

CYTOLOGICAL STUDY OF HEAD AND NECK FNAC IN CENTRAL PART OF MADHYA PRADESH POPULATION

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Abstract

Background: FNAC is the first line of investigation for the diagnosis of palpable head and neck masses of all types. It avoids surgical biopsy to find out malignant tumors. **Materials and Methods:** 180 patients with tumors or lesions in the head and neck aged between 4 to 65 years were studied with the FNAC technique. Before performing the FNAC, the clinical history of every patient was noted. In addition to CBC, AFB tests were also carried out (if necessary), and various clinical manifestations were noted and classified by percentage. **Results:** In the study of different organs or parts by the FNAC technique, 65 (36.1%) lymph nodes of the neck region, 50 (27.7%) thyroid lesions, 40 (22.2%), and 25 (13.8%) soft tissue lesions were studied and clinically correlated. **Conclusion:** FNAC of head and neck masses has high accuracy for correct therapeutic management. However, this accuracy depends on the anatomic location of the mass.

INTRODUCTION

FNAC was first used as a diagnostic tool in 1904 by Grieg and Gray. They aspirated trypanosomes from the lymph nodes of patients with sleeping sickness.^[1] Over the subsequent 30 years, its role was developed in particular by Guthrie, who attempted to correlate the results of aspiration with a range of diseases being investigated by Martin and Ellis, who, from their base at the Memorial Sloan Kettering Center in New York, developed its use in the diagnosis of malignancy.^[2]

FNAC is now the first line of investigation for the diagnosis of palpable head and neck masses of all types. Since the advent of liquid based cytology, some of the aspirate can be rinsed into the relevant liquid fixative, which allows multiple thin layer preparations of the material to be made. This allows the use of ancillary techniques, such as immunocytochemistry, which may aid and refine diagnosis. This rapid diagnosis service has the effect of decreasing patient anxiety as well as reducing the time from presentation to diagnosis and ultimately to treatment.^[3] The union advantage of FNAC is the avoidance of surgical biopsy and attendant risks, which include scarring, potential tumor seeding, increased hospital stay, and increased costs.^[4] The benign and malignant lesions can be easily ruled out; hence, an attempt is made to study the cytology

of the head and neck of the patients who had lesions and tumors.

MATERIALS AND METHODS

180 (one hundred eighty) patients of different age groups regularly visited the pathology department of the Peoples College of Medical Sciences and Research Center in Bhanpur, Bhopal, Madhya Pradesh – 462037 were studied.

Inclusive Criteria: Patients aged between 4 years to 65 years with enlargement of lymph nodes in the head and neck region referred by surgery, medicine, or pediatric departments were selected for study.

Exclusive Criteria: Patients have already undergone surgery for malignancy and are under the treatment of anti-malignancy. Immune compromised patients were excluded from the study.

Method: A clinical-based study was conducted in the department of pathology, prior to FNAC, every patient was examined in detail with a relevant clinical history. A routine and other special investigation (if required) blood examination was carried out. A local examination of the mass was carried out. FNAC was performed using a 22/23-gauge needle attached to a 10-ml plastic disposable syringe. Air-dried smears were stained with May Grunewald Giemsa (MCG), and 95% of ethanol-fixed smears were stained with papanicolaou (PAP)

stain: Zheil Nelson staining for AFB was done whenever required.

The duration of the study was from January 2023 to June 2024.

Statistical Analysis: Various lesions of the head and neck were studied and classified by percentage. The statistical study was carried out using SPSS software. The ratio of males and females was 2:1.

RESULTS

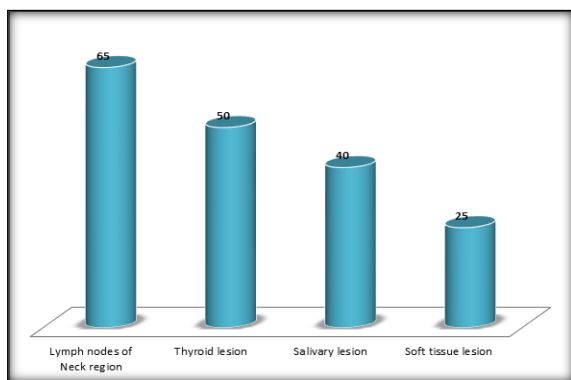


Figure 1: Study of different organs / parts by FNAC technique

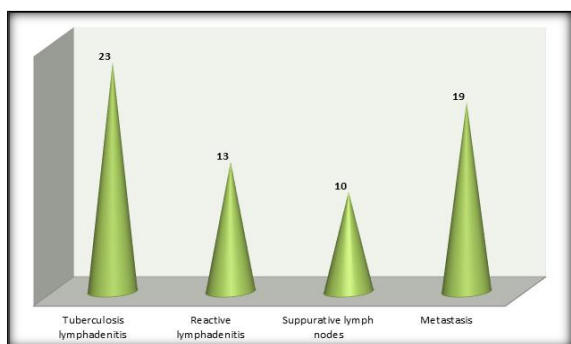


Figure 2: Study of lymph nodes of Neck region with different clinical manifestations

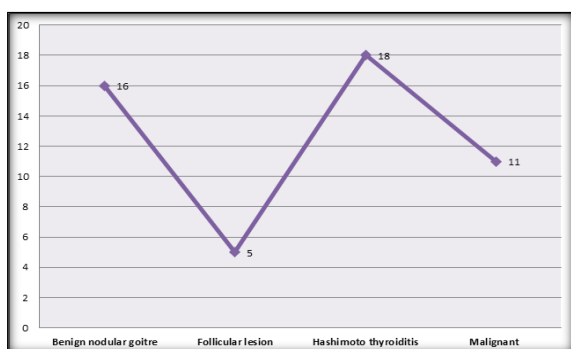


Figure 3: Study of Thyroid lesions with percentage

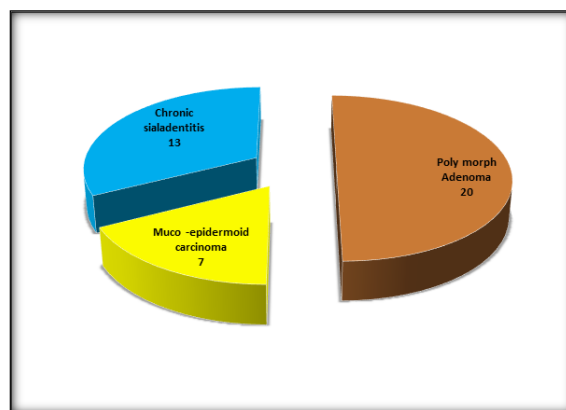


Figure 4: Study of lesions in Salivary gland

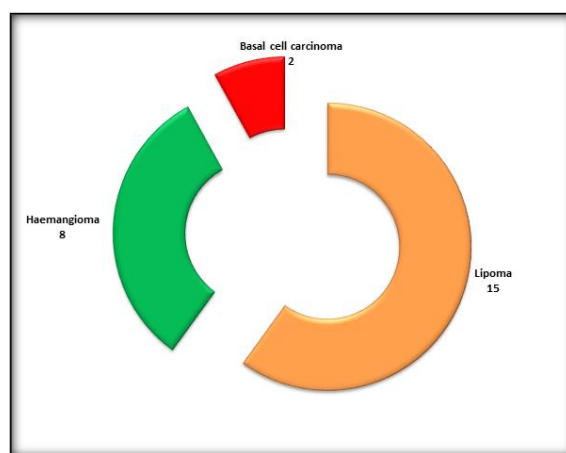


Figure 5: Study of Soft tissue lesion

Table 1: Study of different organs / parts by the FNAC technique.

65 (36.1%) lymph nodes of the neck region, 50 (27.7%) thyroid lesions, 40 (22.2%) salivary lesions, and 25 (13.8%) soft tissue lesions.

Table 2: Study of lymph nodes in the neck region with different clinical manifestations.

23 (35.3%) tuberculosis, 13 (20%) reactive lymphadenitis, 10 (15.3%) suppurative lymph nodes, and 19 (29.2%) metastasis.

Table 3: Study of Thyroid Lesions

16 (32%) had a benign nodular lesion, 5 (10%) had a follicular lesion, 18 (36%) have Hashimoto thyroiditis, and 11 (22%) are malignant.

Table 4: Study of lesions in the salivary gland –

20 (50%) polymorph adenoma, 7 (17.5%) mucoid-epidermoid carcinoma, and 13 (32.5%) chronic sialadenitis.

Table 5: Study of lesions in soft tissue lesions

15 (60%) lymphoma, 8 (32%) hemoma, and 2 (8%) basal cell carcinoma.

Table 1: Study of different organs / parts by FNAC technique

Different organs	No. of patients (180)	Percentage (%)
Lymph nodes of Neck region	65	36.1 %
Thyroid lesion	50	27.7 %
Salivary lesion	40	22.2 %
Soft tissue lesion	25	13.8 %

Lesions	No. of patients (65)	Percentage (%)
Tuberculosis lymphadenitis	23	35.3
Reactive lymphadenitis	13	20
Suppurative lymph nodes	10	15.3
Metastasis	19	29.2

Lesions	No. of patients (50)	Percentage (%)
Benign nodular goitre	16	32
Follicular lesion	5	10
Hashimoto thyroiditis	18	36
Malignant	11	22

Lesions	No. of patients (40)	Percentage (%)
Poly morph Adenoma	20	50
Muco -epidermoid carcinoma	7	17.5
Chronic sialadenitis	13	32.5

Lesions	No. of patients (25)	Percentage (%)
Lipoma	15	60
Haemangioma	8	32
Basal cell carcinoma	2	8

DISCUSSION

Present cytological study of head and neck FNAC in the central part of the Madhya Pradesh population. In the different organs or parts of the head and necks studied by FNAC, 65 (36.1%) lymph nodes of the neck region, 50 (27.7%) had thyroid lesions, 40 (22.2%) had salivary lesions, and 25 (13.8%) had soft tissue lesions. These findings are more or less in agreement with previous studies.^[5,6,7]

Fine needle aspiration cytology has gained importance as it is inexpensive, safe, quick, and offers a high degree of accuracy, reliability, and feasibility when performed by a well trained and experienced cytologist. In the present study, the array of lesion observed from various sites in head and neck region and effective diagnostic its utility as effective diagnostic modalities. However, there are limitations and pitfalls in cytological interpretations, and those cases were confirmed by histological evaluation. It was also noted that, males were more affected than females in every study of the head and neck region.^[8,9] Though it is a safe procedure requiring minimal equipment, to achieve good results, an adequately trained cytopathologist with the requisite skills, experience, and regular work load is essential. Furthermore, the diagnosis of salivary gland neoplasms carries with it specific potential pitfalls. These are the results of heterogeneous tumor cytology; benign tumors appear malignant, or vice versa.^[10] Moreover, difficulty occurs while analyzing FNAC samples derived from patients who have previously been treated with radiotherapy (with or without surgery). A granulomatous response and excessive fibrosis are common.^[11]

However, cytodiagnosis should always be considered in the context of clinical findings. In particular, even if a benign cytological diagnosis is secured.^[12] This should not be taken as absolute, especially if the clinical context confers suspicion of malignancy. In such cases, further evaluation should be undertaken. Hence, FNAC may be treated as an initial assessment of palpable head and neck mass. It also highlights the urgent need for clinical correlations.

In the present study, there was no bleeding, oedema, haematoma, or infection after the FNAC, which helped with the pre-operative diagnosis of lesions and clinical follow-up, providing more comfort to the patient and a low risk of infection or tissue damage.

CONCLUSION

The present study of FNAC in lymph nodes of head and neck lesions proved that FNAC is the ideal investigation one can claim with fairly good accuracy, is safe, and is quick, which can be achieved with greater experience and expertise, but an early approach to medical aid like the FNAC technique can prevent morbidity and mortality in the patient because it is the first line of investigative tool in a specific clinical context. Hence, it requires the creation of awareness by medico-social workers or paramedical staff to educate people with enlarged lymph nodes or thyroids to access the medical aid at the earliest.

Limitations

Due to the tertiary location of the research center, the small number of patients, and the lack of the latest techniques, we have limited findings and results.

- This research paper was approved by the ethical committee of the Peoples College of Medical Sciences and Research Center in Bhanpur, Bhopal, Madhya Pradesh- 462037
- No Conflict of Interest
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