<u>Original Research Article</u>

Clinical Profile and Histopathological Spectrum of Oral Cavity Malignancies in Central Rajasthan

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Abstract

Introduction: Oral cavity lesions are frequently encountered in India. An oral cancer stands at number two position in India and is only behind Breast cancers. The increase in number of cases of oral cancer is an important concern for community health as it is one of the common types of cancers in India. Because of detection in the late phase, the chances of cure are also low almost negligible; leaving 5-year survival rates of 20% only. On suspicion of malignancy, histopathological examination of oral cavity lesions is the gold standard for confirmatory diagnosis. Histopathological evaluation gives us the information regarding type of malignancy and its differentiation.

Methods: This is a retrospective study conducted over a period of two year. The biopsies of lip and oral cavity lesions received from ENT department, Surgery department and Dental department at the Department of Pathology during the study period were included in our study. The tissues were processed as per protocol. All the patients with histopathological diagnosis as malignant lesion were included for analysis of this study. Statistical analysis was done using Microsoft Excel 2019. The analysis was done by calculating ratios, proportion, and percentage.

Results: We received a total of 278 biopsies of oral cavity lesions during the study period, out of which 115 cases (41.36%) were diagnosed histologically as malignant lesions and were included in this study. Remaining 58.6% patients were diagnosed with inflammatory and benign lesions. 68% patients were males and 32% were females. The age ranged from 30 years to 83 years with mean age was 63 years. Maximum number of patients were in their sixth decade of life with 28% cases. Maximum patients were laborers and agriculturists with lower middle class. The most common presenting symptom was oral ulcers. 63% of patients had history of bidi or cigarette smoking, 61% are chronic consumers of smokeless tobacco. 25% patients were using both smoking and nonsmoking tobacco. Alcoholic history was there in 32% patients and 20% patients were both smokers and alcoholics. Most common site of lesion was buccal mucosa in 28% cases followed by alveolus in 14% cases. On histological examination, squamous cell carcinoma was the most common type of malignancy. Among SCC, most common was well differentiated tumors.

Conclusion: Malignancy of oral cavity and oropharynx is a important concern in developing countries specially in male population. Population in lower social economic strata are more at

risk and tobacco both smoking and nonsmoking form is potential risk factor. Histological examination plays a important role in early detection of malignancies so that early treatment can be started and improve the prognosis of patients.

Keywords: Oral Cancers, Histopathology, Squamous cell carcinoma, Tobacco

Background

Oral cavity lesions are frequently encountered in ENT and surgery OPD in India. Among all oral cavity lesions, the incidence of oral cancers is rising at a significant pace in developing countries. Overall, lips and oral cavity cancers stands at 16th number as per GLOBOCAN 2020 with 377,713 new cases every year and 177,757 reported deaths. India contributes to around one-third of the total cases with 135,929 new cases and 75,290 reported deaths as per Globocan 2020-India [1]. Oral cancers stands at number two position in India and is only behind Breast cancers. The increase in number of cases of oral cancer is a important concern for community health as it is one of the common types of cancers in India [2]. In India, due to difficult access to tertiary care and cancer centres and tendency of patients to ignore symptoms and to seek medical care late, the concern for oral cancer is significantly higher as more than 70% of the cases are reported in the advanced stages (AJCC Stage III & IV). Because of detection in the late phase, the chances of cure are also low almost negligible; leaving 5-year survival rates of 20% only [3]. The most important risk factor for oral cancers is tobacco, followed by alcohol. Tobacco consumption in both non-smoking and smoking form is a prime cause of cancer. Chewing paan, which is a old tradition in Indian subcontinent, containing betel leaves, with lime, catechu etc., is also a important source of oral cancers [4]. The habit of chewing paan, zarda, tobacco leaves mixed with raw lime for a long duration, causes prolonged exposure of oral mucosa to carcinogens present in these, along with repeated abrasion and injury of epithelium linings.

Oral lesions like, leukoplakia, erythroplakia and lichen planus are considered premalignant lesions with high risk for malignant transformation. Brush biopsy and cytological examination of the lesions are the initial investigations. On suspicion of malignancy, histopathological examination of oral cavity lesions is the gold standard for confirmatory diagnosis [5]. Histopathological evaluation gives us the information regarding type of malignancy and its differentiation [6].This study was conducted at a tertiary care teaching center to evaluate the spectrum of oral malignancy lesions in central Rajasthan.

Methods

This is a retrospective study conducted over a period of two year from July 2020 to June 2022 at the Department of Pathology, at a tertiary care teaching hospital. The biopsies of lip and oral cavity lesions received from ENT department, Surgery department and Dental department at the Department of Pathology during the study period were included in our study. Specimens with improper clinical records, Autolyzed specimens or specimens received without fixative, patients with benign and inflammatory lesions and patients who refused to give consent were excluded from the study. The clinical and relevant data were recorded from requisition form and clinical records. The specimens received were fixed in 10% buffered formalin. Gross examination was done, and findings recorded. The tissues were sectioned as per protocol and processed by wax block method. Slides were stained with hematoxylin and eosin (H&E) stain and examined under light microscope. All

the patients who with histopathological diagnosis as malignant lesion were included for analysis of this study. Statistical analysis was done using Microsoft Excel 2019. Data was collected and entered into excel. The analysis was done by calculating ratios, proportion, and percentage.

Results

In our study we received a total of 278 biopsies of oral cavity lesions during the study period, out of which 115 cases (41.36%) were diagnosed histologically as malignant lesions and were included in this study. Remaining 163 (58.6%) patients were diagnosed with inflammatory and benign lesions. Table no. 1 show general and demographic characteristics of study group. Out of the 115 patients, 78 (68%) were males and 37 (32%) were females. The age ranged from 30 years to 83 years with mean age was 63 years. Maximum number of patients were in their sixth decade of life with 32 cases (28%). Maximum patients were laborers with 56 (49%) and agriculturists with 25 cases (22%). Maximum number of patients belonged to lower middle class. [Table 1]

Table 1: General characteristics of study group

Characteristic	No. of Cases (n=115)	Percent
Gender		
Male	78	68%
Females	37	32%
Age Group		
30-39	6	5%
40-49	17	15%
50-59	32	28%
60-69	24	21%
70-79	27	23%
>=80	9	8%
Occupation		
Agriculture	25	22%
Household work	15	13%
Laborer	56	49%
Business	13	11%
Office work	6	5%
Socio economic status		
Upper	11	10%
Upper middle	31	27%
Lower middle	46	40%
Lower	27	23%

The most common presenting symptom in our study was oral ulcers with 60 patients presented to OPD with this complaint. Other complaints were pain in mouth, mass or growth in mouth, dysphagia, oral bleeding etc. [Figure1]. Out of total 115 patients in study group with malignant oral and oropharyngeal cancer, 63% gave history of bidi or cigarette smoking, 61% are chronic consumers of smokeless tobacco like zarda, kheni, pan or gutkha. 25% patients were using both smoking and nonsmoking tobacco. Alcoholic history was there in

32% patients and 20% patients were both smokers and alcoholics. Only 9% patients gave no history of any kind of predisposing habits for oral malignancy. [Table no. 2] Out of the 37 female patients 14 gave history of chewing tobacco or pan and 3 patients admitted using bidi. On comparing the habit of tobacco and alcohol consumption between patients with malignant lesions and without malignant lesions, the results were statistically significant (p-value=0.002 (HS).
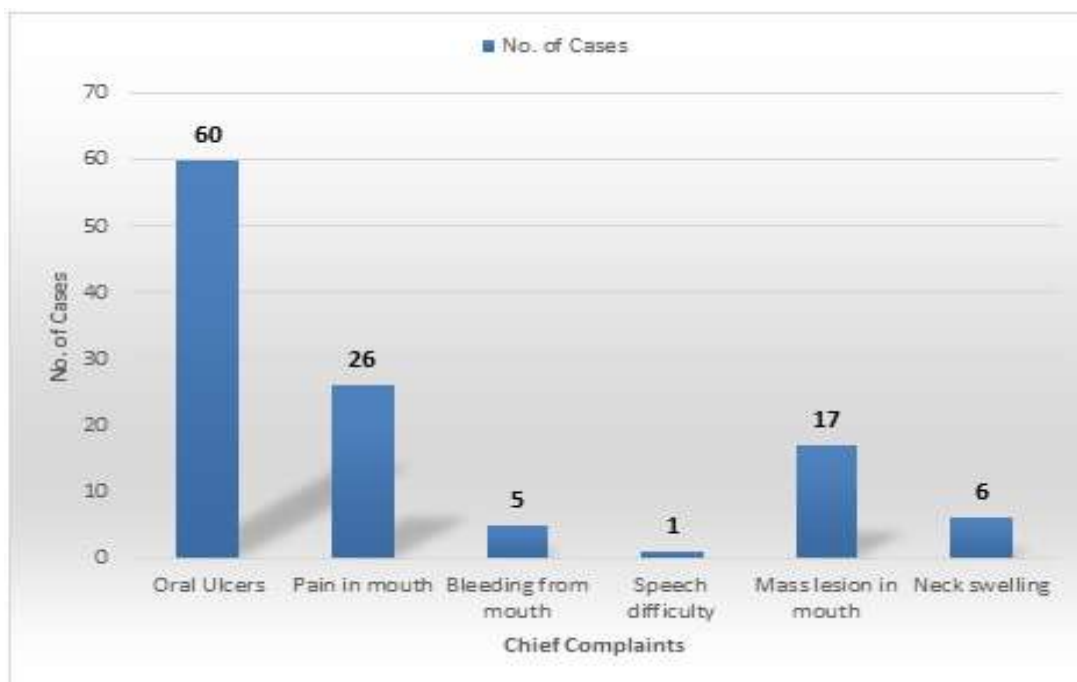

Figure 1: Presenting symptoms of the cases in study group

**Table 2: Habits predisposing to malignancy in in all cases received at the department**

Habit	Malignant	Percent(of malignant)	Benign/ Inflammatory	Percent (of benign)	Total
Zarda / Gutka	18	16%	21	13%	39
Smoking (Bidi/cigarette)	21	18%	26	16%	47
Smoking + Zarda	29	25%	24	15%	53
Alcoholic	14	12%	33	20%	47
Alcohol+	23	20%	20	12%	43
No habits	10	9%	39	24%	49
	115		163		278
Chi-squared: 18.553, dF=5, p-value=0.002 (HS)					

Most common site of lesion was buccal mucosa in 28% cases followed by alveolus in 14% cases. Malignancies of tonsils, vallecula and retromolar triangle were found least common in our study with 4% cases each.
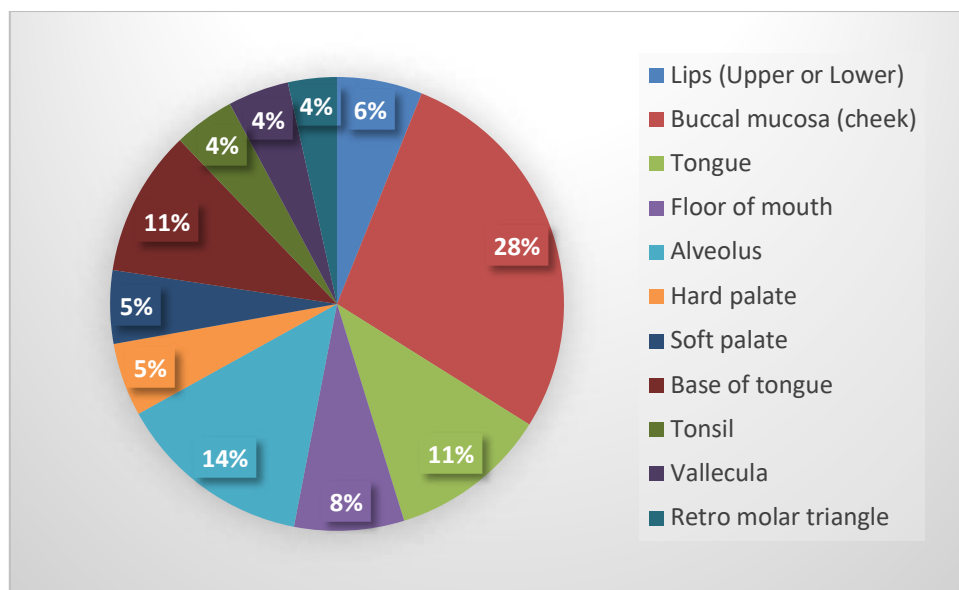
Figure 2: Site of malignancy

On histological examination, squamous cell carcinoma was the most common type of malignancy in our study with 91 (79%) cases. In squamous cell carcinoma cases, 2 were sarcomatoid type and one was basaloid squamous cell carcinoma. Among SCC, most common was well differentiated tumors with 51 () cases, followed by moderately differentiated with 31 () cases.
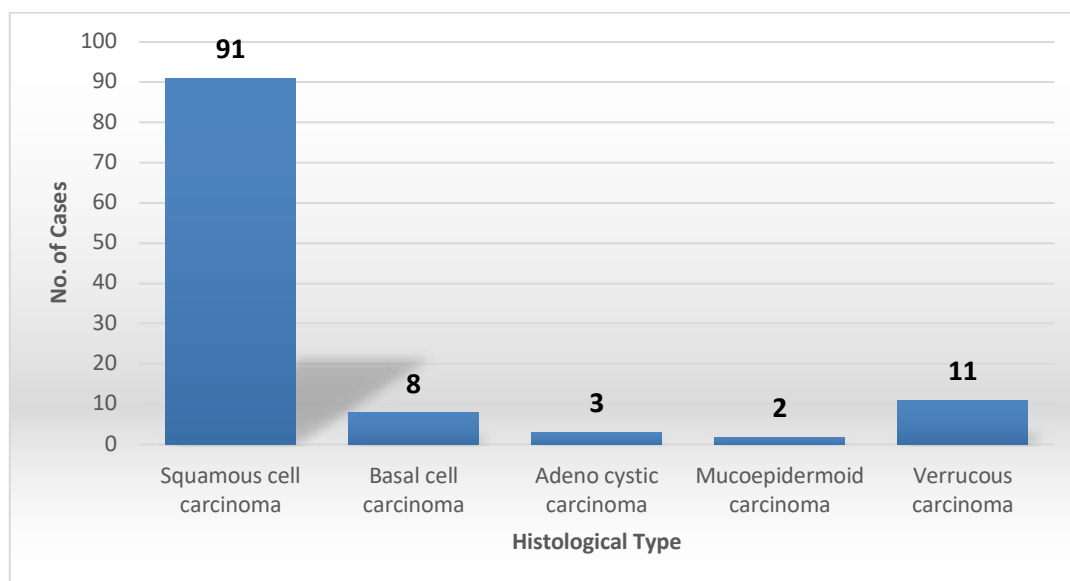

Figure 3: Histological type of oral cancers in study group

**Table 3: Differentiation of squamous cell carcinoma in study group**

| Differentiation	No. of Cases	Percent
Well	51	56.04%
Moderate	31	34.06%
Poor	7	7.69%
Undifferentiated	2	2.19%
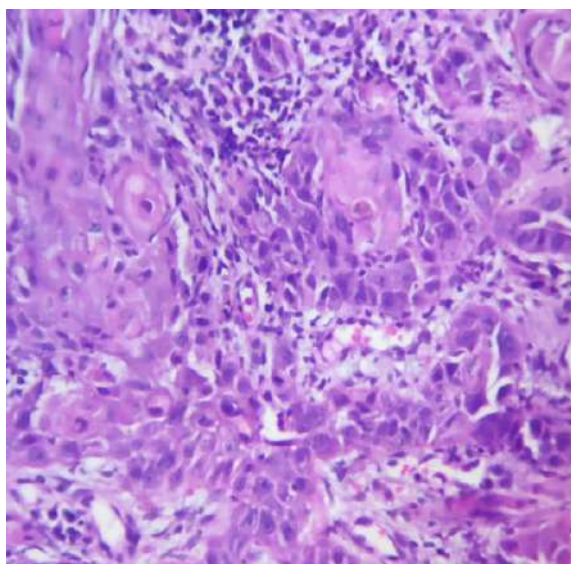
Figure 4: Showing malignant squamous cells and keratinization in between in moderately differentiated squamous cell carcinoma (H&E, 40x)
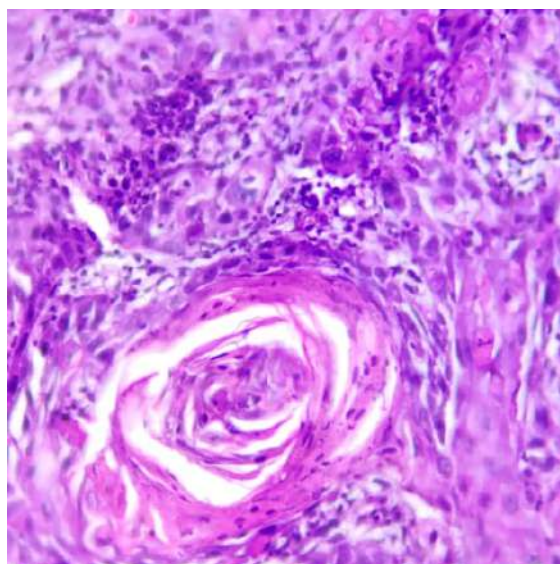
Figure 5: Formation of keratin pearl in well differentiated squamous cell carcinoma (H&E, 40x)
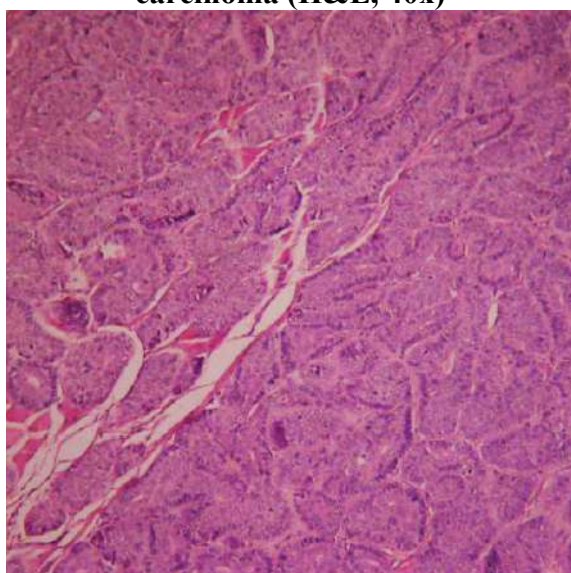
Figure 6: Section showing Basaloid type of squamous cell carcinoma (H&E, 10X)
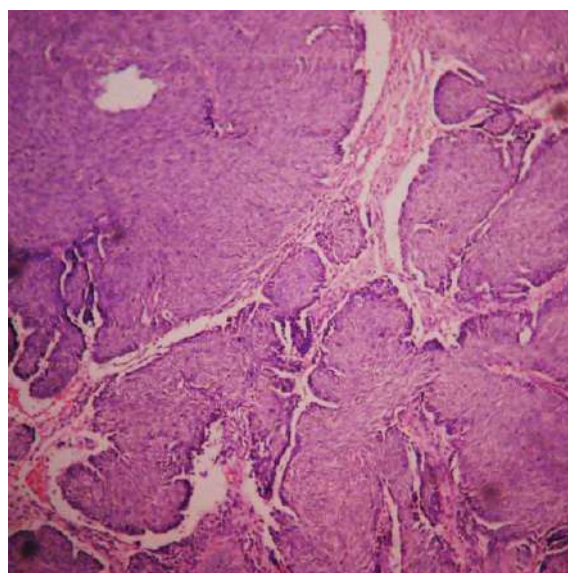
Figure 7: Section showing basal cell carcinoma of upper lip (H&E, 10x)

Discussion

This was a two-year retrospective study done at a tertiary care teaching hospital. In our study we found male predominance among cases diagnosed with malignant lesions. The comparative details are shown in Table no. 5.

Other studies [7-10] also showed male predominance. In the study of Brandizzi D *et al* [11] they found male: female ratio of almost 1:1. Gender is not described as a

risk factor for oral cancers in literature [12]. The difference between males and females may be due to the high rate of tobacco and alcohol consumption among males. The maximum cases in our study were in sixth decade.

Other similar studies also reported occurrence of oral cancer in patients above 50 years of age. The mean age in most studies was between 61 to 65 years which

is in concordance with our study. This signifies that oral cancer screening

programs must be initiated for people with age above 50 years or age.

Table 4: Comparison of different studies with present study

Study	Gender		Age Group	Mean Age
	Male	Female		
Patel MM *et al* [7]	75%	25%	> 45 years	-
Mehrotra R *et al* [8]	76.57%	23.43%	50 to 59	-
Dhar PK *et al* [9]	68.30%	31.70%	51 to 60	-
Dias *et al* [10]	80%	20%	-	62 years
Brandizzi *et al* [11]	55%	45%	-	62 years
Present study	68%	32%	50 to 59	63 years

In our study, most of the patients affected by malignancy were laborers with 49% cases Richard W et. al. [13] also reported that manual labourers (84%) a most affected group. Balaram *et al* [14] in their study found industrial manual workers and farmers with 2-fold increased risk of oral cancer compared with other occupations. Most patients in our study belonged to lower middle class followed by lower class with 40% and 23% cases respectively. Khandekar SP *et al* [15] also reported highest incidence in lower middle class. People with lower income strata including laborers and with poor living conditions and low literacy are more prone to malignant lesions, due to poor oral hygiene, lower accessibility to higher medical care facilities and tendency to seek medical care late.

In our study, smoking tobacco and consumption of nonsmoking tobacco and alcohol habit was observed in a large number of patients. However the habit was seen more common in males than in females. Khandekar SP *et al* [15]. Iype *et al* [16] and Durazzo MD *et al* [17] also reported high percentage of patients with tobacco smoking and alcohol consumption history.

This signifies that smoking and nonsmoking tobacco and alcoholism is indeed a significant risk factor for development of oral cancers. Buccal mucosa of cheek was the commonest site

involved in our study followed by alveolus with 28% and 14% cases respectively. Tongue was involved in 11% cases. Patel MM [7] and Pandya AN [8] reported the tongue as the commonest site. The variation in our study may be due to the smaller sample size and differences in the habits of study group. However, Richard M *et al* [13], Sankaranarayanan R *et al* [18] and Abdul W *et al* [19] found Buccal mucosa to be the commonest site of malignancy of oral cavity which is in concordance with our study.

Anterior parts of mouth like buccal mucosa, anterior 2/3 of the tongue, alveolus, and lips are more commonly involved sites for malignant lesions. This could be due to prolonged exposure of these parts with carcinogens present in tobacco. Histologically most common type of carcinoma was squamous cell carcinoma (79% cases) followed by Verrucous carcinoma (10%).

Most other studies conducted in India and other regions also reported similar finding with squamous cell carcinoma being the commonest and verrucous carcinoma the second most common type of cancer of oral cavity. In our study 56% of tumors were well differentiated making it the most common type of differentiation. Most other studies reported well differentiated cancers as the commonest which is in concordance with our study.

Conclusion

Malignancy of oral cavity and oropharynx is a important concern in developing countries specially in male population. Population in lower social economic strata is more at risk and tobacco both smoking and nonsmoking form is potential risk factor. Histological examination plays a important role in early detection of malignancies so that early treatment can be started and improve the prognosis of patients.

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