SPECTRUM OF LESIONS IN HEAD AND NECK REGION ON FINE NEEDLE ASPIRATION CYTOLOGY

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ABSTRACT:

Introduction: Fine needle aspiration cytology is rapid and reliable technique with good patient acceptance to decide best line of management both in benign and malignant cases. **Objective:** To assess spectrum of lesions in Head and Neck region. **Materials and methods:** A retrospective study was conducted in department of pathology with Head and Neck swellings presenting to outpatient clinics. FNAC of 200 patients were examined and correlated with histopathology whenever sent by surgeon. **Results:** Maximum incidence was observed in the age group of 31-40 years (27.5%) with higher incidence among females(60%). Out of 200 cases, 51.5% were of thyroid, 40%were of lymphnode, 4% of salivary glands, 3% cystic and 1% soft tissue lesions. Tuberculous lymphadenitis is commonest lesions (47.5%) followed by colloid goiter (43.7%). **Conclusion:** FNAC is a simple, quick , inexpensive and minimally invasive technique to diagnose different types of head and neck swellings . Thus FNAC can be recommended as a first line of investigation in the diagnosis of head and neck swellings.

Key words: Cytology, FNAC, Head and neck lesion

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INTRODUCTION

Fine needle aspiration cytology (FNAC) is a quick, simple and cost effective method to sample superficial masses found in the head and neck region [1].The modern method of fine needle aspiration cytology was originally described and was advocated by Martin and Ellis in 1930 [2]. FNAC of head and neck region is a generally well accepted technique that has high specificity[3].

Head and Neck region encompasses a wide range of lesions especially of thyroid, lymph node,salivary gland, cystic and soft tissue lesions with variety of differential diagnosis ranging from inflammatory to neoplastic. In case of cystic swelling FNAC can be both diagnostic as well as therapeutic.

The purpose of this study was to assess the spectrum of lesions in Head and Neck region along with clinic-pathological correlation. Frequency of incidences of different sites, age groups, gender, and distribution of benign, malignant and inflammatory lesions are also assessed.

MATERIALS AND METHODS

In this study, FNAC was performed in 200 patients with lesions of head and neck area referred to the Department of Pathology, ESI- PGIMSR , Mumbai. The patients were selected without any consideration of age, sex. Cases presenting with uncorrectable coagulopathies and uncooperative patients were excluded from study.

Patients were explained about the procedure and its advantages and their oral consent was taken. The area to be aspirated was cleaned with spirit. FNAC was performed by 22-23 gauge needles with syringe. The specimen was expelled on two to three slides according to the amount of material and smears prepared. Slides were wet fixed and air dried followed by staining with Giemsa and Papinicolauo(PAP) stain. Special stains

were carried out as and when required. Out of 200 cases of FNAC, surgical biopsies were available in 84 cases, which were correlated.

OBSERVATION & RESULTS

The present study included 200 cases ranging from 0 to 70 years. Overall there was female predominance 120 cases (60%),with male : female ratio of 1:1.5. Maximum incidence observed in the age group of 31-40 years (27.5%) followed by 21-30 years (17.5%). Incidence of lymphnode lesions were highest (51.5%) than other lesions in head and neck region followed by thyroid lesions (40%).Thyroid lesions were proportionatly more in females (77.7%).Out of 8 cases of salivary gland lesions seven cases were of Pleomorphic adenoma(75% ,one case of Acinic cell carcinoma(12.5%) and one case of chronic Sialadenitis(12.5%). Out of six cystic lesions four were of Epidermal cyst (44.4%), one Thyroglossal cyst (11.1%) and one case of Papillary carcinoma in thyroglossal duct(11.1%). Two cases of lipoma(22.2%) and one case of hemangioma(11.1%) has been also reported.

Table 1: Distribution of head and neck lesions

Lesions	Benign	Malignant	Total (percentages)
Lymph node	98	5	103 (51.5%)
Thyroid	64	16	80 (40%)
Salivary gland	7	1	8 (4%)
Cystic lesions	5	1	6 (3%)
Soft tissue lesions	3	-	3 (1.5%)
Total	177	23	200

Table 2: Distribution of various lymhnode lesions

Lymph node lesions	No of cases	Percentages
Reactive changes	28	27.4%
Inflammatory		
-Acute suppurative	10	9.7%%
- Tuberculosis	59	57.2%
Malignant lesion		
-non Hodgkin lymphoma	1	0.97%
-metastasis	5	4.8%
Total	103	100

Table 3: Distribution of various thyroid lesions

Thyroid lesions	**Cases**	**Percentages**
Goiters (diffuse and nodular)	35	43.7%
Thyroiditis		
-Lymhocytic thyroiditis	19	23.7%
-Hashimotos thyroiditis	12	15%
Papillary carcinoma	6	7.5%
Follicular neoplasm	6	7.5%
Medullary carcinoma	1	1.2%
Poorly differentiated carcinoma	1	1.2%
Total	80	100

Table 4: Distribution of salivary gland lesions

Lesions	No of cases	Percentages
Pleomorhic adenoma	6	75%
Acinic cell carcinoma	1	12.5%
Sailadenitis	1	12.5%
Total	8	100%

Table 5: Distribution of cystic and soft tissue lesions

Lesions	No of cases	Percentages
Epidermal cyst	4	44.4%
Thyroglossal cyst	1	11.1%
-Papillary carcinoma in thyroglossal duct	1	11.1%
Hemangioma	1	11.1%
Lipoma	2	22.2%
Total	9	100

Table 6: Comparison of cytological finding and histopathological finding (n – 84)

Lesions	Not concurred with cytological diagnosis	Concurred with cytological diagnosis	Total
Thyroid lesions	6	22	28
Lymphnode lesions	-	46	46
Salivary gland lesion	-	6	6
Cystic and soft tissue lesions	-	4	4

Histological correlations were available in 84 cases (42%). Among these 78(92.9%) concurred with cytological diagnosis and rest six cases differed (7.1%) . In lymph node (46) and salivary gland lesions (6) all cases concurred. In thyroid lesions 28 cases correlated, out of which 22 cases (78.5%) cases concurred and six cases (21.5%)not concurred.

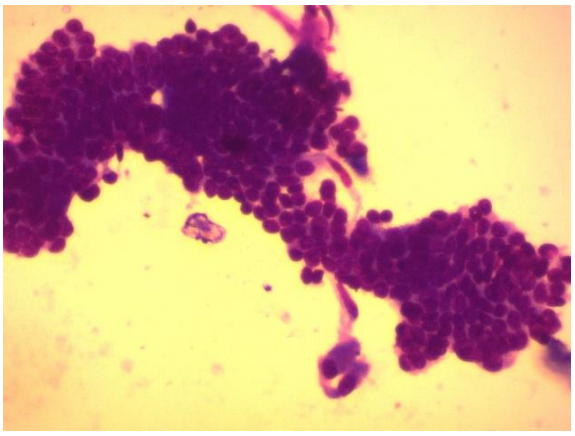

Figure 1 – FNA Papillary carcinoma of thyroglossal duct showing malignant tumor cells having cytological features of papillary carcinoma (400X, Giemsa stain)

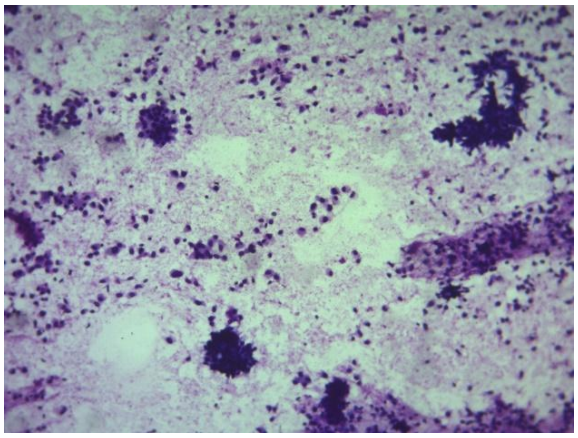

Figure 2- FNA Pleomorphic adenoma showing benign myoepithelial cells in clusters and individually scattered in background of chondromyxoid stroma (100X , Giemsa stain)

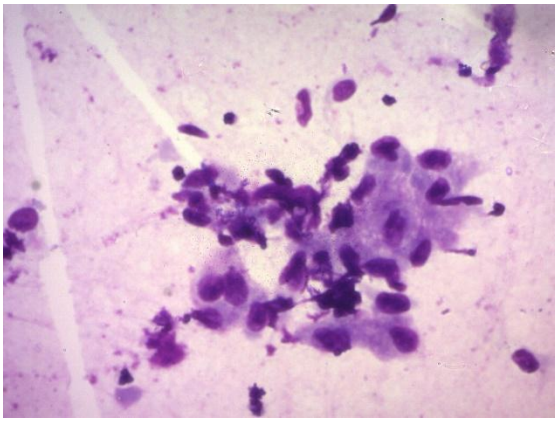

Figure 3 –FNA Medullary carcinoma of thyroid showing plasmacytoid malignant cells (100X, Giemsa stain)

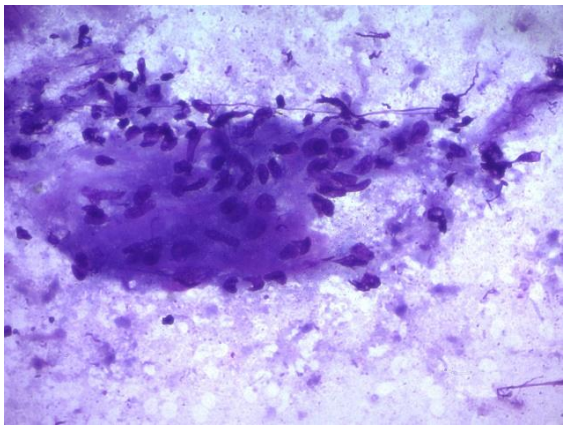

Figure 4 –FNA lymph node showing epithelioid cell granuloma in case of tuberculous lymphadenitis (400X, Giemsa stain)

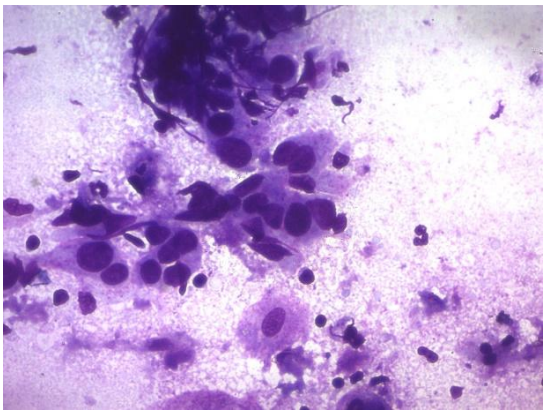

Figure 5– FNA lymph node showing secondaries of squamous cell carcinoma (400X, Giemsa stain)

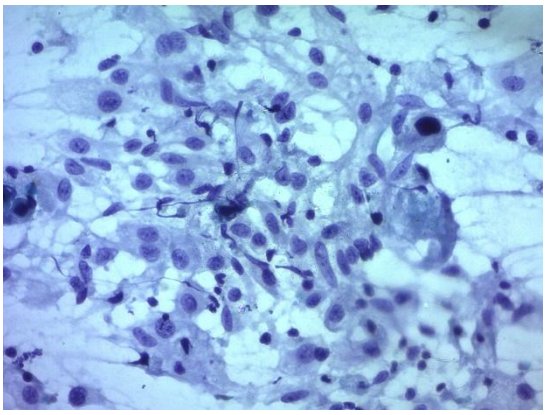

Figure 6 – FNA lymph node showing secondaries in case of squamous cell carcinoma (400X, PAP stain)

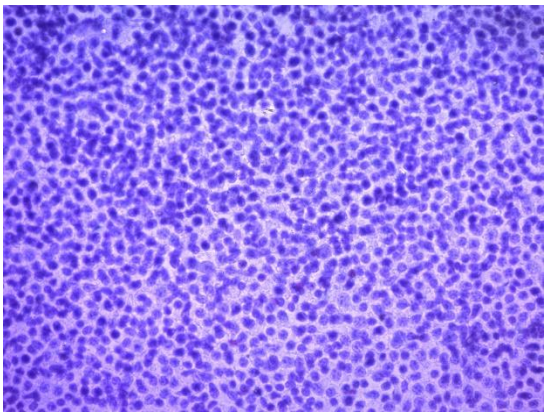

Figure 7 – FNA lymph node showing monotonous lymphoid population in case of Non-Hodgkin lymphoma (100X ,PAP stain)

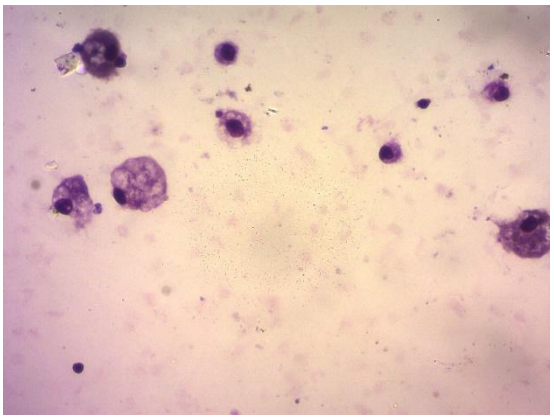

Figure 8- FNA thyroid showing colloid filled macrophages and individually scattered thyroid follicular cells in case of colloid goiter (400 X, Giemsa stain)

DISCUSSION

FNAC is an excellent first line method for investigating the nature of palpable lesions in the head and neck region. The four fundamental requirements on which the success of FNAC depends are representativeness, adequacy of the sample and high quality of preparation with relevant and correct clinical /radiological information. These four prerequisites will always remain sine qua non, no matter how sophisticated the supplementary techniques.[4]

In present study ,maximum number of aspirates were from lymph node(51.5%), followed by thyroid gland (40%), salivary gland (4%),cystic (3%) and soft tissue lesions of head and neck (1%) which were correlated to the study by Tandon et al [5]. Benign lesions were more common in the age group of 20 to 40 years while malignant lesions were common in fifthth decade. In present study higher number of lesions was found in females (60%) as compared to males(40%). These finding were similar to the study by Fernades Het,al [6]. and Vijay Tilak ,et al [7].

Of 103 aspirates from lymph node, maximum cases were of tuberculous lymphadenitis (57.2%) followed by reactive lymphadenitis(27.5%).This finding were similar to study done by Rathod GB, et al [8] and Tariq, et al [9]. It was concluded that FNAC is having high diagnostic accuracy rate for the tubercular lesion on the basis of present study and other workers.

Borges et al (1991) revealed that primary diagnosis of lymphoma and its classification must be made on an adequate tissue biopsy.[1o] However, in our study one case of Non-Hodgkin lymphoma was correctly diagnosed on FNAC and confirmed on histopathology. Metastatic carcinoma was found in only in 4% cases which was in contrast to study done by Cheng[11], which shows 50% cases of malignancy. The reason may be that

study was done in developed country, and ours in developing country where tuberculosis and reactive lymphadenitis is more common. In lymphnode lesions histopathology was available of 46 cases which showed 100% accuracy.

Similar to other studies by Y.M Sirpal [12] and Nazma Afroz [13] , present study also found maximum thyroid lesions in female patients 62 cases (77.7%). In thyroid lesions , maximum cases were of colloid goiter (43.7%),similar to study done by Richa et al [14] which showed maximum number of colloid goiter(43.33%) in thyroid lesions.

The greatest application of thyroid FNAC is the nonsurgical alternative provided in the investigation of goiter, thus eliminating the need for a purely diagnostic thyroidectomy. Histopathology of thyroid was available of 28 cases. All cases of papillary carcinoma diagnosed on cytology, concurred with histopathological diagnosis while six cases of follicular neoplasm ,we reported as adenomatous colloid goiter on histopathology. Aspirated material from hyperplastic areas of goiter often misleads by presenting follicular neoplasm like picture .This can be counteracted by sampling of two to three different areas of the thyroid nodule[15].The cytological appearances in colloid goiter form a continuum which merges with those of follicular adenoma and this grey cytological criteria alone cannot reliably distinguish between the two[16].

In salivary gland lesions maximum number of cases were of pleomorphic adenoma (75%), all of which were confirmed on histopathology (100% accuracy). Studies done by Rathode GB, et al [8] and Setal Chauhan, et al [17] also found that pleomorphic adenoma was the commonest of salivary gland.

Soft tissue lesions comprised of lipoma(22.2%) and haemangioma (11.1%) both of which were confirmed on

histopathology. All six cystic lesions were correctly diagnosed on cytology with four epidermal cysts and one case each of thyroglossal cyst and papillary carcinoma in thyroglossal duct which is very rare.

CONCLUSION

Our study found that FNAC is a simple, quick, inexpensive and minimally invasive technique to diagnose different types of head and neck swellings. FNAC being blind, may miss small focal lesions or may fail to sample representative area of the lesion, leading to diagnostic error which can be counteracted by taking multiple aspirations from different sites , with adequate cellularity and in conjunction with USG guidance . FNAC has high accuracy rate to differentiate between benign and malignant nature of the lesions. Thus, FNAC can be recommended as a first line of investigation in the diagnosis of head and neck swellings.

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