



CYTOMORPHOLOGICAL ANALYSIS OF ORAL LESIONS AT TERTIARY CARE CENTRE

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ABSTRACT **Background:** Fine needle aspiration cytology is a highly effective tool in the diagnosis of oral and maxillofacial lesions. Inspite of easily approachable site & high possibility of early diagnosis, the number of oral malignancy cases is still high in India.

Aim: Aim of this study was to demonstrate the effectiveness of this cheap and simple procedure for the diagnosis of tumor and tumor like lesions of oral and maxillofacial region. This study also aims to correlate histopathological findings associated with the lesions and evaluate the sensitivity, specificity of fine needle aspiration.

Materials and Methods: The study was carried out in the Department of Pathology, Government Medical College Nagpur. Total 100 patients of all age groups with various palpable lesions in the oromaxillofacial region formed the study group. Fine needle aspiration samples were obtained from the patients attending surgical Out Patient Department, Govt Medical College, Nagpur & Oral surgery department, Government Dental College, Nagpur. A correlation between cytological and histological diagnosis was done wherever biopsy material was available.

Results: Fine needle aspiration cytology was found to be extremely accurate in diagnosing squamous cell carcinoma. It was also found highly effective in diagnosing intraepithelial lesions. Sensitivity by fine needle aspiration cytology was found to be 92.3 %. Specificity was 100% by this methods.

Conclusion; Fine needle aspiration method is found to be simple, highly sensitive, specific and accurate methods in the diagnosis of oral lesions.

KEYWORDS : Cytology, Fine needle aspiration, oral lesions.

INTRODUCTION:

Fine Needle Aspiration Cytology is now a days widely used technique in which cells are obtained using a thin bore needle and smears are made for cytopathological analysis. The basis of this technique is that the tumor cells are less cohesive and easily aspirated. Numerous studies have been carried out using this technique successfully in cases of lymph nodes, breast lumps thyroid nodules, and subcutaneous soft tissue tumours. [1,2] FNAC of head and neck region was pioneered by Martin in the early 1930s.[3] It is a technique-gained popularity and wide acceptance in many medical fields and surgical specialties. [4,5,6] Large amount work has been done documenting the effectiveness of FNA for diagnosis of head and neck lesions.[4,7-10] However, there are few reports to explore the potential of FNA for the diagnosis of intraoral and lesions of maxillofacial region.[11]

The oral cavity and oropharynx is affected by a wide range of pathologic lesions that may originate from squamous mucosa, salivary glands, mesenchymal structures, and lymphoid tissue. A variety of lesions including inflammatory, cystic and benign or malignant neoplasms can occur within the oral cavity[12]. The role of fine needle aspiration cytology in the diagnostic evaluation of neoplastic and non-neoplastic lesions has increased dramatically. This safe, reliable, cost-effective and easy procedure can eliminate the need for open biopsy procedure due to its potential untoward effects.[13, 14]

FNAC is a technique that allows more rapid diagnosis, and if necessary, a re-aspiration can be done quickly at the time of initial testing.[15] Knowing the high incidence of oral cancer in india, we need a technique that will help in diagnosing this condition in its infancy. The technique which would be highly sensitive, very simple, without complications and reliable. The present study was thus conducted to evaluate the reliability, safety and applicability of Fine Needle Aspiration Cytology in accurate diagnosis of Oral and maxillofacial lesions.

MATERIAL METHODS;

The present study was carried out in the Department of Pathology, Govt. Medical College Nagpur. Duration of the study was two years. The samples were obtained from 100 patients attending the Out Patient Departments (OPD) of Department of Surgery, GMC Nagpur & Oral Pathology department, Govt Dental College Nagpur. Fine needle aspiration was performed using Comeco syringe holder, 20cc disposable syringe, 22 gauge 1.5" & 22 gauge 90 mm L.P. needles were

used. After fixing the lesion properly, the sample was aspirated and spread on clean glass slide. Slides were transferred immediately to 95% ethyl alcohol for fixation. Slides were stained by Haematoxyline & Eosin(Culling 1974), PAP stain (Huges & Dodds 1968)

RESULTS:

Out of 100 patients studied 65 were males & 35 were females. Male to female ratio was 1 : 0.53. Most affected age group was between 41 to 50 years. 34 samples were collected from these patients followed by 23 samples collected from age group 51 to 60 years.

Figure 1. Shows Age distribution with Sex predilection.

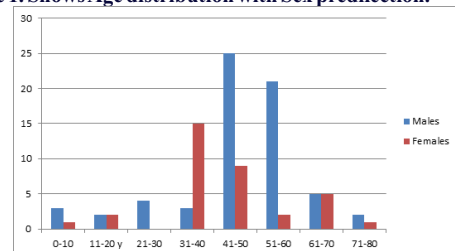


Fig 2; Shows number of samples collected from various sites by Fine Needle Aspiration Cytology

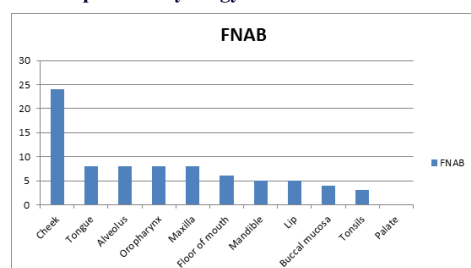


Fig 3; Distribution of patients with Habbit.

Maximum samples were collected from cheek by the FNAB method of sample collection.

Most of the patients (n=35) had a habit of tobacco chewing. Followed by patients (n=25) who had habit of pan chewing with tobacco, smoking & consuming alcohol. 15 patients had habit of pan chewing with tobacco & smoking. There were 5 patients who were non addicts. They had no habit of tobacco or pan chewing or smoking or taking alcohol.

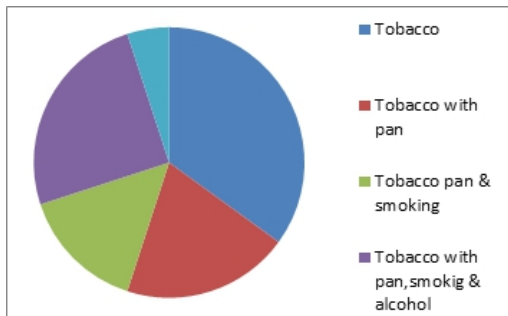


Table 1. Shows distribution of patients according to the presenting complaint

Sr. No	Presenting complaint	No of patients
1	Growth in the mouth	45
2	Ulcer in the mouth	27
3	Hoarseness/dysphagia	13
4	Diffuse swelling upper/ lower jaw	13
5	Pain	02
Total		100

Chief complaint of the patients in this study was growth in the mouth (n=45). Followed by patients who presented with ulcerative lesion (n=27), diffuse swelling of jaw (n=13), hoarseness of voice & difficulty in deglutition (n=13), two patients had pain as a chief complaint. Patients presenting with diffuse swelling of maxilla or mandible had oral extension of the lesion. These lesions were diagnosed cytologically as ameloblastoma, ewings sarcoma, malignant mesenchymal tumour & osteogenic sarcoma.

Table 2. Shows distribution of 55 cases reported as malignant

Sr. No	Cytological diagnosis	No of case	Percentage %
1	Squamous cell carcinoma	45	81.0
2	Mucoepidermoid carcinoma	2	4.0
3	Ameloblastoma	4	7.0
4	Ewings sarcoma	1	2.0
5	Lymphoreticular malignancy	1	2.0
6	Osteogenic sarcoma	1	2.0
7	Malignant mesenchymal tumour	1	2.0
Total		55	100

Out of 100 patients fine needle aspiration biopsy samples were collected from 79 patients. Report of positive for malignancy was given in 55 cases. 11 cases were reported as suspicious, 4 were reported as negative for malignancy & 9 samples were found inadequate for reporting. Majority of cases reported as positive, included squamous cell carcinoma (n=45). Other conditions in this category included mucoepidermoid carcinoma (n=2), Ameloblastoma (n=4), Ewings sarcoma (n=1), Lymphoreticular malignancy (n=1), Osteogenic sarcoma (n=1), & malignant mesenchymal tumour (n=1).

In case of fine needle aspiration cytology, histopathological correlation could be done in 37 cytology samples. 26 samples were reported as positive for malignancy. 24 of these samples were confirmed by histopathology. Other two samples were found to be mucoepidermoid carcinoma of salivary gland & lymphoreticular malignancy. Thus histocytopathological correlation was 92.3%. There were 11 samples reported as suspicious for malignancy. Histocytopathological correlation could be done in 8 cases. All these cases were confirmed as malignant.

DISCUSSION:

A large variety of benign and malignant tumors and nonneoplastic lesions are found in oral and maxillofacial region. Squamous carcinoma is the most common malignancy [11, 16]. Surgical biopsy is the traditional method for evaluating these lesions but this method may be inconvenient, painful, and costly due to hospitalization and may

leave underlying tissue damage. [10] Fine needle aspiration (FNA) biopsy cytology has been found to be very useful, simple, cost effective and accurate in assessing and diagnosing various neoplastic and nonneoplastic lesions [17]. However, limited work has been done in evaluating intraoral and oropharyngeal masses and only a few reports were found in the English literature on this subject. [10, 11]

Oral & oropharyngeal carcinoma has high incidence in India. Although all possible measures are taken to detect oral malignancy at early stage, the incidence is high. In our study, most of the cases belong to poor socioeconomic status & farmers living in remote places. They do not have health facilities available nearby. Unawareness & lac of health facility appear important factors in the increased incidence of oral malignancy. This study was aimed to evaluate the reliability, safety and applicability of Fine needle aspiration cytology. The procedure was carried out on 100 patients. Adequacy by fine needle aspiration was 88.6%. Similar results were reported by Scher et al [15] in 1988 with adequacy of 80.6%. Male to female ratio was found to be 1:0.53. Maximum cases (n=34) were from age group 41-50 years. In the age group of 0-10 years, 4 patients presented with oral lesions. These were diagnosed as generalised histiocytosis, ewings sarcoma, malignant mesenchymal tumour and ameloblastic fibrosarcoma.

According to Scher et al, in their study of 93 FNA cases of oral and oropharyngeal lesions, had no false positive diagnoses, but had seven false negative diagnoses [15]. In our study not a single case of false positivity was reported. By fine needle aspiration 55 samples were reported as positive for malignancy. In this study squamous cell carcinoma was found to be the most common malignancy and its incidence was noted to be increased after third decade.

Specificity was found to be 100% and sensitivity was found to be 92.3 % by fine needle aspiration method. The study carried out by nalini gupta et al [18] showed specificity 97.8%, sensitivity of FNAC 71.4%; with diagnostic accuracy of 87.7%. Nazoora khan et al [19] in their study they found sensitivity of 93.2 % and specificity 96.8%. Castelli M et al [20] found sensitivity of 80.6% and specificity 96.9%. Shah SB et al [21] found sensitivity 93% and specificity of 86%. In our study accuracy rate by fine needle aspiration was 92.90 %. Similar study was carried out by Saleh. HA et al [16] they found the accuracy of FNAC 86.6%. Dejmeck et al [22] reported 85% diagnostic accuracy by FNAC.

CONCLUSIONS:

Cytological examination has gained importance in diagnoses of various lesion of oral cavity. It satisfies all conditions required for a technique in giving highly accurate results. Fine needle aspiration cytology was found extremely useful in the diagnosis of intraepithelial lesions. It can be very beneficial in cases of recurrence because diagnosis of recurrence can be hindered by the post surgery or post radiation oedema, fibrosis and alteration of anatomy from reconstructive technique. Although surgical biopsy has remained the standard method of diagnosis in suspicious lesions, it has limitations in cases of postsurgical or post radiation fibrosis. It may lead to delayed wound healing or infection. Damage to vital structures and tumour implantation can be a matter of concern. In all these situations cytological methods become highly effective. False positivity is minimal. Due to these reason, the use of positive fine needle aspiration cytology report can be made to diagnose squamous cell carcinoma of head and neck without biopsy confirmation. Fine needle aspiration method is found to be simple, highly sensitive, specific and accurate methods in the diagnosis of oral lesions.

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CONFLICT OF INTEREST; NONE

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