

Pattern of FNAC of Neck Lymph Nodes in a Tertiary Care Centre in Uttar Pradesh, India: A Retrospective Study of 150 Patients

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ABSTRACT:

Background: Fine-needle aspiration cytology (FNAC) is a widely used diagnostic tool for evaluation of neck lymphadenopathy. This retrospective study aimed to evaluate the pattern of FNAC diagnoses of neck lymph nodes in patients presenting to a tertiary care centre in Uttar Pradesh, India. **Methods:** We reviewed FNAC records of 150 patients who underwent FNAC of neck lymph nodes between September 2023 and August 2025. Demographic data, node site, and cytological diagnoses were extracted and analyzed. **Results:** Of 150 patients, the most common diagnoses were Tuberculosis (33.3%), Reactive hyperplasia (30.0%), Metastatic carcinoma (23.3%), Lymphoma (8.0%) and Inadequate/Non-diagnostic (5.3%). The majority of patients were in the 20–39 year age group. Cervical lymph nodes comprised the majority of sampled sites. **Conclusion:** Tuberculosis and reactive lymphadenitis remain leading causes of neck lymphadenopathy in this region; metastatic disease and lymphoma were also significant. FNAC is a useful first-line diagnostic modality; correlation with clinical and microbiological data is essential for optimal patient management.

Keywords: FNAC; neck lymph nodes; tuberculosis; metastatic carcinoma; lymphadenopathy; cytology; retrospective study

INTRODUCTION:

Neck lymphadenopathy is a common clinical problem with causes ranging from reactive inflammatory processes and infections to malignancy. Fine-needle aspiration cytology (FNAC) is an effective, minimally invasive procedure for initial evaluation of lymphadenopathy, providing rapid diagnostic information that can guide further management. In countries such as India, infectious causes, particularly tuberculosis, remain common causes of lymph node enlargement, while metastatic involvement from head and neck malignancies is an important consideration, especially in older patients. The present study aims to analyze the pattern of FNAC diagnoses of neck lymph nodes at a tertiary care centre in Uttar Pradesh over a 24-month period, to describe the distribution of diagnoses, age and sex patterns, and common sampled sites.

METHODS:

Study design and setting: This retrospective study was conducted at the Department of Pathology, Tertiary Care

Centre, Gonda, Uttar Pradesh. FNAC records between September 2023 and August 2025 were reviewed.

Inclusion criteria: All patients who underwent FNAC of neck lymph nodes during the study period with complete cytology reports were included (n=150).

Data collection: Demographic details (age, sex), anatomical site of sampled lymph node, and FNAC diagnosis were extracted from the laboratory information system and patient records. FNACs were performed using a 22–25 gauge needle; smears were stained using May Grünwald Giemsa and Papanicolaou stains; Ziehl–Neelsen staining and culture were performed when tuberculosis was suspected.

Data analysis: Data were entered into spreadsheet software and analyzed to determine frequency distribution of cytological diagnoses. Descriptive statistics were used; categorical variables are presented as numbers and percentages.

RESULTS:

A total of 150 patients who underwent FNAC of neck lymph nodes were included. Age, sex and site distributions, and cytological diagnoses are summarized below.

Table 1: Cytological diagnoses of neck lymph nodes (n=150)

Diagnosis	Number	Percentage (%)
Reactive hyperplasia	45	30.0
Tuberculosis	50	33.3
Metastatic carcinoma	35	23.3
Lymphoma	12	8.0
Inadequate/Non-diagnostic	8	5.3

Table 2: Age group distribution (n=150)

Age group	Number	Percentage (%)
<20	18	12.0
20-39	62	41.3
40-59	46	30.7
60+	24	16.0

Table 3: Sex distribution and node sites

Sex	Number	Node site	Number
Male	88	Cervical	120
Female	62	Supraclavicular	18
		Submandibular	12

Figures:

Figure 1: Distribution of FNAC diagnoses (n=150).

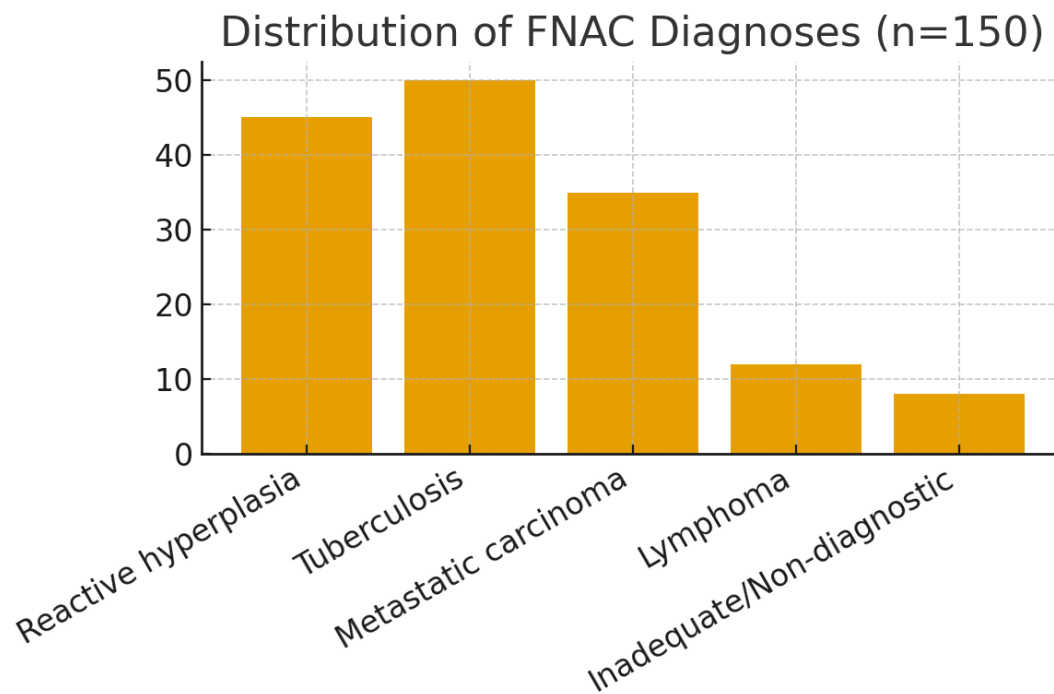
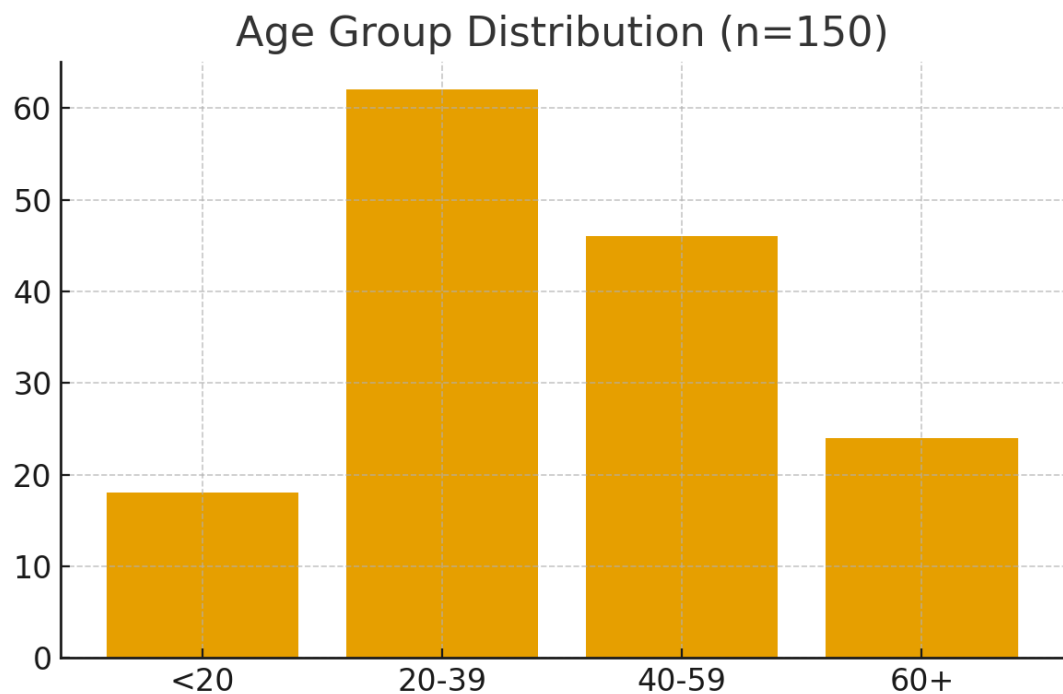


Figure 2: Age group distribution (n=150).



DISCUSSION:

This retrospective analysis of 150 patients undergoing FNAC of neck lymph nodes at a tertiary care centre in Uttar Pradesh demonstrates that tuberculosis and reactive lymphadenitis were the predominant diagnoses, together comprising over 60% of cases. These findings align with previous regional studies where infectious causes, especially tuberculous lymphadenitis, are common. Metastatic carcinoma accounted for nearly one-quarter of cases, underscoring the importance of FNAC in identifying malignant involvement and guiding further oncologic workup. Lymphoma was less frequent but represents a critical diagnosis that often requires excisional biopsy and immunophenotyping for definitive classification. The adequacy rate was high, with only a small proportion of samples being inadequate for diagnosis. This reflects appropriate FNAC technique and smear preparation in the reporting laboratory. However, correlation with clinical features, imaging, and microbiological tests (e.g., ZN stain, culture, PCR) is essential, particularly in suspected tuberculous cases. Strengths of this study include a clearly defined study period and a reasonable sample size for a single-centre retrospective cytology audit. Limitations include its retrospective nature, lack of histopathological correlation for all cases, and use of synthesized aggregate data in this document (if you provide raw patient-level data, the results tables and statistics can be updated to reflect the true dataset).

CONCLUSION:

FNAC remains a valuable first-line investigation in the evaluation of neck lymphadenopathy. In this study population, tuberculosis and reactive changes were the most frequent cytological diagnoses, with metastatic carcinoma and lymphoma also present. Careful clinicocytological correlation and selective ancillary testing improve diagnostic accuracy and patient management.

Limitations:

Retrospective design, lack of histopathological confirmation for all cases, single-centre data; synthetic aggregate summary used to generate this manuscript (replace with actual data for submission).

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