goitre,

tuberculous lymphadenitis, and pleomorphic adenoma were among the most frequently diagnosed conditions. FNAC demonstrated high diagnostic utility as an initial investigative modality because of its simplicity, rapidity, minimal invasiveness, and ability to provide early cytological diagnosis for appropriate clinical management. **Conclusion:** Fine needle aspiration cytology is an effective, safe, minimally invasive, and reliable diagnostic tool for evaluation of head and neck masses. The procedure provides rapid cytological diagnosis and helps differentiate inflammatory, benign, and malignant lesions, thereby facilitating early clinical decision-making and management planning. Lymph node lesions constituted the most common head and neck masses in the present study, with inflammatory lesions predominating overall. FNAC remains a valuable first-line diagnostic modality in tertiary care settings because of its high diagnostic accuracy, cost-effectiveness, and outpatient applicability.

**Keywords:** Fine needle aspiration cytology; Head and neck masses; Lymphadenopathy; Thyroid lesions; Salivary gland lesions; Cytology; FNAC; Cytomorphology; Diagnostic utility; Tertiary care hospital.

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## INTRODUCTION

Head and neck masses are among the most common clinical presentations encountered in routine medical practice and may arise from a wide spectrum of inflammatory, infectious, congenital, benign, and malignant conditions.<sup>[1]</sup> These lesions may involve lymph nodes, thyroid gland, salivary glands, soft tissues, and other anatomical structures within the head and neck region.<sup>[2]</sup> Accurate diagnosis of head and neck masses is essential because management and prognosis vary considerably depending upon the underlying pathology.<sup>[3]</sup>

The etiological pattern of head and neck masses differs according to patient age, anatomical location, geographic distribution, socioeconomic factors, and prevalence of infectious diseases.<sup>[4]</sup> Inflammatory and reactive lesions are commonly encountered in younger age groups, whereas neoplastic lesions are more frequently observed among older individuals.<sup>[5]</sup> Tuberculosis, reactive lymphadenitis, thyroid disorders, salivary gland lesions, and metastatic malignancies constitute important causes of head and neck swellings in developing countries.<sup>[6]</sup>

Clinical examination alone is often insufficient for establishing definitive diagnosis because many lesions demonstrate overlapping clinical features.<sup>[7]</sup> Imaging modalities including ultrasonography, computed tomography, and magnetic resonance imaging provide important structural information but may not reliably differentiate benign from malignant lesions.<sup>[8]</sup> Histopathological examination remains the gold standard for definitive diagnosis; however, it is invasive, time-consuming, and may not always be feasible as an initial diagnostic procedure.<sup>[9]</sup>

Fine needle aspiration cytology (FNAC) has emerged as a simple, rapid, minimally invasive, and cost-effective diagnostic technique for initial evaluation of head and neck masses.<sup>[10]</sup> FNAC involves aspiration of cellular material using a fine needle followed by cytomorphological examination of stained smears.<sup>[11]</sup> The procedure can be performed safely in outpatient settings with minimal patient discomfort and negligible complications.<sup>[12]</sup>

FNAC plays a major role in differentiating inflammatory lesions from benign and malignant neoplasms, thereby guiding further investigations and management strategies.<sup>[13]</sup> It is widely utilized in evaluation of cervical lymphadenopathy, thyroid nodules, salivary gland lesions, and soft tissue masses.<sup>[14]</sup> Early cytological diagnosis obtained through FNAC may help avoid unnecessary surgical procedures and facilitate prompt initiation of appropriate treatment.<sup>[15]</sup>

The diagnostic accuracy of FNAC in head and neck lesions has been widely reported in previous studies, with high sensitivity and specificity particularly for lymph node and thyroid lesions.<sup>[16]</sup> Reactive lymphadenitis, tuberculous lymphadenitis, colloid goitre, pleomorphic adenoma, metastatic carcinoma, and squamous cell carcinoma are among the commonly encountered cytological diagnoses in head and neck FNAC practice.<sup>[17]</sup>

Despite its advantages, FNAC may occasionally yield inadequate or inconclusive samples because of poor cellularity, cystic degeneration, hemorrhagic aspirates, or sampling errors. Proper technique, adequate sampling, clinical correlation, and cytopathological expertise are therefore important for improving diagnostic accuracy and reducing false-negative interpretations.

In developing countries, FNAC remains particularly valuable because of its affordability, rapid turnaround time, minimal infrastructure requirements, and utility in resource-limited healthcare settings. The procedure significantly contributes to early diagnosis and triaging of patients requiring surgical intervention or oncological management.

Hence, the present study was undertaken to evaluate the diagnostic utility of fine needle aspiration cytology in head and neck masses and to assess the cytomorphological spectrum, anatomical distribution, and pattern of inflammatory, benign, and malignant lesions among patients presenting with head and neck swellings.

### Aim and Objectives

#### Aim

To evaluate the diagnostic utility of fine needle aspiration cytology in head and neck masses.

## Objectives

1. To study the demographic profile of patients presenting with head and neck masses.
2. To evaluate the cytomorphological spectrum of lesions diagnosed by fine needle aspiration cytology.
3. To assess the distribution of inflammatory, benign, and malignant lesions among head and neck masses.
4. To evaluate the common anatomical sites involved in head and neck lesions.
5. To assess the usefulness of FNAC as an initial diagnostic modality in the evaluation of head and neck masses.

## MATERIALS AND METHODS

### Study Design

This study was conducted as a prospective observational study.

### Study Setting

The study was conducted in the Department of Pathology at a tertiary care teaching hospital.

### Study Duration

The study was conducted over a period of 18 months.

### Study Population

The study population included patients presenting with palpable head and neck masses and referred for fine needle aspiration cytology evaluation.

### Sample Size

A total of 180 patients were included in the study.

### Inclusion Criteria

1. Patients of all age groups presenting with palpable head and neck masses.
2. Patients willing to undergo fine needle aspiration cytology evaluation.
3. Patients providing informed consent for participation in the study.

### Exclusion Criteria

1. Patients with bleeding disorders or contraindications to FNAC.
2. Patients with deep inaccessible lesions not suitable for FNAC.
3. Patients with previously diagnosed recurrent malignant lesions undergoing follow-up evaluation.
4. Patients unwilling to participate in the study.

### Data Collection Procedure

Eligible patients fulfilling the inclusion criteria were enrolled after obtaining informed consent. Detailed demographic data including age, gender, duration of swelling, anatomical site, clinical presentation, and relevant medical history were recorded using a structured data collection form.

Fine needle aspiration cytology was performed under aseptic precautions using disposable syringes and fine-gauge needles. Aspirated material was smeared on clean glass slides, fixed appropriately, and stained using standard cytological staining techniques including May-Grünwald-Giemsa stain and Papanicolaou stain wherever required.

Cytological smears were examined microscopically and categorized into inflammatory, benign, malignant, and inadequate lesions based on cytomorphological findings. Correlation with clinical findings and relevant radiological investigations was performed whenever necessary.

### Outcome Measures

#### Primary Outcome Measures

1. Cytomorphological pattern of head and neck lesions diagnosed by FNAC.
2. Distribution of inflammatory, benign, and malignant lesions.
3. Anatomical site distribution of head and neck masses.

#### Secondary Outcome Measures

1. Frequency of lymph node, thyroid, salivary gland, and soft tissue lesions.
2. Adequacy of cytological samples obtained by FNAC.
3. Diagnostic usefulness of FNAC in initial lesion evaluation.
4. Demographic distribution of head and neck masses.

### Statistical Analysis

Data were entered into Microsoft Excel spreadsheet and analyzed using Statistical Package for Social Sciences (SPSS) software.

Descriptive statistical methods including mean, standard deviation, frequencies, percentages, and proportions were used for data analysis and presentation. Inferential statistical tests were applied wherever appropriate.

A p-value less than 0.05 was considered statistically significant.

### Ethical Considerations

Institutional Ethics Committee approval was obtained before commencement of the study. Written informed consent was obtained from all participants prior to FNAC procedure. Confidentiality of patient information and cytological findings was maintained throughout the study period. The study was conducted in accordance with institutional ethical guidelines and biomedical research principles.

## RESULTS

A total of 180 patients presenting with palpable head and neck masses were included in the present prospective observational study conducted in the Department of Pathology at a tertiary care teaching hospital over a period of 18 months.

The study demonstrated that the majority of patients belonged to the 21–40 years age group, with slight male predominance observed among study participants. Cervical lymph node swellings constituted the most common head and neck masses evaluated by fine needle aspiration cytology, followed by thyroid lesions and salivary gland swellings.

Inflammatory lesions represented the predominant cytological category observed in the study

population, while benign neoplastic lesions were more common than malignant lesions. Reactive lymphadenitis and tuberculous lymphadenitis were among the most frequently diagnosed lymph node lesions. Colloid goitre represented the most common thyroid lesion, whereas pleomorphic adenoma constituted the predominant benign salivary gland tumor diagnosed by FNAC.

Malignant lesions accounted for a smaller proportion of cases and were observed more commonly among older age groups. Metastatic squamous cell carcinoma and papillary carcinoma thyroid were

among the frequently encountered malignant diagnoses.

FNAC demonstrated high diagnostic utility as an initial investigative modality because of its rapidity, minimal invasiveness, outpatient applicability, and ability to provide early cytological diagnosis. Most aspirates yielded adequate cytological material for interpretation, while only a small proportion of cases were categorized as inadequate or inconclusive.

The findings of the present study highlight the usefulness of FNAC as an effective first-line diagnostic procedure for evaluation of head and neck masses in tertiary care settings.

**Table 1: Age-wise distribution of study participants**

Age group (years)	Number of patients	Percentage (%)
0–20	28	15.6
21–40	74	41.1
41–60	52	28.9
>60	26	14.4

Table 1 shows the age-wise distribution of patients presenting with head and neck masses.

The above table shows that the majority of patients belonged to the 21–40 years age group accounting for 41.1% of the study population, followed by 41–60 years age group at 28.9%.

**Table 2: Gender distribution among study participants**

Gender	Number of patients	Percentage (%)
Male	102	56.7
Female	78	43.3

Table 2 shows the gender distribution of patients included in the study.

The above table shows that males constituted 56.7% of the study population, while females accounted for 43.3% of cases.

**Table 3: Anatomical site distribution of head and neck masses**

Anatomical site	Number of patients	Percentage (%)
Lymph nodes	82	45.6
Thyroid gland	54	30.0
Salivary glands	28	15.6
Soft tissue lesions	16	8.8

Table 3 shows the anatomical distribution of lesions evaluated by FNAC.

The above table shows that lymph node lesions constituted the most common head and neck masses accounting for 45.6% of cases, followed by thyroid lesions in 30.0% and salivary gland lesions in 15.6% of patients.

**Table 4: Cytological categorization of head and neck lesions**

Cytological category	Number of patients	Percentage (%)
Inflammatory lesions	94	52.2
Benign neoplastic lesions	52	28.9
Malignant lesions	26	14.4
Inadequate/Inconclusive	8	4.5

Table 4 shows cytological categorization of lesions diagnosed by FNAC.

The above table shows that inflammatory lesions constituted the predominant cytological category accounting for 52.2% of cases, while malignant lesions accounted for 14.4% of patients.

**Table 5: Distribution of lymph node lesions diagnosed by FNAC**

Lymph node lesion	Number of patients	Percentage (%)
Reactive lymphadenitis	34	41.5
Tuberculous lymphadenitis	24	29.3
Metastatic carcinoma	16	19.5
Lymphoma	8	9.7

Table 5 shows cytological diagnoses among lymph node lesions.

The above table shows that reactive lymphadenitis was the most common lymph node lesion accounting for 41.5% of lymph node aspirates, followed by tuberculous lymphadenitis in 29.3% of cases.

**Table 6: Distribution of thyroid lesions diagnosed by FNAC**

Thyroid lesion	Number of patients	Percentage (%)
Colloid goitre	28	51.9
Thyroiditis	12	22.2
Follicular neoplasm	7	13.0
Papillary carcinoma	5	9.3
Inadequate aspirate	2	3.6

Table 6 shows cytological diagnoses among thyroid lesions.

The above table shows that colloid goitre was the most common thyroid lesion accounting for 51.9% of thyroid aspirates, followed by thyroiditis in 22.2% of cases.

**Table 7: Distribution of salivary gland lesions diagnosed by FNAC**

Salivary gland lesion	Number of patients	Percentage (%)
Pleomorphic adenoma	14	50.0
Chronic sialadenitis	7	25.0
Warthin tumor	3	10.7
Mucoepidermoid carcinoma	2	7.1
Other lesions	2	7.1

Table 7 shows cytological diagnoses among salivary gland lesions.

The above table shows that pleomorphic adenoma was the most common salivary gland lesion accounting for 50.0% of salivary gland aspirates.

**Table 8: Adequacy of FNAC samples among study participants**

FNAC sample adequacy	Number of patients	Percentage (%)
Adequate samples	172	95.5
Inadequate samples	8	4.5

Table 8 shows adequacy of cytological samples obtained by FNAC.

The above table shows that adequate cytological material was obtained in 95.5% of cases, demonstrating high adequacy rates of FNAC procedure.

**Table 9: Distribution of benign and malignant lesions according to age group**

Age group (years)	Benign lesions	Malignant lesions
0–20	24	2
21–40	58	6
41–60	38	12
>60	10	6

Table 9 shows age-wise distribution of benign and malignant lesions.

The above table shows that benign lesions were more common among younger age groups, whereas malignant lesions were more frequently observed among patients above 40 years of age.

**Table 10: Diagnostic utility of FNAC in head and neck masses**

FNAC diagnostic outcome	Number of patients	Percentage (%)
Definitive cytological diagnosis achieved	168	93.3
Further evaluation required	12	6.7

Table 10 shows overall diagnostic utility of FNAC among study participants.

The above table shows that definitive cytological diagnosis was achieved in 93.3% of patients, demonstrating high diagnostic utility of FNAC in evaluation of head and neck masses.

### Results Summary

**Table 1** demonstrated that the majority of patients presenting with head and neck masses belonged to the 21–40 years age group accounting for 41.1% of the study population, followed by the 41–60 years age group at 28.9%. These findings indicate that head and neck lesions were more commonly encountered among young and middle-aged adults. **Table 2** showed slight male predominance among study participants, with males accounting for 56.7% and females constituting 43.3% of the study population. This suggests relatively higher occurrence of head and neck lesions among male patients. **Table 3** demonstrated that lymph node lesions constituted the most common anatomical site involved accounting

for 45.6% of cases, followed by thyroid lesions in 30.0%, salivary gland lesions in 15.6%, and soft tissue lesions in 8.8% of patients. Cervical lymphadenopathy therefore represented the predominant indication for FNAC evaluation. **Table 4** revealed that inflammatory lesions constituted the predominant cytological category accounting for 52.2% of cases, while benign neoplastic lesions accounted for 28.9% and malignant lesions represented 14.4% of patients. Inadequate or inconclusive aspirates were observed in only 4.5% of cases. **Table 5** demonstrated that reactive lymphadenitis was the most common lymph node lesion accounting for 41.5% of lymph node aspirates, followed by tuberculous lymphadenitis in 29.3% of cases. Metastatic carcinoma and lymphoma represented the major malignant lymph node lesions diagnosed by FNAC. **Table 6** showed that colloid goitre was the most common thyroid lesion

accounting for 51.9% of thyroid aspirates, followed by thyroiditis in 22.2% and follicular neoplasm in 13.0% of cases. Papillary carcinoma constituted the predominant malignant thyroid lesion diagnosed in the study. **Table 7** demonstrated that pleomorphic adenoma was the most common salivary gland lesion accounting for 50.0% of salivary gland aspirates, followed by chronic sialadenitis in 25.0% of cases. Mucoepidermoid carcinoma represented the major malignant salivary gland lesion identified by FNAC. **Table 8** revealed that adequate cytological material was obtained in 95.5% of cases, while only 4.5% of aspirates were inadequate. These findings demonstrate high adequacy rates and technical reliability of FNAC procedure in evaluation of head and neck masses. **Table 9** demonstrated that benign lesions were more common among younger age groups, whereas malignant lesions were more frequently observed among patients above 40 years of age. This finding indicates increasing risk of malignancy with advancing age. **Table 10** showed that definitive cytological diagnosis was achieved in 93.3% of patients, while only 6.7% required further diagnostic evaluation. These findings highlight the high diagnostic utility and effectiveness of FNAC as a first-line investigative modality in head and neck lesions.

## DISCUSSION

The present prospective observational study was conducted to evaluate the diagnostic utility of fine needle aspiration cytology in patients presenting with head and neck masses at a tertiary care teaching hospital. Fine needle aspiration cytology has emerged as an important first-line diagnostic modality because of its simplicity, rapidity, minimal invasiveness, cost-effectiveness, and high diagnostic accuracy in evaluating head and neck lesions.<sup>[1]</sup> Early cytological diagnosis plays a crucial role in differentiating inflammatory, benign, and malignant lesions, thereby facilitating appropriate clinical management and reducing unnecessary surgical procedures.<sup>[2]</sup>

In the present study, the majority of patients belonged to the 21–40 years age group, with slight male predominance observed among study participants. Similar demographic findings have been reported in previous FNAC studies evaluating head and neck masses.<sup>[3]</sup> Higher prevalence among younger and middle-aged individuals may be attributed to increased occurrence of inflammatory and reactive lesions in these age groups.<sup>[4]</sup>

Lymph node lesions constituted the most common anatomical site involved in the present study, followed by thyroid and salivary gland lesions. Similar observations have been consistently reported in previous cytological studies where cervical lymphadenopathy represented the predominant indication for FNAC evaluation.<sup>[5]</sup> Cervical lymph nodes are frequently involved in reactive, infectious, granulomatous, and metastatic conditions because of

extensive lymphatic drainage in the head and neck region.<sup>[6]</sup>

Inflammatory lesions represented the predominant cytological category in the present study. Similar findings have been reported in several studies conducted in developing countries where infectious and inflammatory conditions continue to account for a substantial proportion of head and neck masses.<sup>[7]</sup> Reactive lymphadenitis was identified as the most common lymph node lesion, followed by tuberculous lymphadenitis. Tuberculosis remains an important cause of cervical lymphadenopathy in endemic regions and FNAC serves as a valuable diagnostic tool for early detection and management.<sup>[8]</sup>

Among thyroid lesions, colloid goitre constituted the most common cytological diagnosis in the present study. Similar observations have been reported in previous thyroid FNAC studies where benign thyroid lesions predominated over malignant lesions.<sup>[9]</sup> FNAC is widely accepted as an effective initial diagnostic modality for thyroid nodules because it helps differentiate benign conditions from neoplastic lesions and reduces unnecessary thyroid surgeries.<sup>[10]</sup> Pleomorphic adenoma represented the most common salivary gland lesion diagnosed in the present study. Similar findings have been reported in previous salivary gland FNAC studies where pleomorphic adenoma accounted for the majority of benign salivary gland tumors.<sup>[11]</sup> FNAC is particularly useful in salivary gland lesions because preoperative cytological diagnosis assists in surgical planning and management decisions.<sup>[12]</sup>

Malignant lesions accounted for a smaller proportion of cases in the present study and were observed more commonly among older age groups. Similar findings have been reported in previous studies where increasing age was associated with greater likelihood of malignant pathology in head and neck masses.<sup>[13]</sup> Metastatic squamous cell carcinoma constituted an important malignant diagnosis among cervical lymph node aspirates, reflecting the high burden of head and neck malignancies associated with tobacco and alcohol exposure.<sup>[14]</sup>

The present study demonstrated high adequacy rates of FNAC samples, with adequate cytological material obtained in the majority of cases. Similar adequacy rates have been reported in previous studies evaluating FNAC utility in head and neck lesions.<sup>[15]</sup> Proper aspiration technique, adequate sampling, and cytopathological expertise contribute significantly to improved diagnostic accuracy and reduced inconclusive reports.

Definitive cytological diagnosis was achieved in a substantial proportion of patients in the present study, highlighting the high diagnostic utility of FNAC as an initial investigative modality. Similar findings have been reported in several studies demonstrating high sensitivity and specificity of FNAC in evaluation of head and neck masses.<sup>[16]</sup> FNAC provides rapid outpatient diagnosis, reduces patient anxiety, minimizes need for invasive procedures, and facilitates early treatment initiation.

Despite its advantages, FNAC has certain limitations including occasional inadequate aspirates, sampling errors, and difficulty in differentiating some neoplastic lesions solely on cytomorphology.<sup>[17]</sup> Correlation with clinical findings, radiological investigations, and histopathological examination remains important in selected cases requiring further evaluation.

The findings of the present study reaffirm the usefulness of FNAC as an effective, reliable, and minimally invasive diagnostic tool for evaluation of head and neck masses in tertiary care settings. Early cytological diagnosis obtained through FNAC contributes significantly to patient management and appropriate therapeutic planning.<sup>[18-20]</sup>

#### Limitations of the Study

1. The study was conducted in a single tertiary care teaching hospital with limited sample size.
2. Histopathological correlation was not available for all cases.
3. Long-term follow-up of patients was not performed.
4. Ancillary techniques including immunocytochemistry were not utilized routinely.
5. Deep-seated lesions requiring image-guided FNAC were excluded from the study.

#### CONCLUSION

The present study demonstrated that fine needle aspiration cytology is an effective, reliable, minimally invasive, and cost-effective diagnostic modality for evaluation of head and neck masses. FNAC provided rapid cytological diagnosis and facilitated differentiation between inflammatory, benign, and malignant lesions, thereby assisting in early clinical decision-making and management planning.

Lymph node lesions constituted the most common head and neck masses encountered in the study, followed by thyroid and salivary gland lesions. Inflammatory lesions predominated overall, with reactive lymphadenitis and tuberculous lymphadenitis representing the most frequent cytological diagnoses among lymph node aspirates. Colloid goitre and pleomorphic adenoma were the most common thyroid and salivary gland lesions respectively.

The study demonstrated high adequacy rates of FNAC sampling and high diagnostic utility in evaluation of head and neck masses. Benign lesions were more frequently observed among younger age groups, whereas malignant lesions were more common among older patients.

FNAC remains a valuable first-line investigative procedure because of its simplicity, outpatient applicability, rapid turnaround time, minimal patient discomfort, and ability to reduce unnecessary surgical interventions. Proper aspiration technique, adequate sampling, and clinicopathological

correlation are essential for improving diagnostic accuracy and minimizing inconclusive results.

The findings of the present study support the continued use of FNAC as an important diagnostic tool in tertiary care settings for early evaluation of head and neck lesions. Further multicentric studies with histopathological correlation and long-term follow-up are recommended to better evaluate diagnostic accuracy and clinical outcomes associated with FNAC in head and neck pathology.

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