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Original Research Article

Spectrum of cytomorphology in palpable head and neck lesions in a zonal care centre & its diagnostic utility

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ABSTRACT

Background: A prospective observational study was conducted in a zonal care hospital probing the role of FNAC in palpable head and neck lesions & its diagnostic utility which can differentiate the various neoplastic and non neoplastic lesions of head and neck very cost effectively.
Aims and Objectives: To study diagnostic utility of fine needle aspiration cytology(FNAC) in head and neck lesions.
Materials and Methods: A one year prospective observational study carried out at a zonal care hospital, which included a total of 120 patients reported with head and neck masses in the Otorinolaryngology OPD.
Observations and Results: Out of 120 FNACs, 38 (31.66%) cases were of thyroid origin, 35 (29.16%) cases included cervical lymph nodes, 34 cases (28.33%) arised from soft tissue and 04 (3.33%) from salivary glands. Thyroid lesion involvement (31.66%) was more common than any other lesion, out of which 84.21% were colloid goitre, 7.89% were Hashimoto's thyroditis, 5.26% follicular neoplasm and 2.56% papillary carcinoma of thyroid. Amongst the lymph node swellings, 13 cases (36.11%) were reactive/ nonspecific lesion, 12 cases (33.33%) were tuberculous granulomatous lymphadenitis, 16.66% were cases of suppurative lymphadenitis. In malignant lesions of lymph nodes, metastatic deposit of carcinoma and poorly differentiated carcinoma were the predominant pathology and lymphoma case was nil.
Conclusion: FNAC of head and neck swelling is a worldwide accepted diagnostic modality. It is simple, inexpensive and rapid method for the diagnosis of head and neck lesion and avoids unnecessary surgery in the form of excision biopsy for diagnosis.

1. Introduction

The presence of a head and neck swelling is a frequent reason for the patient to visit an Otorhinolaryngology or surgery consultation across all age groups. Swelling in head and neck region ranges from as simple as a reactive hyperplasia of lymph node to malignancies and can have serious implications due to complex anatomy of the region and the presence of multiple anatomical, physiological tissues which result in distinct pathology and prognosis. Head & neck neoplasms account for 23% of all cancer in males and 6% in females in the Indian subcontinent.[1,2] FNAC is a simple, quick and cost effective method for diagnosis as swellings in this region are superficial in location and hence easily accessible. The swellings in the head and neck region may arise from the cervical lymph nodes, thyroid gland, major salivary gland, tumours of skin and soft tissue structures. Deeper structures can also be assessed easily by USG or CT guided FNAC.[1] FNAC of head and neck region is a well accepted technique with high

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specificity for diagnosis. It reduces the rate of diagnostic exploratory procedures and provides an early differential diagnosis of benign from malignant lesions.

2. Material and Methods

The study was conducted in a zonal hospital from Aug 2021 to Aug 2022. It was a prospective observational study where FNAC done in 120 patients with lesions in head and neck region were studied. A detailed history taking and clinical evaluation was done with relevant questions regarding cause, family history of tuberculosis and history of sexual exposure for syphilis and AIDS. The procedure was done in the Department of Pathology. All patients were explained about the procedure in complete detail. The procedure was performed without any local or regional anaesthesia by a trained pathologist. The area of interest was cleaned with spirit, lesion was palpated and fixed with fingers. 23 Gauge needle and 10 ml disposable syringe was used for aspiration of material from the swelling. Plunger of the needle was retracted and many passes were done till sufficient material was obtained in the needle hub. Air was draw out in the syringe and after attaching the needle the aspirated material was scattered on the glass slide and a smear was made. The cytological smears stained with May Grunwald Giemsa and 95% alcohol fixed smears were stained with papanicolaous stains. Lymph node swellings with suspicion of tuberculosis on history and clinical evaluation were additionally stained with ZN stain. The slides were examined under the microscope and cytological findings were recorded.

3. Results

A total of 120 cases of fine needle aspirations on palpable head & neck lesion were performed over a period of one year in a zonal care hospital and the study population included both females (61.15%) and males (38.84%). The various pathologies are tabulated (Table 1) which show that thyroid lesions (31.66%) were predominant followed by lymph node swellings (29.16%), soft tissue (28.33%) and salivary gland swelling (3.33%) in that sequence. Amongst the thyroid lesions which are tabulated (Table 2), 84.21% cases were colloid goitre, 7.89% cases were of Hashimoto's thyroiditis, 5.26% were follicular neoplasm and 2.63% were papillary carcinoma of thyroid. Amongst the lymph node swellings which are tabulated (Table 3), 13 cases (36.11%) were reactive /nonspecific pathology, 12 cases (33.33%) were tuberculous granulomatous lymphadenitis, 16.66% were suppurative lymphadenitis. In the malignant lesions of lymph nodes, metastatic deposit of carcinoma and poorly differentiated carcinoma were most common (13.88%) and lymphoma cases were nil. Soft tissue and miscellaneous lesions constituted 34 cases which are tabulated (Table 5), out of which 61.76% were of lipoma followed by epidermal cyst (32.35%) and hematoma (5.88%). Salivary gland lesions constituted 04 cases which are tabulated (Figure 6) with pleomorphic adenoma and chronic sialadenitis having equal distribution.

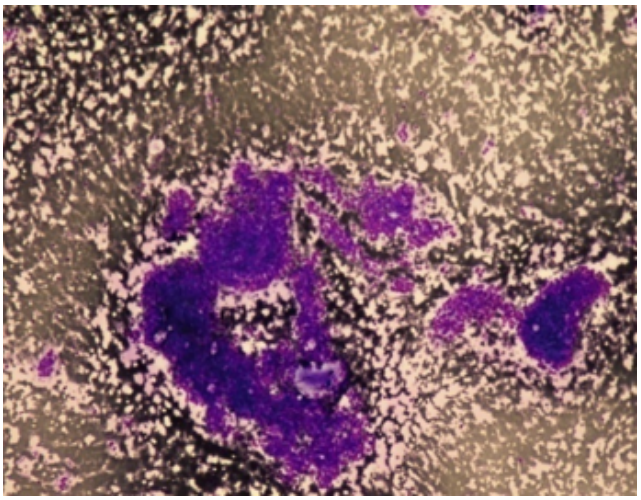

Fig. 1: Pseudopapillay fragment in papillary carcinoma of thyroid (Giemsa 10X).

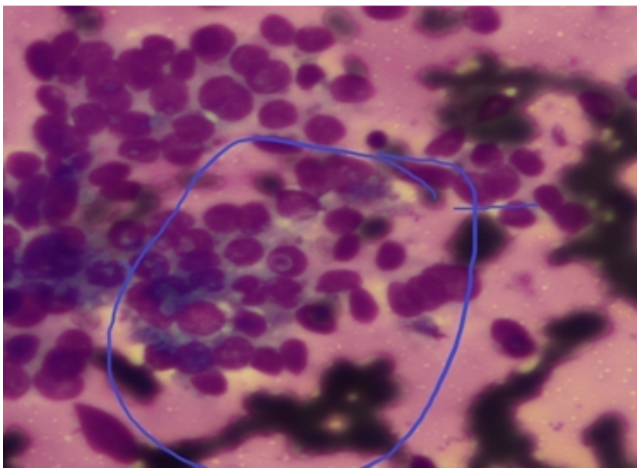

Fig. 2: Pseudoinclusion in papillary carcinoma of thyroid (Giemsa 20X).

Table 1: Differential diagnosis of head and neck swellings

Differential Diagnosis	Number of cases	Percentage
Thyroid	38	31.66
Lymph node	35	29.16
Soft tissue & Misc	34	28.33
Salivary gland	04	3.33
No opinion	09	7.5
Total	120	99.98

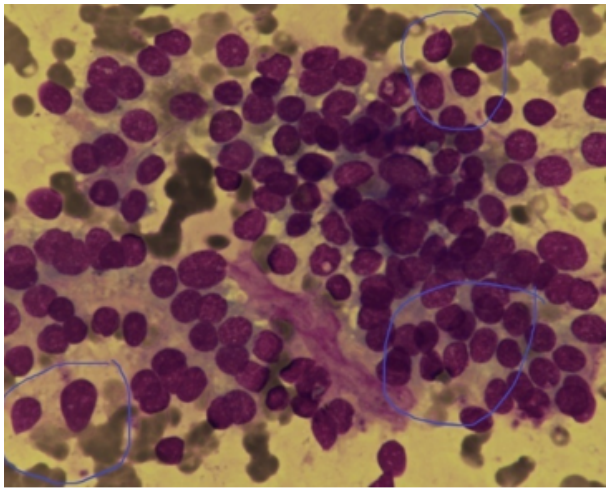

Fig. 3: Intra nuclear groove in papillary carcinoma of thyroid (Giemsa 20X).

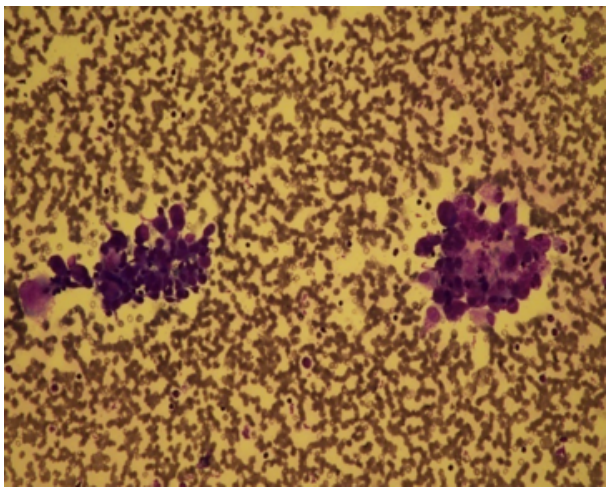

Fig. 4: Hashimoto thyroditis (Lymphocytes infiltration into follicular cluster) (Giemsa 20X).

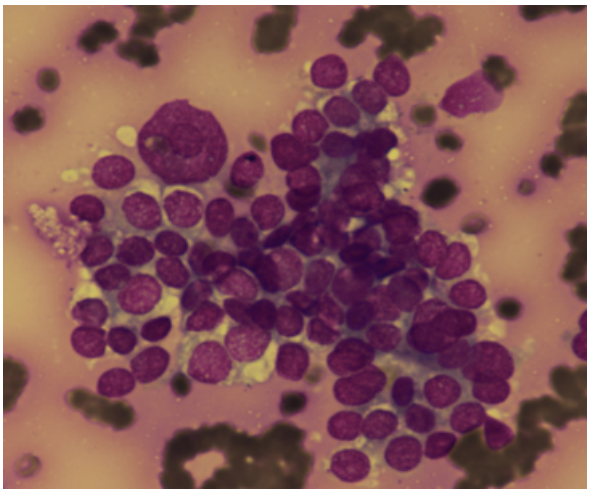

Fig. 5: Metastasis in lymph node (Giemsa 40X).

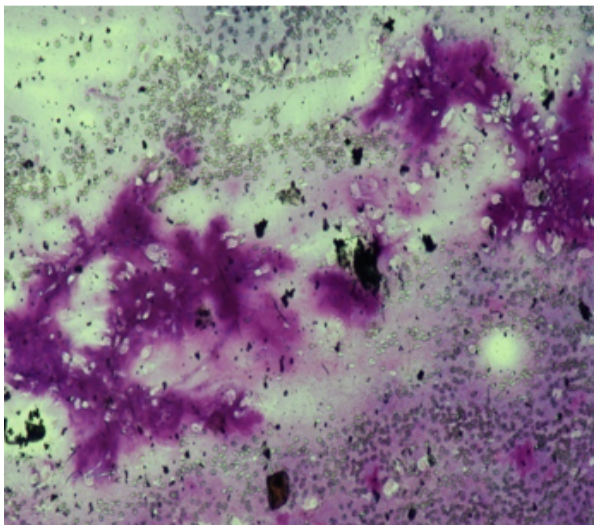

Fig. 6: Metachromatic background in pleomorphic adenoma (Giemsa 10X).

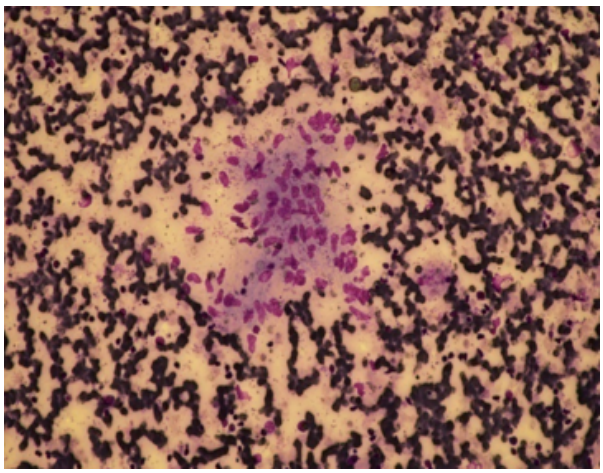

Fig. 7: Granulomatous lymphadenitis (Giemsa 10X).

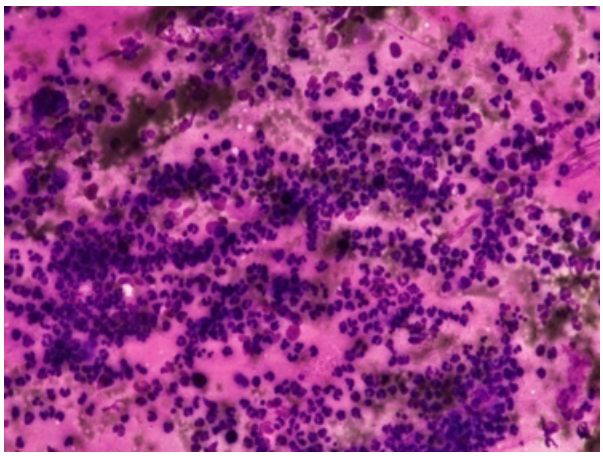

Fig. 8: Acute sialoadenitis (Giemsa 10X).

Table 2: Differential diagnosis of thyroid swellings

Benign nodular goitre	32	84.21
Hashimoto thyroiditis	03	7.89
Follicular lesion	02	5.26
Malignant	01	2.63
Total	38	99.99

Table 3: Differential diagnosis of lymph node lesions

Reactive lymphadenitis	13	36.11
Tubercular lymphadenitis	12	33.33
Suppurative lymphadenitis	06	16.66
Metastasis	05	13.88
Lymphoma	00	00.00
Total	36	99.98

Table 4: Gender distribution of Tubercular lymphadenitis

Male	05	41.66
Female	07	58.33
Total	12	99.98

Table 5: Soft tissue & misc lesions

Lipoma	21	61.76
Epidermal cyst	11	32.35
Hematoma	02	5.88
Total	34	99.99

Table 6: Salivary gland lesions

Pleomorphic adenoma	02	50
Acute/chronic Sialadenitis	02	50
Total	04	100

Table 7: Age distribution in thyroid lesion

S No	Age in years	No
1	1-10	00
2	11-20	01
3	21-30	17
4	31-40	06
5	41-50	05
6	51-60	06
7	61-70	03

4. Discussion

Fine needle aspiration cytology offers a very high degree of reliability, accuracy and feasibility when performed by well trained and experienced cytologist. In this study involving 120 cases of various head and neck lesions, the results were compared with similar studies in the literature. In our study, we observed that head and neck swellings are more common in females as compared to males, which is in contrary to Rathod et al[3] where males were affected more than females. Amongst various pathologies of head and neck, in our study we observed that thyroid swellings were the commonest. Colloid goitre was the predominant pathology in benign lesions of thyroid followed by Hashimoto's thyroiditis, follicular neoplasm and papillary carcinoma of thyroid in that sequence. Similar findings are observed in other studies.[1,2,4] In this study it was observed that female sex was predominantly affected in thyroid lesions and this fact is collaborated by other studies like Rathod et al.[3] In our study, thyroid lesions were predominantly found in young adults (age group of 20-30 years) while Charry A et al[5] found the maximum number of thyroid cases in the age group of 20-40 years with female to male ratio of 4:1 and in our study the female to male ratio was 7:1. Chronic non specific lymphadenitis is the commonest cause for cervical lymphadenopathy followed by tubercular lymphadenitis and metastasis from head and neck malignancies.[5,6] El-Hag et al in their study sample of 225 FNACs of head and neck swellings found that reactive/non-specific lymphadenitis is the commonest cause of neck masses accounting for 33% of cases followed by tubercular lymphadenitis (21%) and malignant lesions (13%) in that sequence.[7] In this study, similar results were observed with reactive lymphadenitis/non specific lymphadenitis being the most common pathology in cervical lymph node accounting for 36.11% of cases followed by tubercular lymphadenitis constituting 33.33% cases and malignant /metastasis lesion comprising of 13.88%. Abba et al[8] reported that females were more frequently affected by tubercular lymphadenopathy accounting for 68% of all cases compared to males which were 32%. Similar result was noted in this study with tubercular lymphadenitis involving females patients more (58.33%) as compared to males (41.66%). In the head and neck region, the posterior neck is the commonest site from where lipoma arises.[9] The exact cause of lipoma is unknown while some potential causes are hereditary, obesity, diabetes mellitus, trauma, radiation exposure, endocrine disorder, insulin injections and corticosteroids.[10] Jasani et al[11] in their study observed that benign soft tissue neoplastic lesions were more common in head and neck than malignant soft tissue neoplasm. In our study, similar result was noted as benign lipomatous lesions constituted 64.76% of cases followed by epidermal cyst (32.35% c) and hematoma (5.88%). Mesenchymal malignant cases were nil. Bhagat et al[12] also in their study reported neoplastic lesions in 63% of cases with lipoma as the predominant benign tumor and squamous cell carcinoma being the commonest malignant lesion. FNAC is a useful tool for sub-typing parotid gland lesions, however its accuracy and sensitivity is variable. Alghamdi et al in their study[13] reported that the overall sensitivity and specificity of FNAC for salivary gland masses are 90.3% and 100% respectively. In our study, pleomorphic adenoma & sialadenitis (acute & chronic) were the commonest benign lesions in salivary glands. These findings are similar to other studies in the literature. Bhagat

et al[12] in their study also found pleomorphic adenoma as the predominant salivary gland lesion. Rathod et al[3] have reported that benign neoplastic lesions in the salivary gland were the predominant finding followed by non specific inflammatory lesions and malignancy. Contrary to above mentioned studies, Chauhan et al[14] in their study observed that chronic sialadenitis was the commonest lesion in followed by pleomorphic adenoma. Fernandes et al[6] found pleomorphic adenoma as the commonest benign lesion in salivary gland and the commonest malignant lesion was mucoepidermoid carcinoma.

5. Conclusion

Our study found that FNAC is rapid, simple & cheap diagnostic modality with overall diagnostic accuracy of more than 90% in differentiating non-neoplastic from neoplastic lesions in the head and neck region. Thus with clinical evaluation, FNAC can be recommended as first line investigation in the diagnosis and management of head and neck lesions. It also helps the surgeon to select, guide and modify surgical planning in patients requiring surgery. It is a very safe OPD procedure and saves the expenditure of hospitalization and also all the morbidities associated with exploratory diagnostic excision biopsy.

6. Conflict of Interest

None.

7. Source of Funding

None.

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