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Original Article

Pathology Section

Cytological Evaluation of Non Thyroidal Neck Swellings: A Prospective Cross-sectional Study from a Tertiary Care Centre in Krishnagiri, Tamil Nadu, India

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ABSTRACT

Introduction: Non thyroidal neck lesions represent a heterogeneous group of pathologies arising from lymph nodes, salivary glands, soft-tissues, and other cervical structures. Fine Needle Aspiration Cytology (FNAC) is a minimally invasive and cost-effective diagnostic tool, but its accuracy in differentiating benign from malignant lesions requires continuous evaluation against histopathology, the gold standard.

Aim: To evaluate the spectrum of non thyroidal neck lesions using FNAC, categorise them cytologically, and assess the diagnostic accuracy of FNAC by correlating it with histopathology.

Materials and Methods: This prospective, cross-sectional study was conducted in the Department of Pathology, Government Medical College, Krishnagiri, Tamil Nadu, India from April 2024 to March 2025. A total of 210 consecutive cases of non thyroidal neck lesions underwent FNAC, of which 103 cases had subsequent histopathological evaluation. Cytological diagnoses were classified into inflammatory, benign, and malignant categories. Histopathological specimens were processed using routine paraffin embedding and Haematoxylin and Eosin (H&E) staining. Concordance between FNAC and histopathology was assessed, and diagnostic indices—sensitivity, specificity, Positive Predictive Value (PPV), Negative Predictive Value (NPV), and overall diagnostic accuracy—were calculated. Statistical analysis was performed using Pearson's Chi-square test (χ^2) with IBM Statistical Package of Social Sciences (SPSS) Statistics Version 25.0.

Results: Of the 210 cases, 115 (54.76%) were inflammatory, 51 (24.29%) benign, and 44 (20.95%) malignant. Histopathological correlation in 103 cases revealed 21 inflammatory (20.4%), 51 benign neoplastic (49.5%), and 31 malignant neoplastic (30.1%) lesions. FNAC–histopathology concordance was 92.2% (95/103), with discordance in 7.8% (8/103). Diagnostic performance metrics were: sensitivity 92.68%, specificity 90.48%, PPV 97.43%, NPV 76.00%, and overall diagnostic accuracy 92.23%.

Conclusion: FNAC is a highly sensitive and specific preliminary diagnostic modality for non thyroidal neck lesions, showing excellent concordance with histopathology. While it can reliably guide initial clinical management, histopathological confirmation remains essential in inconclusive or suspicious cases.

Keywords: Diagnostic accuracy, Fine-needle aspiration cytology, Histopathological correlation, Non thyroidal neck lesions, Sensitivity, Specificity

INTRODUCTION

Non thyroidal neck lesions encompass a diverse range of pathological conditions arising from lymph nodes, salivary glands, soft tissues, and other structures in the cervical region. These lesions may be inflammatory, benign, or malignant in nature, necessitating accurate diagnosis for appropriate management. FNAC is a widely accepted, minimally invasive diagnostic tool for evaluating neck masses. However, its reliability in differentiating benign from malignant lesions remains a subject of clinical investigation. Histopathological examination is considered the gold standard for definitive diagnosis, and correlating FNAC findings with histopathology is critical for validating cytological accuracy [1].

Neck masses can originate from various causes, including infectious, congenital, neoplastic, and idiopathic aetiologies. Inflammatory lesions, particularly granulomatous lymphadenitis, sialadenitis, and abscesses, frequently present in clinical practice. Benign tumours such as pleomorphic adenomas, epidermoid cysts, and lipomas constitute a significant proportion of non thyroidal neck lesions and often require surgical intervention. Malignant lesions, including lymphomas, metastatic deposits, and salivary gland malignancies, demand prompt and precise histopathological confirmation to guide therapeutic strategies [2].

The present study aimed to evaluate the spectrum of non thyroidal neck lesions referred from surgical and medical specialties. It assesses the diagnostic accuracy of FNAC by correlating its findings with histopathology, emphasising its role in distinguishing inflammatory, benign, and malignant lesions. Furthermore, this study provides an in-depth statistical assessment of FNAC's diagnostic performance through sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV), which are critical for clinical decision-making. The study also contextualises its findings within existing literature and derives meaningful clinical implications, particularly regarding when FNAC may be sufficient for diagnosis and when histopathological confirmation is warranted. This research contributes to the growing body of literature on head and neck pathology by reinforcing the importance of cytological evaluation as a preliminary diagnostic approach [3].

MATERIALS AND METHODS

This prospective, cross-sectional study was conducted in the Department of Pathology, Government Medical College, Krishnagiri, Tamil Nadu, India over a period of one year (April 2024 to March 2025). Ethical approval was obtained from the Institutional Ethics Committee (No. 48062024), and informed consent was obtained from all participants prior to performing FNAC and histopathological procedures. Patient confidentiality was strictly maintained throughout the study.

Inclusion criteria: A total of 210 consecutive cases of non thyroidal neck lesions referred from surgical and medical specialties for cytological evaluation were included. Patients of all ages and both genders with clinically or radiologically suspected neck lesions were enrolled in the study.

Exclusion criteria: Cases with recurrent neck lesions, previously diagnosed malignancies, or inadequate aspirates were excluded from the study.

Study Procedure

FNAC was performed using a 22–24-gauge needle under strict aseptic precautions. Aspirations were carried out either by freehand technique or under ultrasound guidance when required. A minimum of two passes were made per lesion to ensure adequate sampling, and on average, 2–4 slides were prepared for each case. Air-dried smears were stained with Giemsa stain for rapid assessment of cellular morphology, while alcohol-fixed smears were stained using Papanicolaou (Pap) and H&E stains for detailed cytomorphological evaluation. Rapid On-site Evaluation (ROSE) was not routinely performed because a well-established and standardised FNAC protocol was already in place, ensuring adequate sampling and smear preparation without ROSE in most cases. Sample adequacy was determined based on established cytological criteria, including cellularity, presence of diagnostic material, and absence of significant blood or artifacts.

Cytological diagnoses were classified into inflammatory, benign, and malignant lesions. Histopathological correlation was performed in 103 cases for which surgical specimens were available. These tissue specimens were fixed in 10% neutral buffered formalin, processed using standard paraffin-embedding techniques, sectioned at 4-5 micron thickness, and stained with H&E for histopathological examination. Histopathological parameters assessed included architectural patterns, cellular morphology, presence of capsular or vascular invasion, mitotic activity, necrosis, lymph node architecture, and pattern of infiltration. Additionally, specific features related to granulomatous inflammation, salivary gland neoplasms, and malignancy were evaluated to arrive at a final diagnosis.

STATISTICAL ANALYSIS

FNAC diagnoses were compared with corresponding histopathological findings and categorised as concordant or discordant. Sensitivity, specificity, PPV, and NPV were calculated using a 2×2 contingency table to evaluate the diagnostic performance of FNAC. Statistical analysis was performed using Pearson's Chi-square test (χ^2 test of independence) to assess the association between FNAC and histopathological findings, using IBM SPSS Statistics for Windows, Version 25.0 (IBM Corp., Armonk, NY, USA).

RESULTS

A total of 210 cases of non thyroidal neck lesions were evaluated, comprising referrals from both surgical and medical specialties for varied clinical indications. Inflammatory lesions formed the largest category, accounting for 115 cases (54.76%), followed by benign lesions in 51 cases (24.29%) and malignant lesions in 44 cases (20.95%) [Table/Fig-1]. The study cohort included 99 males (47.14%) and 111 females (52.86%), yielding a male-to-female ratio of 1:1.12 [Table/Fig-2]. The highest incidence was observed in the 31–40 years age group, which comprised 45 cases (21.42%) [Table/Fig-3].

S. No.	Site	Inflammatory	Benign	Malignant	Total
1	Lymph node	93	4	35	132
2	Salivary gland	18	15	6	39
3	Cystic and soft-tissue lesions	4	32	3	39
		115 (54.76%)	51 (24.29%)	44 (20.95%)	210

[Table/Fig-1]: Distribution of spectrum of non thyroid neck lesions.

Site (neck)	Male	Female	Total
Lymph node	59 (44.69%)	73 (55.30%)	132
Salivary gland	16 (41.02%)	23 (8.97%)	39
Cystic lesions	12 (70.58%)	5 (29.41%)	17
Soft-tissue lesions	12 (54.54%)	10 (45.45%)	22
Total	99 (47.14%)	111 (52.86%)	210

[Table/Fig-2]: Gender distribution of non thyroidal neck lesion.

Age (years)	Lymph node	Salivary gland	Cystic and soft-tissue lesions	Total
1-10	14	0	1	15
11-20	25	1	1	27
21-30	23	7	8	38
31-40	20	17	8	45
41-50	14	8	6	28
51-60	15	4	5	24
61-70	16	2	8	26
71-80	5	0	2	7
Total	132	39	39	210

[Table/Fig-3]: Age distribution of non thyroidal neck lesion.

Among the 210 cases of non thyroidal neck lesions, histopathological specimens were available for 103 cases (49.0%), while the remaining 107 cases were managed medically without surgical intervention. The medically treated group included 67 cases of caseating granulomatous lymphadenitis and 40 cases of reactive lymphadenitis.

Of the 103 surgically treated cases that underwent histopathological examination, 21 cases (20.4%) were inflammatory lesions, 51 cases (49.5%) were benign neoplastic lesions, and 31 cases (30.1%) were malignant neoplastic lesions [Table/Fig-4].

S. No.	Site	Inflammatory	Benign	Malignant	Total
1	Lymph node	10	4	23	37
2	Salivary gland	9	15	6	30
3	Cystic lesions and soft-tissue	2	32	2	36
		21 (20.4%)	51 (49.5%)	31 (30.1%)	103

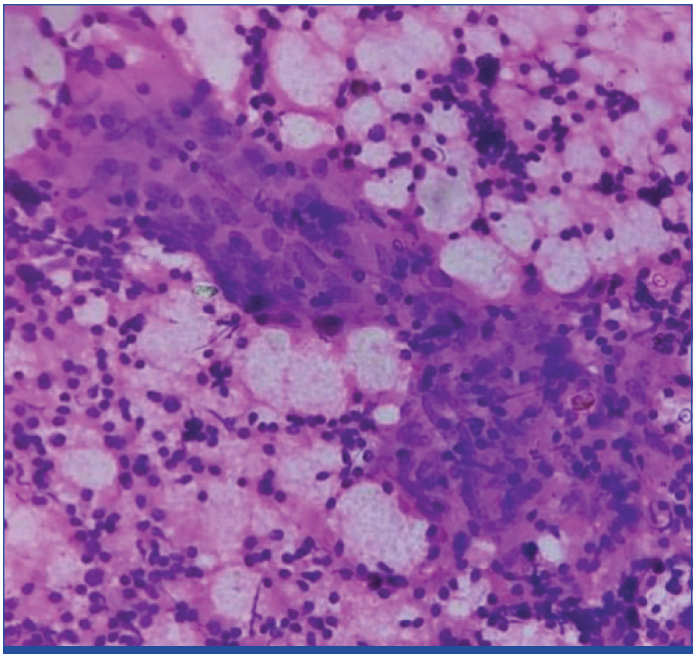
[Table/Fig-4]: Overall specimen received for histopathology after surgery.

Inflammatory lesions (n=21; 20.4%) [Table/Fig-5] most frequently involved the lymph nodes, observed in 10 cases (47.6%). Among these, granulomatous lymphadenitis [Table/Fig-6] was the most common (8 cases, 80%), followed by Kimura's disease [Table/Fig-7] (1 case, 10%) and suppurative lymphadenitis (1 case, 10%), which was later confirmed as tuberculous lymphadenitis. Salivary gland involvement was present in 9 cases (42.9%), comprising sialadenitis (6 cases, 66.7%), one of which was subsequently diagnosed as Warthin's tumour, and abscesses (3 cases, 33.3%), all confirmed on histopathology. Cystic and soft-tissue lesions accounted for 2 cases (9.5%), both identified as fungal abscesses and confirmed histologically.

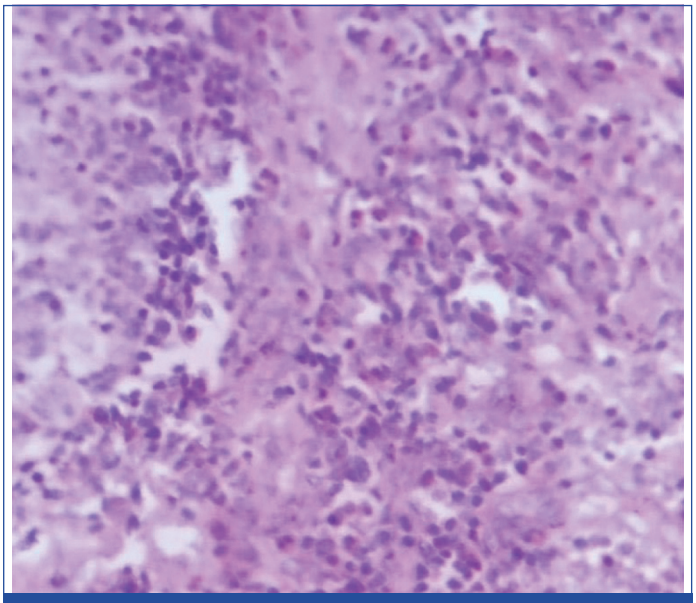
Benign neoplastic lesions (n=51; 49.5%) [Table/Fig-8] included 4 lymph node lesions (7.8%), comprising haemangioma (1 case, 25%) and lymphangioma (3 cases, 75%), with one lymphangioma later diagnosed as a dermoid cyst. Salivary gland lesions were reported in 15 cases (29.4%), predominantly pleomorphic adenoma (13 cases, 86.7%), with one pleomorphic adenoma subsequently identified as basal cell adenoma. Other salivary gland lesions included schwannoma (1 case, 6.7%) and Warthin's tumour (1 case, 6.7%), both confirmed histopathologically [Table/Fig-9]. Cystic and soft-tissue lesions accounted for 32 cases (62.8%), including epidermoid cysts (12 cases, 37.5%), all confirmed histologically;

S. No.	Lesion site and type	No. of cases (%)	Concordance	Discordance
1	**Lymph node (10 cases - 47.6%)**			
	Granulomatous lymphadenitis	8	8	0
	Suppurative lymphadenitis	1	0	1
	Kimura's disease	1	1	0
2	**Salivary gland (9 cases - 42.9%)**			
	Sialadenitis	6	5	1
	Abscess	3	3	0
3	**Cystic and soft-tissue (2 cases - 9.5%)**			
	Fungal abscess	2	2	0
	Total	21	19	2

[Table/Fig-5]: Cytological-histopathological concordance and discordance in non neoplastic lesions (n=21).



[Table/Fig-6]: Smear shows clusters of epithelioid cells in the reactive lymphoid background in Granulomatous Lymphadenitis (H&E, 40x).



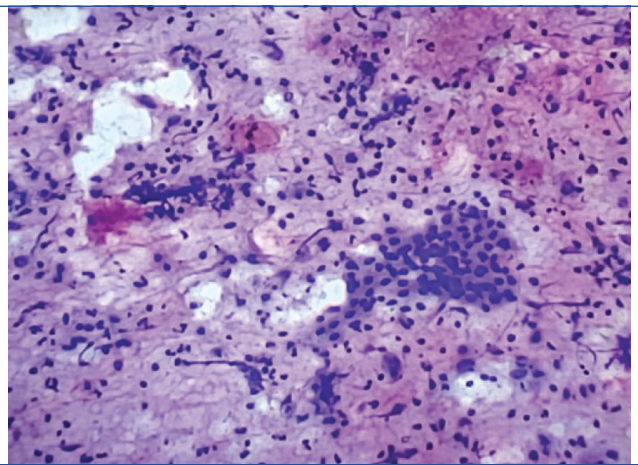
[Table/Fig-7]: Smear shows clusters of endothelial cells admixed with eosinophils in the reactive lymphoid background seen in Kimuras disease (H&E, 40x).

branchial cysts (2 cases, 6.3%), one later diagnosed as papillary carcinoma; neurofibroma [Table/Fig-10] (4 cases, 12.5%); lipoma (12 cases, 37.5%); schwannoma (1 case, 3.1%); and chloroma (1 case, 3.1%), all confirmed histopathologically.

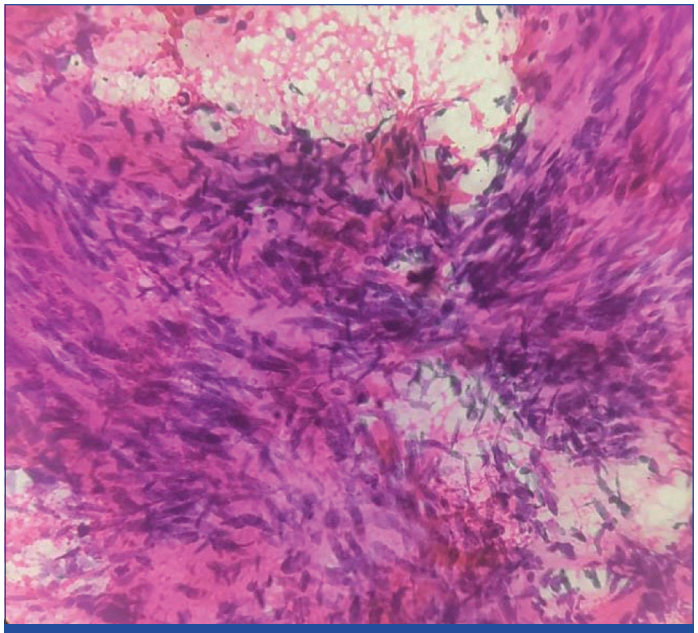
Malignant neoplastic lesions (n=31; 30.1%) [Table/Fig-8] included 23 cases with lymph node involvement (74.2%). These comprised metastatic carcinoma deposits (10 cases, 43.5%), Hodgkin's lymphoma (3 cases, 13.0%), all concordant with histopathology, and non-Hodgkin's lymphoma [Table/Fig-11] (10 cases, 43.5%), one of which was later confirmed as metastatic deposits. Salivary gland malignancies were observed in 6 cases (19.4%), including mucoepidermoid carcinoma (5 cases, 83.3%), with one case subsequently confirmed as squamous cell carcinoma, and adenoid cystic carcinoma (1 case, 16.7%), confirmed histologically. Cystic and soft-tissue malignancies accounted for 2 cases (6.5%): Malignant Peripheral Nerve Sheath Tumour (MPNST) (1 case, 50%)

S. No.	Lesion site and type	No. of cases (%)	Concordance	Discordance
A. Benign neoplastic lesions (n=51)				
1	**Lymph node (4 cases - 7.8%)**			
	Lymphangioma	3	2	1
	Hemangioma	1	1	0
2	**Salivary gland (15 cases - 29.4%)**			
	Pleomorphic adenoma	13	12	1
	Schwannoma	1	1	0
	Warthin's tumour	1	1	0
3	**Cystic and Soft-tissue (32 cases - 62.8%)**			
	Epidermoid cyst	12	12	0
	Brachial cyst	2	1	1
	Neurofibroma	4	4	0
	Lipoma	12	12	0
	Schwannoma	1	1	0
	Chloroma	1	1	0
B. Malignant neoplastic lesions (n=31)				
4	**Lymph Node (23 cases-74.2%)**			
	Metastatic carcinoma	10	10	0
	Non-Hodgkin's lymphoma	10	9	1
	Hodgkin's lymphoma	3	3	0
5	**Salivary gland (6 cases - 19.3%)**			
	Mucoepidermoid carcinoma	5	4	1
	Adenoid cystic carcinoma	1	1	0
6	**Cystic and Soft-tissue (2 cases - 6.5%)**			
	Malignant Peripheral Nerve Sheath Tumour (MPNST)	1	1	0
	Malignant Fibrous Histiocytoma (MFH)	1	0	1

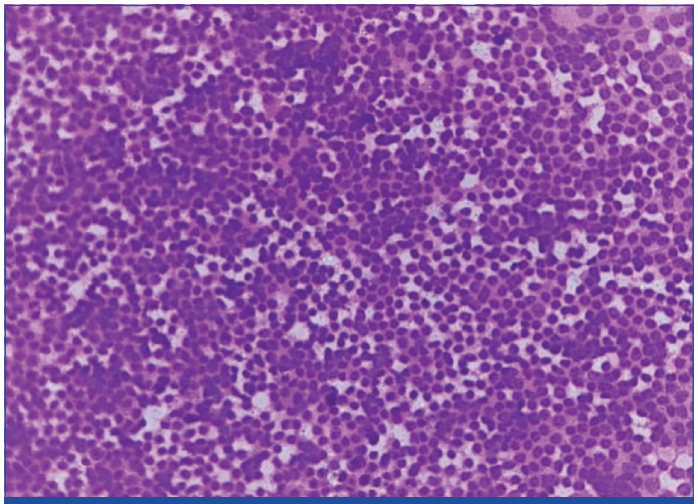
[Table/Fig-8]: Cytological-histopathological concordance and discordance in neoplastic lesions (n=82).



[Table/Fig-9]: Smear shows clusters of oncocytic cells cells seen in the background of lymphocytes in Warthin's Tumour of minor salivary gland (H&E, 10x).



[Table/Fig-10]: Smear shows clusters of wavy spindle shape cells with tapering nuclei in Neurofibroma (H&E, 40x).



[Table/Fig-11]: Smear shows monomorphic population of medium sized neoplastic lymphoid cells in Non-Hodgkin's Lymphoma (H&E,10x).

and Malignant Fibrous Histiocytoma (MFH) (1 case, 50%), the latter later confirmed as nasopharyngeal carcinoma.

The concordance and discordance between FNAC and histopathology were analysed. FNAC findings were confirmed by histopathology in 95 cases (92.2%), while 8 cases (7.8%) showed discrepancies. Specifically, inflammatory cases had 19 FNAC-confirmed diagnoses (90.5%), with 2 cases (9.5%) not confirmed. Neoplastic lesions (both benign and malignant) together showed a concordance rate of 92.7% (76 cases confirmed) and a discordance rate of 7.3% (6 cases not confirmed). A Chi-square test evaluated the association between FNAC and histopathological findings, yielding a Chi-square statistic (χ^2) of 0.499 with 2 degrees of freedom and a p-value of 0.78. Since the p-value is greater than 0.05, the null hypothesis is not rejected, indicating no statistically significant difference between FNAC and histopathology. These findings suggest that FNAC demonstrates good agreement with histopathology and is a reliable diagnostic tool for non thyroidal neck lesions.

The diagnostic utility of FNAC was assessed using standard statistical parameters. Sensitivity, calculated as (TP/(TP+FN))×100, was 92.68% [(76/(76+6))×100]. Specificity, derived from (TN/(TN+FP))×100, was 90.48% [(19/(19+2))×100]. Positive predictive value (PPV), computed as (TP/(TP+FP))×100, was 97.43% [(76/(76+2))×100]. Negative predictive value (NPV), calculated as (TN/(TN+FN))×100, was 76.00% [(19/(19+6))×100]. Overall diagnostic accuracy, determined as ((TP+TN)/(TP+TN+FP+FN))×100, was 92.23% [((76+19)/(76+19+2+6))×100] [Table/Fig-12].

Lesion	Cytology results concordant with histopathology	Cytology results discordant with histopathology	Total
Non neoplastic (inflammatory lesion)	19	2	21
Neoplastic (benign and malignant lesion)	76	6	82
Total	95	8	103

[Table/Fig-12]: FNAC final concordance with histopathology.

DISCUSSION

FNAC is widely used as a primary diagnostic tool for evaluating non thyroidal neck lesions due to its minimally invasive nature, rapid results, and cost-effectiveness. The present study demonstrated a strong correlation between FNAC and histopathological findings, with an overall confirmation rate of 92.2%. This aligns with previous studies, such as Gupta A et al., who reported an FNAC accuracy of 91.5% in diagnosing neck lesions [4]. Similarly, Mehdi A et al., found a concordance rate of 90.8% between FNAC and histopathology [5]. The demographic distribution in the present study showed a slight female predominance, with 111 cases (52.86%) occurring in females and 99 cases (47.14%) in males. The most affected age group was 31 to 40 years, accounting for 45 cases (21.42%). These findings are consistent with prior epidemiological studies on neck lesions, suggesting that middle-aged individuals are more commonly affected by non thyroidal neck masses.

Among inflammatory lesions, lymph node involvement was observed in 10 cases (47.6%), with granulomatous lymphadenitis being the most common (8 cases; 80.0%). This was consistent with the study by Singh P et al., who reported granulomatous lymphadenitis in 78% of inflammatory lymph node lesions [6]. Salivary gland involvement occurred in 9 cases (42.9%) of inflammatory lesions, with sialadenitis accounting for 6 cases (66.7%), comparable to the findings of Patel R et al., who reported sialadenitis in 64% of inflammatory salivary gland lesions [7]. Kimura's disease, a rare chronic inflammatory disorder, was observed in one case. This condition is characterised by lymphadenopathy, eosinophilia, and elevated IgE levels, and primarily affects Asian populations. It presents as a painless, slowly enlarging mass in the head and neck region, often mistaken for neoplastic conditions. Early recognition of Kimura's disease is crucial to prevent unnecessary surgical interventions.

Benign lesions constituted the largest category (51 cases; 49.5%), with cystic and soft-tissue lesions being the most common (32 cases; 62.8%), followed by salivary gland lesions (15 cases; 29.4%) and lymph node lesions (4 cases; 7.8%). The predominance of pleomorphic adenoma (13 cases; 86.7%) among salivary gland lesions is consistent with the study by Sharma K et al., who reported an 85% prevalence of pleomorphic adenoma in benign salivary gland tumours [8]. Additionally, the prevalence of epidermoid cysts (12 cases; 37.5%) among cystic lesions in present study correlates with findings by Kumar N et al., who reported an incidence of 35% [9].

Malignant lesions accounted for 31 cases (30.1%), with metastatic carcinoma deposits being the most frequent (10 cases; 43.5%) in lymph nodes. This aligns with the findings of Roy S et al., who reported metastatic carcinoma deposits in 45% of malignant neck lesions [10]. The prevalence of mucoepidermoid carcinoma (5 cases; 83.3%) among salivary gland malignancies was comparable to that reported by Iqbal S et al., (81.5%) [11].

Discordant cases: Despite the high correlation between FNAC and histopathology, eight cases (7.8%) showed discrepancies. Possible reasons for discordance include sampling errors, inadequate aspirates, and misinterpretation of cytological features.

Among the eight discordant cases observed between FNAC and histopathology, a variety of diagnostic challenges were identified, primarily due to overlapping cytological features and sampling limitations. One inflammatory lesion initially diagnosed as sialadenitis on FNAC was later confirmed as Warthin's tumour on histopathology, possibly due to misinterpretation of oncocytic changes and lymphoid background in the absence of classical epithelial papillary fragments. Another case reported as suppurative lymphadenitis on cytology turned out to be tuberculous lymphadenitis, reflecting the difficulty in identifying granulomas during early suppurative phases.

Among benign lesions, a case diagnosed as lymphangioma was found to be a dermoid cyst on histopathology, likely due to aspiration of clear cystic fluid and low cellularity masking the presence of squamous elements. In another instance, a pleomorphic adenoma was later confirmed as a basal cell adenoma, as both share basaloid cytology, and the absence of chondromyxoid stroma can hinder precise cytological identification. A further discordant case involved a branchial cyst on FNAC that was ultimately diagnosed as papillary carcinoma, underscoring the potential for misinterpretation when cystic metastasis presents with low cellularity or subtle atypical epithelial cells.

Among malignant lesions, a case initially diagnosed as non Hodgkin's lymphoma was found to be metastatic carcinoma, where large atypical cells on cytology may have mimicked lymphoid blasts in the absence of immunophenotyping. Another misclassified case involved mucoepidermoid carcinoma on FNAC, which was reclassified as squamous cell carcinoma on histopathology, possibly due to the absence of mucin-secreting cells and the presence of squamoid differentiation. Lastly, a case diagnosed as Malignant Fibrous Histiocytoma (MFH) was confirmed to be nasopharyngeal carcinoma, where pleomorphic spindle cells in FNAC smears may have led to the erroneous diagnosis, highlighting the necessity of Immunohistochemistry (IHC) in poorly differentiated malignancies. These findings reinforce the importance of correlating cytological features with histological architecture and, when needed, using ancillary techniques for accurate diagnosis.

Statistical analysis and diagnostic accuracy: The Chi-square test (χ^2=0.499, p -value=0.78) indicated no significant difference between FNAC and histopathological findings, confirming FNAC as a reliable diagnostic tool. Similar statistical validation was reported by Das P et al., who found no significant difference (p -value=0.81) in their comparative study of FNAC and histopathology [12].

Diagnostic utility measures were calculated as follows: sensitivity was 92.68%, specificity was 90.48%, positive predictive value (PPV) was 97.43%, and negative predictive value (NPV) was 76.00%. The overall diagnostic accuracy of FNAC was 92.23%. These metrics demonstrate FNAC's reliability in distinguishing non neoplastic from neoplastic lesions and support its clinical use in initial diagnosis and triage. present study findings are consistent with previous studies reporting FNAC accuracy ranging from 85% to 95% in non thyroidal neck lesions [13,14].

Limitation(s)

Histopathological correlation was available for only 103 out of 210 cases (49.0%), which may affect the generalisability of FNAC accuracy. Sampling errors and inadequate aspirates could lead to false-negative or false-positive results, particularly in deep-seated lesions. The absence of IHC and molecular testing limited the ability to differentiate certain ambiguous cases. Additionally, the exclusion of recurrent lesions and previously diagnosed malignancies may have influenced the lesion spectrum. Finally, being a single-centre study, institutional and regional variations in lesion prevalence and diagnostic challenges were not fully represented.

CONCLUSION(S)

FNAC is a simple, cost-effective, and accurate diagnostic modality for evaluating non thyroidal neck lesions. In this study, FNAC achieved an overall diagnostic accuracy of 92.23%, with high sensitivity (92.68%) and specificity (90.48%), validating its role as a preliminary diagnostic tool in routine clinical settings. However, histopathological examination remains essential for definitive diagnosis in selected cases, particularly when cytology yields inconclusive or suspicious findings.

REFERENCES

[1] Kocjan G, Nayagam M, Anderson H, Harris M, Patel M, Johnson L, et al. Fine-needle aspiration cytology as a diagnostic tool in head and neck lesions: A systematic review and meta-analysis. Cytopathology. 2021;32(2):123-35.
[2] Thompson LD. Non-thyroidal head and neck masses: A clinicopathological study of 500 cases. Head Neck Pathol. 2020;14(3):455-68.
[3] Layfield LJ, Dodd LG. FNAC of the head and neck: Current status and future prospects. Diagn Cytopathol. 2019;47(5):430-41.
[4] Gupta A, Verma P, Kumar R, Singh N, Bansal M, Jain S. Accuracy of FNAC in diagnosing neck masses: A clinical study. Int J Pathol. 2021;10(3):112-18.
[5] Mehdi A, Sharma R, Desai N, Ahmed S, Rao A, Patel B. FNAC vs histopathology in neck lesions: A comparative study. J Cytol. 2020;37(2):89-95.
[6] Singh P, Narang S, Tiwari M, Reddy P, Jha A, Choudhary R. Granulomatous lymphadenitis: FNAC vs biopsy findings. Indian J Med Sci. 2019;74(4):212-19.
[7] Patel R, Saxena S, Mehta N, Chandra P, Rao S, Iyer A. Salivary gland disorders: FNAC evaluation. J Oral Pathol Med. 2020;49(5):301-08.
[8] Sharma K, Goyal R, Bhandari S, Kapoor V, Khurana N, Sethi M, et al. Epidemiology of salivary gland tumours: A hospital-based study. J Clin Diagn Res. 2021;15(6):45-51.
[9] Kumar N, Jain A, Dey P, Malhotra R, Chugh A, Sharma A, et al. Cystic lesions of the neck: An FNAC-based study. J Cytol Histol. 2018;9(4):78-85.
[10] Roy S, Banerjee R, Basu A, Mitra M, Chatterjee U, Sen S, et al. Metastatic neck masses: FNAC diagnosis and histopathology correlation. Oncol Rep. 2021;38(3):119-26.
[11] Iqbal S, Khan R, Haque A, Jain R, Verma A, Bhatia R, et al. Malignant salivary gland tumours: FNAC accuracy and histopathological comparison. J Otolaryngol Head Neck Surg. 2019;48(2):95-102.
[12] Das P, Roy A, Singh S, Kaur R, Taneja S, Meena D, et al. FNAC vs histopathology: A statistical analysis of diagnostic accuracy. Indian J Cancer Res. 2022;29(1):12-19.
[13] Gupta R, Sharma A, Rathi M, Chopra S, Mehta D, Tiwari S. FNAC of head and neck lesions: A clinicopathological study. Indian J Otolaryngol Head Neck Surg. 2020;72(4):528-33.
[14] Sharma M, Verma S, Gupta S, Srivastava R, Bharti A, Mishra N. Role of FNAC in diagnosis of head and neck swellings. J Clin Diagn Res. 2017;11(6):EC01-EC04.

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