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Original article

Histopathological spectrum of patients with oral cavity lesions: A descriptive observational record-based study from Maharashtra

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Abstract

Background: Tobacco use is one of the most important risk factors for the development of oral mucosal lesions including oral pre-cancer and cancer. In recent years, various commercial preparations known as pan masala and gutkha have become available in India and in many parts of Asia. Many brands of these products contain areca nut and tobacco, both of which have been implicated in occurrence of oral cancer. The investigators have also observed that smoking and chewing of tobacco and betel quid act synergistically in oral carcinogenesis and that persons with mixed habits form a substantially high-risk population. **Objective:** To study histopathological spectrum of patients with oral cavity lesions. **Materials and Methods:** This is descriptive observational study carried out at department of pathology at a tertiary care centre in Maharashtra during the period from January 2009 to December 2009 involving total 50 cases. **Results:** Majority of the cases were from 41-50 years age group i.e. 28% followed by 26% from 31-40 years, 16% from 51-60 years. Mean age of the study population was 44.6±12.6 years. 58% were males and 42% were females. Distribution according to site of oral lesion revealed the results as follows: Palatine tonsils-12%, Buccal mucosa-34%, Dorsum of tongue-12%, Lateral border of tongue-12%, Ventral surface of tongue-12%, Palate-4%, Floor of mouth-4%, Gingio-buccal-2%, Gingiva-2%, Lip-2% and Retromolar triagone-4%. Benign lesions accounted for 8% in our study and the histopathology revealed the results as follows: Hemangioma-4%, Lipoma-4%. Pre malignant lesions accounted for 16% in our study and the histopathology revealed the results as follows: Leukoplakia-2%, Mild dysplasia-2%, Oral submucous Fibrosis-4%, Erythroplakia-4%, Severe dysplasia-2% and Oral Lichen Planus-2%. **Conclusion:** Benign lesions accounted for 8% in our study and the histopathology revealed the results as follows: Hemangioma-6%, Lipoma-3%. Pre malignant lesions accounted for 16% in our study and the histopathology revealed oral submucous fibrosis-4% and erythroplakia-4%.

Key words: histopathological findings, oral cavity lesions

Introduction

Oral cavity encompasses the area from the vermillion border of the lip to an Imaginary line drawn between Hard and Soft Palate, and the circumvallate Papillae Inferiorly. Oral cavity lesions are usually common but ignored. They may be benign or malignant. Common benign lesions are lymphoid hyperplasia, retention cyst, inflammation, haemangioma, fibroma etc. and among malignant lesions squamous cell carcinoma is the most common. [1]

Oral cancer ranks the 8th most common cancer worldwide and 3rd most common cancer in India. Age standardized incidence rate of oral cancer is 12.6 per 100,000 population. [1] Variable distribution of cancer at various intraoral sites in different population suggests differences in risk factors.

In India tobacco chewers constitute an important risk population and hence carcinoma of buccal mucosa and lateral tongue are most commonly seen in Indian population. The greatest risk for developing oral cancer is seen with the habit of "reverse smoking" (keeping the lit end of bidi or cigarette in mouth), frequently found in India. Tobacco uses and excessive alcohol consumption have been estimated to account for about 90% of cancers in oral cavity. Tobacco contains more than 50 carcinogens that increases relative risk of cancer through causing various

mutations disrupting the cell cycle regulations. [1,2,3]
Other risk factors include ill-fitting dentures, HPV infection, genetic mutations and alcohol. Prognosis of oral cancer is generally poor, with a five-year survival less than 50%. Local recurrence as well as lymph node metastasis occurs in a significant percentage of patient. Distant metastasis is less common. Sometimes early stage of malignancy may mimic benign lesions which lead to incorrect management and fatal consequences for the patient. So, it is very important to make a proper diagnosis for proper management of oral cavity lesions. Histopathology is considered gold standard.
Tobacco use is one of the most important risk factors for the development of oral mucosal lesions including oral pre-cancer and cancer.[4] In recent years, various commercial preparations known as pan masala and gutkha have become available in India and in many parts of Asia. Many brands of these products contain areca nut and tobacco, both of which have been implicated in occurrence of oral cancer. The investigators have also observed that smoking and chewing of tobacco and betel quid act synergistically in oral carcinogenesis and that persons with mixed habits form a substantially high-risk population. [5]
According to Thomas et al, [6] while alcohol drinking and tobacco chewing may possibly be risk factors for multiple oral premalignant lesions, smoking was not associated with the risk of multiple oral premalignant lesions. Early detection of premalignant lesions and oral cancer is very important. Therefore, miscellaneous modalities such as oral cavity examination, supravital staining, oral cytology and optical technologies including spectroscopy, fluorescence spectroscopy, elastic scattering (reflectance) spectroscopy, Raman spectroscopy, fluorescence imaging, optical coherence tomography, narrow-band imaging, and multimodal optical imaging may be used. [7]
Hence the present study was planned with the objective to assess the histopathological spectrum of patients with oral cavity lesions at our tertiary care centre.
Objective: To study histopathological spectrum of patients with oral cavity lesions

Materials and Methods

This is descriptive observational study carried out at department of pathology at a tertiary care centre in Maharashtra during the period from January 2009 to December 2009 involving total 50 cases.

Inclusion criteria:

1. Patients presenting with lesions of oral cavity visiting tertiary care hospital.
2. Patients of either gender and age of 18 years or more.
3. Patients willing to give written informed consent to participate in the study.

Exclusion criteria:

1. Patients with history of bleeding disorders.
2. Patients whose oral cavity lesions are already diagnosed by histopathology.

Methods of data collection

All the oral cavity lesions specimens received by the department of pathology were included in this study the clinical information and relevant investigations of the patients who undergoes surgery during this period was obtained from the histopathological requisition forms and clinical case sheets. The oral cavity lesion biopsy specimens received were immediately transferred into 10% formalin saline in the ratio of 1:10. After 24hours of fixation, the specimen were examined grossly.
Additional sections from the lesion were taken if required depending upon the pathology

present. Additional sections from the lesion, if any will also be obtained. The tissue pieces were then be processed in automated tissue processor and then paraffin blocks were made, with proper labelling on the blocks. From each block, sections were cut at 4-5microns thickness and then stained by Haematoxylin and Eosin(H&E). The slides were then be examined under light microscope. All the data was subjected to analysis and interpretation.

Statistical analysis:

Data was collected by using a structure proforma. Data entered in MS excel sheet and analysed by using SPSS. Qualitative data was expressed in terms of proportions. Quantitative data was expressed in terms of Mean and Standard deviation. Association between two qualitative variables was seen by using Chi square/ Fischer's exact test. A p value of <0.05 was considered as statistically significant whereas a p value <0.001 was considered as highly significant.

Results

Table 1: Distribution according to age group

		Frequency	Percent
Age group in years	18-20	4	8.0
	21-30	5	10.0
	31-40	13	26.0
	41-50	14	28.0
	51-60	8	16.0
	>60	6	12.0
	Total	50	100.0

We included total 50 patients presenting with lesions of oral cavity. Majority of the cases were from 41-50 years age group i.e. 28% followed by 26% from 31-40 years, 16% from 51-60 years, 12% from above 60 years, 10% from 21-30 years and least i.e. 8% from 18-20 years age group. Mean age of the study population was 44.6±12.6 years.

Table 2: Distribution according to gender

		Frequency	Percent
Gender	Male	29	58.0
	Female	21	42.0
	Total	100	100.0

58% were males and 42% were females.

Table 3: Distribution according to site of oral lesion

		Frequency	Percent
Site of the oral lesions	Palatine tonsils	6	12.0
	Buccal mucosa	17	34.0
	Dorsum of tongue	6	12.0
	Lateral border of tongue	6	12.0

	Ventral surface of tongue	6	12.0
	Palate	2	4.0
	Floor of mouth	2	4.0
	Gingio-buccal	1	2.0
	Gingiva	1	2.0
	Lip	1	2.0
	Retromolar triagone	2	4.0
	Total	50	100.0

Distribution according to site of oral lesion revealed the results as follows: Palatine tonsils-12%, Buccal mucosa-34%, Dorsum of tongue-12%, Lateral border of tongue-12%, Ventral surface of tongue-12%, Palate-4%, Floor of mouth-4%, Gingio-buccal-2%, Gingiva-2%, Lip-2% and Retromolar triagone-4%.

Table 4: Distribution according to site of oral lesion

		Frequency	Percent
Habits and addiction	Tobacco chewing	11	22.0
	Tobacco smokers	21	42.0
	Both Tobacco chewing and smoking	6	12.0

Prevalence of tobacco chewing in our study was 22% and that of smokers was 42%. Both Tobacco chewing and smoking was observed to be 12%.

Table 5: Distribution according to histopathology findings of oral lesion

		Frequency	Percent
Non-Neoplastic Lesions (n-19)	Tonsilitis	6	12.0
	Pseudo-epitheliomatous hyperplasia	2	4.0
	Inflammatory lesion	2	4.0
	Pyogenic granuloma	2	4.0
	Mucocele	2	4.0
	Mucous retention cyst	2	4.0
	Ranula	1	2.0
	Squamous papilloma	2	4.0
Benign lesions (n-4)	Hemangioma	2	4.0
	Lipoma	2	4.0
Premalignant Lesions (n-08)	Leucoplakia	1	2.0
	Mild Dysplasia	1	2.0
	Oral submucous Fibrosis	2	4.0
	Erythroplakia	2	4.0

	Severe dysplasia	1	2.0
	Oral Lichen Planus	1	2.0
Malignant Lesions (n-19)	Squamous cell carcinoma	15	30.0
	Basal cell carcinoma	2	4.0
	Mucoepidermoid carcinoma	2	4.0
Total		50	100.0

Non neoplastic lesions accounted for 38% in our study and the histopathology revealed the results as follows: Tonsilitis-12%, Pseudo-epitheliomatous hyperplasia-4%, Inflammatory lesion-4%, Pyogenic granuloma-4%, Mucocele-4%, Mucous retention cyst-4%, Ranula-1% and Squamous papilloma-4%.

Benign lesions accounted for 8% in our study and the histopathology revealed the results as follows: Hemangioma-4%, Lipoma-4%.

Pre malignant lesions accounted for 16% in our study and the histopathology revealed the results as follows: Leukoplakia-2%, Mild dysplasia-2%, Oral submucous Fibrosis-4%, Erythroplakia-4%, Severe dysplasia-2% and Oral Lichen Planus-2%.

Malignant lesions accounted for 38% in our study and the histopathology revealed the results as follows: Squamous cell carcinoma-30%, Basal cell carcinoma-4% and Mucoepidermoid carcinoma-4%.

Discussion

We included total 50 patients presenting with lesions of oral cavity. Majority of the cases were from 41-50 years age group i.e. 28% followed by 26% from 31-40 years, 16% from 51-60 years, 12% from above 60 years, 10% from 21-30 years and least i.e. 8% from 18-20 years age group. Mean age of the study population was 44.6±12.6 years. 58% were males and 42% were females. **(Table 1 and 2)**

Table 6: Our findings were compared with the authors in the following table

Age group in years	**Our findings (%)**	Mehrotra R et al[8](2006)	Muhsen HJ et al[9] (2009)
18-20	8.0		
21-30	10.0	9.5	
31-40	26.0	45.05	
41-50	28.0	11.6	14.04
51-60	16.0		
>60	12.0		
Male to female ratio	1.38:1	2.78:1	1.89:1

Our findings are matching with the above-mentioned authors.

Distribution according to site of oral lesion revealed the results as follows: Palatine tonsils-12%, Buccal mucosa-34%, Dorsum of tongue-12%, Lateral border of tongue-12%, Ventral surface of tongue-12%, Palate-4%, Floor of mouth-4%, Gingio-buccal-2%, Gingiva-2%, Lip-2% and Retromolar triagone-4%. **(Table 3)**

Table 5: Our findings for site of oral lesion were compared with the authors in the following table

	Our findings	Mishra V et al[10] (2009)	Awange DO et al[11] (2009)
Palatine tonsils	**12**		
Buccal mucosa	**34**	54.5	
Dorsum of tongue	**12**	11.2	
Lateral border of tongue	**12**		
Ventral surface of tongue	**12**		
Palate	**4**		
Floor of mouth	**4**		
Gingio-buccal	**2**		
Gingiva	**2**		79.5
Lip	**2**		
Retromolar triagone	**4**		

Prevalence of tobacco chewing in our study was 22% and that of smokers was 42%. Both Tobacco chewing and smoking was observed to be 12%. **(Table 4)**

Non neoplastic lesions accounted for 38% in our study and the histopathology revealed the results as follows: Tonsilitis-12%, Pseudo-epitheliomatous hyperplasia-4%, Inflammatory lesion-4%, Pyogenic granuloma-4%, Mucocele-4%, Mucous retention cyst-4%, Ranula-2% and Squamous papilloma-4%. Benign lesions accounted for 8% in our study and the histopathology revealed the results as follows: Hemangioma-4%, Lipoma-4%. Pre malignant lesions accounted for 16% in our study and the histopathology revealed the results as follows: Leukoplakia-2%, Mild dysplasia-2%, Oral submucous Fibrosis-4%, Erythroplakia-4%, Severe dysplasia-2% and Oral Lichen Planus-2%. Malignant lesions accounted for 38% in our study and the histopathology revealed the results as follows: Squamous cell carcinoma-30%, Basal cell carcinoma-4% and Mucoepidermoid carcinoma-4%. **(Table 5)**

Table 8: Our findings for site of oral lesion were compared with the authors in the following table

	Our findings	Mehrotra R et al[8](2006)	Muhsen HJ et al[9] (2009)
Tonsilitis	6	10	22.3
Pseudo-epitheliomatous hyperplasia	2	4	12.3
Inflammatory lesion	2		
Pyogenic granuloma	2		
Mucocele	2		
Mucous retention cyst	2		
Ranula	1		
Squamous papilloma	2	1	
Hemangioma	2	1.2	2.3
Lipoma	2		

Leucoplakia	1		
Mild Dysplasia	1		
Oral submucous Fibrosis	2		
Erythroplakia	2	5.5	3.6
Severe dysplasia	1		
Oral Lichen Planus	1		
Squamous cell carcinoma	15		
Basal cell carcinoma	2	29.5	26.3
Mucoepidermoid carcinoma	2	6	10.2

Conclusion

- Benign lesions accounted for 8% in our study and the histopathology revealed the results as follows: Hemangioma-6%, Lipoma-3%.
- Pre malignant lesions accounted for 16% in our study and the histopathology revealed oral submucous fibrosis-4% and erythroplakia-4%.
- Malignant lesions accounted for 38% in our study and the histopathology revealed squamous cell carcinoma as predominant findings in 30% cases.

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