



## Oral and Oropharyngeal Malignancy: An Institutional Clinicopathological Study among Patients with Agents Like Tobacco (Smoked/Smokeless) and HPV Pathogens at Kanpur, India

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### Abstract

**Background:** Oral and oropharyngeal malignancy such as squamous cell carcinoma is the most common malignancy representing more than 80% of all oral cancer. Oral malignancy have etiological factors like consumption of tobacco in both smoked and smokeless form, occupational exposure to carcinogens, infections with Human papilloma viruses as additional risk factors.

**Aim:** The purpose of this study was to analyze the incidence, demographic information and clinicopathological features of patients with oral squamous cell carcinoma as main oral and oropharynx malignancy.

**Material and Methods:** This study duration was Jun 2018 to Feb 2019. During this period all patients were examined and suspected cases were screened for malignant changes. A total of 109 histopathologically confirmed oral malignant cases were taken for study and data was analyzed by using appropriate statistical software

**Results:** In our study the majority cases of oral and oropharynx malignancy were found of oral squamous cell carcinoma 98.16% in the 3rd to 4th decades of life, males accounting for 71.55%. The most common site was the buccal mucosa 52.08% and patient had habit of tobacco use either in the form of smokeless 60.41% or smoked 37.5% and Human papilloma virus presence was confirmed in 2 cases.

**Conclusion:** In our location population the data of study reveals that a significant proportion of the oral and oropharyngeal malignancy cases are observed in patients of 45 years due to increase use of tobacco.

**Keywords:** Oral Cavity; Malignancy; Tobacco; Squamous Cell Carcinoma

### Introduction

Cancers of the oral cavity and oropharynx represent 6th most common cancer and approximately three percent of all malignancies in men and two percent of all malignancies in women worldwide [1]. It is the most common cause of cancer in India accounting for up to 40% of all cancers [2,3]. The annual estimated incidence is around 275,000 for oral and 130,000 for pharyngeal cancers cases occurring in developing countries [4]. Numerous studies have evaluated the clinicopathological outline of oral and oropharyngeal malignancies; and this new difference can be attributed to the personal habits related to tobacco like smoking,

alcohol consumption, and chewing guthka; oral cancer risk may increase with poor oral hygiene, diet, nutritional status, sexual behavior, and genetic factors [5-7].

In the recent years, human papillomavirus (HPV) infection is found to be responsible for an onset of oropharyngeal cancers that arise predominantly from the lingual and palatine tonsils within the oropharynx. Gillison ML stated that oral HPV infection has recently been associated with sexual behavior; particularly with number of multiple oral sex partners [8].

Oral malignancies are more common in males beyond 5<sup>th</sup> decade of life; however, there is a rising trend in the younger age

group in recent years. The male to female ratio is also showing a slow decline, as there is rising incidence in oral cancers in women [9,10]. In India, cancer of the oral cavity and oropharynx is the commonest cancer in men and third commonest cancer in women. Tobacco chewing has emerged as a stronger risk factor of oral carcinoma than smoking, since there is a direct exposure of tobacco chewing on the mucosa for longer period. Women have substantially high level of chewing tobacco habits than men in many rural areas. The correlation between use of smokeless tobacco products and oral cancers is complicated by heterogeneity in smokeless tobacco containing tobacco specific nitrosamines [11]. In India, smokeless tobacco in form of gutkha is often mixed with other carcinogenic substances (betel, areca nut, and lime) and dose response connections were found with increased intensity and duration of smokeless tobacco use and malignant lesions of the oral cavity [12,13]. This institutional study was performed to assess the incidence, demographic information and clinicopathological features of patients with oral squamous cell carcinoma as main oral and oropharynx malignancy.

### Material and Methods

This institutional study was undertaken from June 2018 to February 2019 time period after getting clearance from the Institutional Human Ethics Committee and verbal consent of patient were taken. During study period all patients visiting to dental outpatient department were examined and suspected cases with complain of swelling, pain in throat, growth, voice change white patch and ulcers in oral cavity were screened for malignant changes; Fine needle aspiration cytology was performed and demographic data was recorded. A total of 109 clinical and pathologically sectioned and stained with hematoxylin and eosin stain and examined under light microscope (10X) confirmed oral and oropharyngeal malignant cases were taken for study and collected data entered in Microsoft Excel 2007 and were analyzed by using Statistical Package for the Social Sciences software (SPSS) version 16.0 results were described in percentage.

### Results and Discussion

In India, cancer of the oral cavity and oropharynx is the commonest cancer in men and third commonest cancer in women. [11] Oral cancers are more common in males than females, but in recent years rise is observed in the incidence of oral malignancies in females. This study was conducted with 109 clinicopathologically confirmed oral and oropharyngeal malignant cases among which oral squamous cell carcinoma was found to be most common malignancy with its well differentiated, moderately differentiated and poorly differentiated variants.

In our study, majority in number 78 (71.55%) were males [Table 1]. In Patel., *et al.* study 75% of oral cancer patients were males [9] while Bhat., *et al.* found that oral cancers have higher preponderance for males (77%) and Bhat SP., *et al.* found 74.3% males as main participants which is similar to the present study [14,15]. The increase in the incidence of oral and oropharyngeal malignancies in males may be due to the increased rate of tobacco and alcohol consumption. Moreover, tobacco is consumed by males in both smoking and chewing form like gutkha, whereas females usually do not indulge in smoking [14].

Sex of patients	n (percentage)
Male	78 (71.55%)
Female	31 (28.44%)
	109 (100%)

**Table 1:** The distribution of the cases according to sex.

In the present study maximum patients were between 36-45 (47.95%) years of age group, followed by 46-55(39.58%) years and 26-35 (10.41%) years. Only 2.08% of patients were of 25 years of age group [Table 2]. Patel., *et al.* in their study have reported that 12.9% of oral and oropharyngeal malignancies were below 35 years of age, 23.8% between 35 and 45, which is found somewhat similar to our study [9]. While in study done by Durazzo., *et al.* only 8.6% of the patients were present in 40 years or less [10]. Oral malignancy commonly occurs in 5<sup>th</sup> to 6<sup>th</sup> decade of life, although in recent years there is increase in the incidence of cases among 40 years of age group may be because of new life styles.

Malignancy	WD n (%)	MD n (%)	PD n (%)
25Years	1(2.08%)	2(5.55%)	14(56%)
26-35Yrs	5(10.41%)	6(16.6%)	4(16%)
36-45 Yrs	23(47.95%)	15(41.6%)	3(12%)
46-55Yrs	19(39.58%)	13(36.1%)	4(16%)
Total	48(100%)	36(100%)	25(100%)

**Table 2:** The distribution of the cases according age group.

Tobacco chewing in the form of gutkha has emerged as a stronger risk factor of oral carcinoma than smoking, since there is a direct exposure of tobacco chewing on the mucosa for longer period, while smoking has more contact with pharynx, larynx, and lungs. Women have considerable high level of chewing habits than men in many rural areas of country [16,17]. In our study 60.41% patients were consuming smokeless tobacco in the form of gutkha and 37.55% were consuming smoked tobacco [Table 3] while in the study of T.Smitha 40.86% was present in patient consuming

smokeless chewing tobacco which is found similar to our study [16]. Bhat SP, *et al* 50.9% subjects who had history of smoking while (48.5%) were consuming smokeless tobacco in the form of gutkha or pan (betel quid) was found almost similar to our study although study done by Durazzo, *et al* found tobacco smoking in 80.8% cases of oral malignancy [10,15]. The present study suggested the increase use of smokeless tobacco in communities now a days in the form of gutkha and the relationship between use of smokeless tobacco products and oral cancers is complicated by heterogeneity in smokeless tobacco containing tobacco specific nitrosamines. In India, smokeless tobacco in form of gutkha is often mixed with other carcinogenic substances such as betel, areca nut, and lime and strong dose response relationships were observed with increased intensity of smokeless tobacco use and risk of premalignant and malignant lesions of the oral cavity [17]. In some countries, HPV is emerging as a common etiological factor for oral and oropharyngeal malignancies, mostly as a result of oral sex. In the present study we found the presence of HPV but in the very low number that is 2.08% in well differentiated and 2.77% in moderately differentiated cases among males and females respectively which is rare finding [Table 3].

Malignancy	WD	MD	PD
Smokeless Tobacco	29(60.41%)	14(38.8%)	13(52%)
Smoked Tobacco	18(37.5%)	21(58.3%)	12(48%)
HPV	1(2.08%)	1(2.77%)	0
Total	48(100%)	36(100%)	25(100%)

**Table 3:** The distribution of the cases according to etiologic factors.

Site of involvement in oral malignancy has an irregular distribution in oral cavity. In our study, buccal mucosa was the commonest site of oral malignancy, comprising 52.08% cases, followed by floor of mouth 29.16% and oral tongue in 6.25%. Other sites were hard palate and pharynx was about 8.33% [Table 4]. Involvement of buccal mucosa as most common site in oral and oropharyngeal malignancies similar to studies done by; Bhatt SP *et al* reported 27.2%, Ahluwalia, *et al* 55.6%, Walid, *et al* 34% and Ahmed, *et al* reported buccal mucosa to be the commonest site for oral malignancy [15,18-20]. It is also perceived that oral malignancy affects mainly the anterior part of the oral cavity that comes largely in contact with the smokeless tobacco while chewing. Smokeless tobacco, which has carcinogenic agents like carbon monoxide, nicotine, hydrogen cyanide, ammonia, benzyl, phenol, benzanthrene and benzopyrene, on chewing can cause chronic inflammation of the oral mucosa and carcinogenesis [9,21].

Malignancy	WD	MD	PD
Buccal mucosa	25(52.08%)	17(47.2%)	12(48%)
Floor of mouth	14(29.16%)	4(11.11%)	3(12%)
Labial mucosa	2(4.16%)	7(19.4%)	5(20%)
Tongue	3(6.25%)	5(13.8%)	3(12%)
Palate/Pharynx	4(8.33%)	3(8.3%)	2(8%)
Total	48(100%)	36(100%)	25(100%)

**Table 4:** The distribution of the cases according to their anatomical site.

Squamous cell carcinoma with its variants found to be the most common histological type noted in the present study cases 98.16% [Table 5]. There were 2 cases of adenoid cystic carcinoma with 1.83%. In the study done by Bhat, *et al* 92% cases and Bhat SP, *et al* found 82.6% cases, Durazzo, *et al* 90.3% and Ahluwalia, *et al* reported 89.9% cases of squamous cell carcinoma which is found to be similar to present study [10,14,15,18]. In this study, maximum number of cases was well differentiated 44.03%, followed by moderately differentiated 33.02% and poorly differentiated 22.9% [Table 6]. Similarly Raj HC in their study found 50.8% cases of well differentiated squamous cell carcinoma and 29.2 and 20% cases of moderately and poorly differentiated cases respectively [22]. Patel, *et al*, Bhat, *et al*, Ahmed F, *et al*, T Smitha and Dias, *et al* in their studies reported well differentiated squamous cell carcinoma as the most common variant [9,14,16,20,23].

Histopathological diagnosis	n (109)	Percentage %
Squamous cell carcinoma	107	98.16%
Adenoid cystic carcinoma	2	1.83%

**Table 5:** The distribution of the cases according to their histopathological diagnosis.

Squamous cell carcinoma variant	n 109 (percentage)
WD	48(44.03%)
MD	36 (33.02%)
PD	25(22.9%)
Total	100%

**Table 6:** The sex wise distribution of the cases of squamous cell carcinoma variants.

## Conclusion

Oral and oropharyngeal malignancies are among the most common malignancies encountered in clinical practice. Males are more commonly affected than females usually in 5th to 6th decade of life although oral malignancy are also increasing in younger

population due to the habit of consuming alcohol and tobacco in gutkha form. Anatomically, the buccal mucosa of the oral cavity is most commonly involved, due to the longer duration of contact with the carcinogens in tobacco. In the present study squamous cell carcinoma is the most common histological type with its well differentiated variant and HPV presence was also reported although in small number. In India, OSCC is a major health problem and strategies must be made to improve the present scenario of health care service. This study reflects that there is an urge to raise awareness and educate people regarding detrimental effects of tobacco consumption, importance of dental hygiene, oral self-examination and the availability of preventive health care services. Dental fraternity is best to examine oral cavity and every complaint of patient should be taken in consideration and all oral lesions should be examined properly to avoid the consequences. Effective oral health programs for spread of knowledge and awareness, prevention, early diagnosis and management, and follow up of oral cancer must be implemented.

### Conflict of Interest

None

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