



SPECTRUM OF FINE NEEDLE ASPIRATION CYTOLOGY IN NECK SWELLINGS IN TERTIARY CARE CENTRE KANPUR

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ABSTRACT **Introduction:** FNAC provides us valuable supportive evidence along with clinico-radiological examination in differentiating various types of above mentioned swellings. Various tumours present as secondaries in neck lymphnodes which needs immediate cytological evaluation for which FNAC proves to very useful and quick diagnostic tool. **Objective :** To study overall frequency of different pathological conditions in neck swellings presented to our institution and their distribution among different age groups and sex. **Methods :** FNAC was done in total 557 patients with palpable neck swellings using 22/23 gauge needle taking all aseptic precautions and smears were stained with hematoxylin –Eosin stain and Zeihl Neelsen staining for acid fast bacilli was done in suspected tubercular lesions. **Results :** 70.9% cases were of lymphnode swellings, 19.0% cases were of thyroid swellings, 5.74% cases were of miscellaneous lesions and 4.26% cases were of salivary gland swellings. Non-neoplastic lesions were present in 71.4% cases while 28% cases were of neoplastic origin. Overall most common finding was tubercular lymphadenitis. **Conclusion :** Tubercular lymphadenitis is most common cause of palpable neck swelling, while malignant lesions are less common.

KEYWORDS : FNAC, Neck swelling, Thyroid, lymphnodes

INTRODUCTION :

FNAC is the most commonly performed technique to diagnose various inflammatory and neoplastic conditions, both benign and malignant.

Being a quick, safe, minimally invasive, inexpensive, procedure with minimal complication makes it a highly valuable tool of diagnosis. As neck swellings are mostly superficial and easily palpable, accessibility is easy in almost every case, which makes it a useful tool. Common presenting neck swellings are lymphnodes, thyroid gland, salivary gland along with few cystic lesions such as thyroglossal cysts, cystic hygromas, brachial cleft cysts etc.

FNAC provides us valuable supportive evidence along with clinico-radiological examination in differentiating various types of above mentioned swellings. Various tumours present as secondaries in neck lymphnodes which needs immediate cytological evaluation for which FNAC proves to very useful and quick diagnostic tool.

Sensitivity, specificity, positive predictive value, negative predictive value and diagnostic accuracy for neck swelling are 83.33%, 100%, 100%, 98.46% and 98.57% Virk et al¹

Differentiation between non neoplastic lesions from neoplastic lesions eliminates need of surgical intervention in lesions which can be treated conservatively. Kishore et al²

MATERIAL AND METHODS :

The present study was conducted in department of pathology from Oct. 2020 to Oct 2021 and included 557 patients with palpable neck swelling from age 2½ months to 84 years.

Outdoor as well as indoor patients with palpable neck swelling were referred to pathology department. Detailed clinical history and significant findings were noted. After explanation of procedure and taking informed consent of patient, the swelling was fixed with one hand and FNAC was done using 10cc disposable syringe and 22/23 gauge needle taking all aseptic precautions. Both aspiration and non-aspiration technique were used wherever required. Two to three smears were prepared by us following standard guidelines. Wet fixed smears in 95% alcohol were stained with Hematoxylin-Eosin stain and Zeihl-Neelsen staining for acid fast Bailli was done in suspected tubercular lesions. The slides were reviewed, analyzed and according to the anatomic locations lesions were categorized into various groups of

inflammatory, neoplastic diseases, both benign and malignant and patients were advised to follow up with biopsy depending upon the pathology.

RESULTS :

Anatomical distribution of lesions showed that lymph node lesion were predominant (70.9%) followed by thyroid (19.10%), salivary gland (4.26%), and miscellaneous (5.74%). In (71.47%) patients swellings were non-neoplastic, in (28%) patients swellings were neoplastic. In 3 patients findings were inadequate due to various reasons such as very small size of swelling, scant cellularity.

Table -1 Involved Anatomical Structure Wise Distribution Of Neck Masses In FNAC

| Site | No. of cases | %age |
|----------------|--------------|--------|
| LN | 395 | 70.9% |
| Thyroid | 107 | 19.10% |
| Salivary gland | 23 | 4.26% |
| Miscellaneous | 32 | 5.74% |
| Total | 557 | 100% |

Table-2 Distribution Of Neoplastic And Non-neoplastic Lesions In Neck Swelling

| | No. of Cases | %age |
|----------------|--------------|--------|
| Non neoplastic | 398 | 71.47% |
| Neoplastic | 156 | 28% |
| Inadequate | 03 | 0.53% |
| Total | 557 | 100% |

In non neoplastic lesions, tubercular LN was predominant lesion followed by reactive lymphadenitis, granulomatous lymphadenitis, lymphocytic thyroiditis, epidermal inclusion cyst and chronic lymphadenitis.

Neoplastic lesions were further classified into benign and malignant lesion.

In neoplastic lesions, benign lesions were present in 67 cases and malignant lesions were present in 82 cases. Rest 7 cases were follicular neoplasm of thyroid which cannot be conclusively described as malignant or benign on the basis of FNAC.

In benign lesions, most commonly found lesion was colloid goiter followed by lipoma and pleomorphic adenoma of salivary gland. In malignant neoplastic lesions, metastatic squamous cell carcinoma in lymph node was predominant followed by non Hodgkin's lymphoma, poorly differentiated carcinoma.

Lymph node lesions were predominant in third decade out of 395 cases of lymph node lesions, most common lesion was tubercular lymphadenitis (45.5%), followed by reactive lymphadenitis (14.17%), granulomatous lymphadenitis (11.8%). Most common malignant lesion in lymph node was metastatic squamous cell carcinoma (15.4%) followed by non Hodgkin's lymphoma (2.27%), poorly differentiated carcinoma (1.77%). Tubercular lymphadenitis was most common in 21-30 yrs age group and more common in female patients in the ratio of 4:1. Metastatic SCC was most common in 51-60 yrs age group and more common in males in the ratio of 11:1.

Table-3 Cytological Diagnosis Of Lymphnode Swellings

| Cytological diagnosis | No. of Cases | %age |
|------------------------------------|--------------|--------|
| Inflammatory | | |
| Chronic lymphadenitis | 23 | 5.82% |
| Reactive lymphadenitis | 56 | 14.17% |
| Tubercular lymphadenitis | 180 | 45.5% |
| Suppurative lymphadenitis | 09 | 2.27% |
| Granulomatous lymphadenitis | 47 | 11.80% |
| Malignant | | |
| Non- Hodgkin's lymphoma | 09 | 2.27% |
| Metastatic squamous cell carcinoma | 61 | 15.4% |
| Metastatic adenocarcinoma | 02 | 0.50% |
| Poorly differentiated carcinoma | 07 | 1.77% |
| Inadequate | 01 | 0.25% |
| TOTAL | 395 | 100% |

Total thyroid gland swelling were present in 107 cases(19.1%) of all neck lesions. Thyroid swellings were more common in fourth decade, in male : female ratio of 1:5.2.

Colloid goiter (53:27%) was most common lesion, followed by lymphocytic thyroiditis (33.6%), follicular neoplasm (6.54%) thyroglossal cyst (4.67%). Only one malignant case of papillary carcinoma thyroid was reported. In one case finding was inconclusive.

Table – 4 Cytological Diagnosis Of Thyroid Lesions

| Cytological | No. of Cases | %age |
|-------------------------|--------------|--------|
| Inflammatory | | |
| Lymphocytic thyroiditis | 36 | 33.6% |
| Thyroglossal cyst | 5 | 4.67% |
| Benign | | |
| Colloid goiter | 57 | 53.27% |
| Follicular neoplasm | 7 | 6.54% |
| Malignant | | |
| Papillary carcinoma | 1 | 0.93% |
| Inadequate | 1 | 0.93% |
| TOTAL | 107 | 100% |

Total 23 cases (4.26%) of salivary gland lesions were evaluated. Most common salivary gland lesion found was sialadenitis in 16 cases (69.6%).

Neoplastic lesion were found in 05 cases, out of which most common lesions is pleomorphic adenoma. Only one malignant case of polymorphous low grade carcinoma was reported.

TABLE – 5 Cytological Diagnosis Of Salivary Gland Lesions

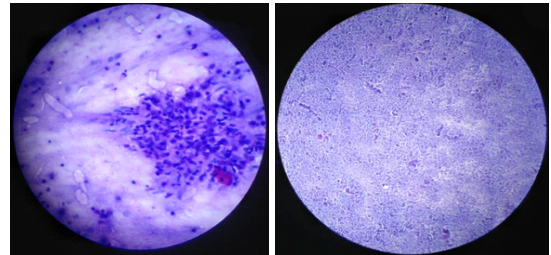
| Cytological diagnosis | No. of Cases | %age |
|-----------------------|--------------|--------|
| Inflammatory | | |
| Acute sialadenitis | 04 | 17.39% |
| Chronic sialadenitis | 12 | 52.17% |
| Simple cystic lesions | 02 | 8.69% |
| Benign | | |
| Pleomorphic adenoma | 03 | 13.04% |

| Malignant | | |
|----------------------------------|----|-------|
| Polymorphous low grade carcinoma | 1 | 4.34% |
| Inadequate | 1 | 4.34% |
| TOTAL | 23 | 100% |

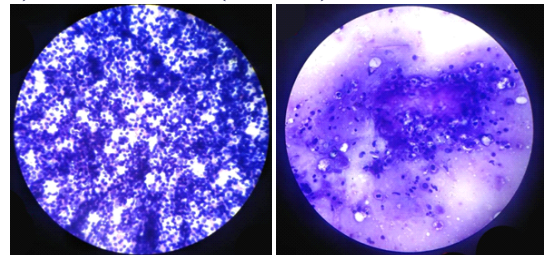
Total 32 cases (5.74%) were miscellaneous lesions. Among them 24 cases (75%) were of epidermal inclusion cyst. In neoplastic lesions, cases of lipoma were 04 (12.5%) and 03 cases (9.37%) were of benign adnexal tumours. One malignant case of round cell tumour was also reported.

Table – 6 Cytological Diagnosis Of Miscellaneous Lesions

| Cytological diagnosis | No. of Cases | %age |
|--------------------------|--------------|--------|
| Epidermal inclusion cyst | 24 | 75% |
| Benign | | |
| Lipoma | 04 | 12.50% |
| Benign adnexal tumour | 03 | 9.37% |
| Malignant | | |
| Round cell tumors | 01 | 3.12% |
| TOTAL | 32 | 100% |

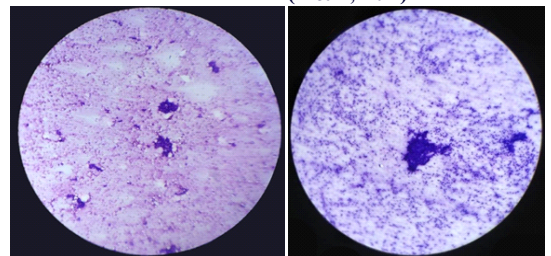


FNAC of lymph node showing epithelioid cell granuloma (H&E, 40X) and caseous necrosis (H & E 10X)

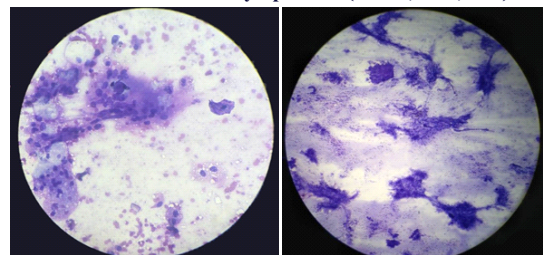


Reactive lymphadenitis (H & E, 10X)

Metastatic squamous cell carcinoma lymph node (H & E, 40X)

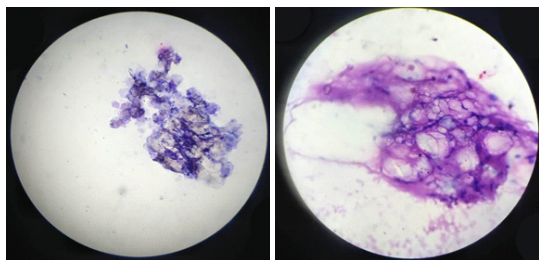


Metastatic adenocarcinoma lymph node (H & E, 10X, 40X)



Thyroglossal cyst (H & E, 40X)

Pleomorphic adenoma of salivary



**Epidermal inclusion cyst
(H & E, 10X)**

Lipoma (H & E, 40X)

DISCUSSION

In our study of neck swelling, lymphnode lesions were most common followed by thyroid, miscellaneous lesion and salivary gland lesion similar to studies done by Jadhav D.S et al³, Lalji Valiya et al⁴, Deval N Patel⁵, Shobha SN et al.⁶

In our study, most common lymphnode lesion was TB lymphadenitis followed by reactive lymphadenitis which is similar to results made by EI Hag et al⁷, Bhagat et al⁸, Kishore H et al⁹. In malignant lesions, metastatic squamous cell carcinoma was most common malignant lesions of lymph node similar to studies done by Tandon et al¹⁰, Sanghvi AKB et al.¹⁰

Thyroid swellings were 2nd most common group in our study. In thyroid swelling colloid goiter was the most common finding followed by lymphocytic thyroiditis which is similar to studies done by Muddegowada et al¹¹, Sanghvi AKB et al¹⁰, Padia B et al.¹² Only one case of papillary carcinoma thyroid was reported.

Miscellaneous lesions were the third most common lesion in our study. Most common miscellaneous lesion was epidermal inclusion cysts which is similar to studies done by Valiya et al⁴ and Kishore H et al.²

Least common lesions were salivary gland lesions. Most common finding was sialadenitis similar to studies done by Kishore H et al², Jadhav D.S et al.³ Pleomorphic adenoma found to be most common benign neoplastic finding similar to studies done by Solanki et al¹³, M Kate et al¹⁴, Bhagat VN et al⁸ and Jadhav D.S et al.³

CONCLUSION

In our study, in lymphnode most common benign lesion was tubercular lymphadenitis and most common malignant lesion was metastatic squamous cell carcinoma.

In thyroid swelling, colloid goiter was most common finding while malignant lesions were quite uncommon.

Miscellaneous lesions such as epidermal inclusion cyst were third most common lesion while salivary gland lesions were least common.

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