

Histopathological Study of Oral Cavity Lesions



Medical Science

KEYWORDS : Oral lesions, benign, malignant, premalignant, squamous cell carcinoma

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ABSTRACT

Many neoplastic & non neoplastic lesions are found in the oral cavity.

The study was undertaken to analyze various oral cavity lesions by histopathology. A total 131 cases were studied which showed 61.83% malignant lesions, 2.30% benign neoplasms, 23.66% non-neoplastic lesions & 12.21% premalignant epithelial lesions. Squamous cell carcinoma was found in 87.6% among all malignant lesions. Squamous cell carcinoma & its precursor lesions had strong association with tobacco consumption. The oral lesions revealed male preponderance with buccal mucosa being the commonest site. Granuloma pyogenicum was found to be the commonest benign lesion

INTRODUCTION:

Oral cavity extends anteriorly from vermilion junction of lips to junction of hard and soft palate above and to line of circumvallate papillae on dorsal tongue below; communicates freely with oropharynx posteriorly.¹ Oral cavity contains lip, gingiva, teeth, buccal mucosa, maxillary and mandibular arches, retromolar trigone, tongue, floor of mouth and hard palate. The oral cavity is one of the most common sites for various tumours and tumour like lesions. Among the malignant lesions, squamous cell carcinoma is the most common lesion of oral cavity. The association between tobacco chewing and cigarette smoking with squamous cell carcinoma has been proven. Among the benign lesions, inflammatory/ reactive lesions, pyogenic granuloma, fibroma, lipoma, mucocele, nevus etc. are commonly observed oral lesions.

AIMS:

The purpose of this study is to analyze the cases of oral lesions, to study the prevalence of different types of benign & malignant lesions, to highlight precancerous lesions of oral cavity & to detect the various risk factors association with oral cancers & precancerous lesions.

MATERIALS AND METHODS:

This study is an analysis of 131 oral cavity lesions for a period of 3 years. The various parameters like age & gender of the patients, risk factors association, location of lesions, and histopathological diagnosis of tissue specimen were studied. Tissue specimen consisted of incisional & excisional biopsy specimens. Histopathology sections were processed by routine paraffin embedding method & stained by Hematoxylin & Eosin.

RESULTS:

The age range of study group was from 3 to 80 years with a mean age of 42.9 years (Fig. 1). The average age of diagnosis of malignant tumours was 45.7 years with a standard deviation of 11.84 years.

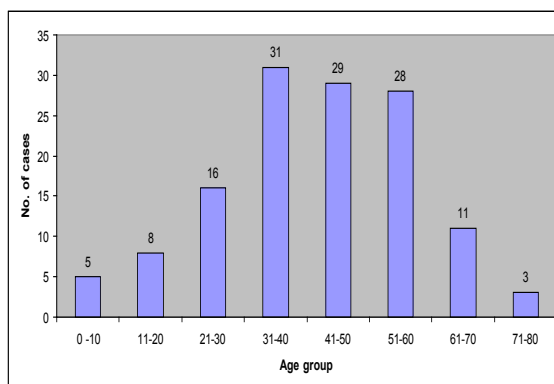


Fig. 1 Age distribution of oral cavity lesions

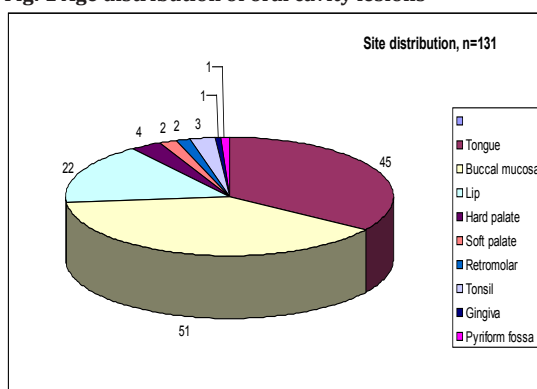


Fig. 2 Site distribution of oral cavity lesions

Table: 1: Different types of oral cavity lesions (n=131)

Type of Lesions	Histopathological diagnosis	No. of cases (%)
Non neoplastic lesions (31/131) (23.66%)	Gingivitis	04 (3.05%)
	Granuloma pyogenicum	11 (8.4%)
	Mucocele	04 (3.05%)
	Fibroma	02 (1.53%)
	Inflammatory papillary hyperplasia	01 (0.76%)
	Pemphigus vulgaris	03 (2.29%)
	Pseudoepitheliomatous hyperplasia	02 (1.53%)
	Tonsillar cyst	02 (1.53%)
	Verruca vulgaris	01 (0.76%)
	Necrotizing sialometaplasia	01 (0.76%)
Benign neoplastic lesions (3/131) (2.30%)	Squamous papilloma	02 (1.53%)
	Neurofibroma	01 (0.76%)
Malignant lesions (81/131) (61.83%)	Squamous cell carcinoma (conventional)	71 (54.2%)
	Verrucous carcinoma	07 (5.34%)
	Papillary squamous cell carcinoma	01 (0.76%)
	Adenoid cystic carcinoma	01 (0.76%)
Premalignant epithelial lesions (16/131) (12.21%)	Spindle cell sarcoma	01 (0.76%)
		16 (12.2%)
Total		131

Table: 2 Risk factors association

Habits	Squamous cell carcinoma (n=79*)	Premalignant epithelial lesions (n=16)
Tobacco chewing	54 (68.35%)	11 (68.75%)
Smoking	17 (21.51%)	04 (25%)
Smoking + Alcohol	05 (6.32%)	01 (6.25%)
Nil	03 (3.79%)	--

(* Total number includes conventional squamous cell ca & its variants)

Lesions were more commonly seen in males (96/131 cases; 73.3%) than in females (35/131 cases; 26.7%). The most common affected site was the buccal mucosa (39%); followed by the tongue (34.4%) & lip (16.8%) (Fig: 2).

Among 131 cases, 31 were non-neoplastic lesions, 16 were premalignant epithelial lesions, & 84 were neoplastic lesions. Neoplastic lesions consisted of 3 benign tumours & 81 malignant tumours. Among the malignant tumours conventional squamous cell carcinoma exhibited the dominant type (71/81 cases, 87.6%). Different types of lesions identified in the study are tabulated.

Tobacco chewing & smoking were noted to be the significant culprits for the oral cavity lesions, particularly for the squamous cell carcinoma & premalignant epithelial lesions.

DISCUSSION:

Epidemiological research concerning oral lesions is complex due to the existence of multiple anatomic structures, the oral cavity exhibits. The oral cavity can be host to a multitude of pathological lesions which may be neoplastic, premalignant, or

non-neoplastic.

In our study, the peak incidence of oral cavity lesions was between 4th to 6th decades while in the studies undertaken by by Al- Khateeb TH² & Pudasaini S et al³, it was between 2nd to 4th decades. In both these studies, soft tissue lesions constituted the predominant lesions as opposed to the epithelial lesions in our study & so, malignant epithelial lesions were more in the present study which accounted for higher age group reflection in the present study.

In the present study, there is male preponderance with M:F ratio 2.74:1. In the study of Nadia Zaib et al⁴, male to female ratio was 1.1:1.

Because of the diversities of structures, different studies showed wide variations of the affected sites of oral lesions. However, the malignant epithelial lesions are common in buccal mucosa, tongue & lip in most of the studies including ours. The location of oral lesions in descending order of frequency in our study was buccal mucosa, tongue & lip with minor involvement of rest of the sites. Al-Khateeb TH² showed predominance of palatal lesions & Pudasaini S et al³ showed predominance of lip lesions. In the study of Nadia Zaib et al⁴, majority of the lesions affected the mandible followed by buccal mucosa.

Malignant lesions (61.83%) were more common than non neoplastic & benign neoplastic lesions in our study. Comparable results are found in a study done by Ntomonchitsis et al⁷, which showed prevalence of benign & malignant lesions in lip to be 33% and 67% respectively. However, the data from different series reveal wide variability regarding the prevalence of benign & malignant lesions. In a study done by Shamim et al⁶, who evaluated 244 oral gingival lesions in India showed non-neoplastic lesions in 75.5% and neoplastic lesions in 24.5%. Pudasaini S et al³ showed the prevalence of benign & malignant lesions 95.2% & 4.8% respectively. This wide variation among different studies can be explained by variables like sample size, age group selection, geographical variation, risk factors association, topography of lesions etc.

The prevalence of squamous cell carcinoma in the present study is 54.2% (71/131 cases) which is 87.6% (71/81 cases) of all malignant lesions. Nadia Zaib et al⁴ showed the high prevalence of squamous cell carcinoma in their series. (35.1% of all lesions, 86.9% of all malignant lesions). Ninety percent of all the oro-facial malignant neoplasms are oral squamous cell carcinoma (OSCC); which holds the eighth position in cancer ranking worldwide, being the third most common malignancy in south central Asia.⁷ The Verrucous carcinoma is a rare, low-grade variant of SCC. The most common site of oral involvement of verrucous carcinoma is buccal mucosa, followed by the mandibular alveolar crest, gingiva and tongue. This tumor is commonly seen in males in the sixth decade of life.^{8,9} Present study supports this analysis as all the 7 cases of verrucous carcinoma were observed in males with buccal mucosa involvement seen in 5 out of 7 lesions.

However, in our study the age group was between 3rd to 5th decades.

The prevalence of premalignant epithelial lesions in our study is 12.21% (16/131). In 1972, the World Health Organization (WHO) defined a precancerous lesion as a morphologically altered tissue in which cancer is more likely to occur than in its apparently normal counterpart.¹⁰ The most commonly encountered and accepted precancerous lesions in the oral cavity are leukoplakia, erythroplakia & erythroleukoplakia. The definitions of these entities do not have histologic connotation and is used strictly as a clinical description. However, using clinical features to classify lesions as premalignant is difficult because they vary in appearance and are likely to be interpreted subjectively by the clinician. A histopathologic diagnosis is generally more indicative of premalignant change than clinically apparent alterations. Histopathologic finding of "epithelial dysplasia" suggests that the lesion has a greater probability of undergoing

malignant change than does normal tissue & the risk of malignant transformation varies according to the histologic grade of dysplasia.

The strong association with risk factors like tobacco chewing, smoking & smoking along with alcohol was observed in patients with squamous cell carcinoma & premalignant epithelial lesions (Table-2). One study demonstrated that 80% of patients with cancer were smokers.¹¹ It has been found that as an individual risk factor, alcohol has little role to play. However, alcohol is thought to serve as a promoter that exhibits a strong synergistic effect with tobacco.¹²

In the present study, the prevalence of non neoplastic lesions & benign tumours was 23.66% & 2.3% respectively. Among these cases the pyogenic granuloma accounted for the highest cases (11/131, 8.4%) . Comparable finding is observed in the study of Nadia Zaib et al⁴, which revealed the prevalence of pyogenic granuloma to be 9.6% ranking next to non specific inflammation.

Salivary glands constitute an important component of the oral region and they also present a wide range of pathologies. Salivary gland tumors are relatively rare, accounting for 3-10%

of head and neck tumors.¹³ In the present study, four cases of mucocele, one case of adenoid cystic carcinoma & one case of necrotizing sialometaplasia were noted. Mucoceles are common oral lesions since their tissue of origin *i.e.* salivary glands is widely distributed throughout the oral cavity. We found that the peak incidence of it is in the first and second decades with lower lip being the most common site. These findings are in agreement with previous work.^{14,15}

CONCLUSION:

The lesions affecting the oral cavity constitute a diverse group of pathologies. Of all the oral biopsies reported in the present study, squamous cell carcinoma was the most commonly reported pathology making it an emerging threat to the community and highlighting the need to take effective measures to increase public awareness about the risk factors and consequences of this life-threatening condition.

Measures should be designed to encourage the population to have routine oral examination making an early detection of any pathological changes, which may contribute in alleviating oral health problems of the population.

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