



## RESEARCH ARTICLE

### CLINICOPATHOLOGICAL STUDY OF ORAL CANCERS

<sup>1</sup>Dr. Deepak Kotwal, <sup>2</sup>Dr. Divya Gupta, <sup>3</sup>Dr. Preeti Dhingra and <sup>\*</sup><sup>4</sup>Dr. Manish Sharma

<sup>1</sup>Senior Resident, BLK super speciality Hospital, Delhi

<sup>2</sup>Medical Officer, Department of Health, Jammu

<sup>3</sup>Senior Resident, Bombay

<sup>4</sup>Senior Resident, Government Medical College, Jammu

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#### ABSTRACT

**Introduction:** Oral cancer is the sixth most common cancer in the world and ranks number one (12 % of all cancers) among men and number three (8% of all cancers) among women in India. The most common oral cancer is squamous cell carcinoma. Tobacco and alcohol are the most important risk factors associated with oral cancer. Diagnosis of oral squamous cell carcinoma is confirmed with a biopsy for histopathological examination.

**Aims & Objectives:** To find out the topographical distribution, incidence of lymph node metastasis, type of malignancy and dietary habits of patients of oral cancers and associated predisposing factors.

**Material & Methods:** The present study was conducted for a period of one year. Out of the patients attending/admitted in the Department of E.N.T, with suspected oral lesions, thirty histologically proved cases of oral cancer were taken for the study. After history and examination, all the patients were subjected to complete routine investigations. Biopsy (punch or excision biopsy) was taken from all the 30 patients for histopathological confirmation of diagnosis and for categorizing the type of malignancy.

**Results:** Majority of patients (50%) were in the age group of 51-60 years with mean age of  $53 \pm 7$ . Majority of patients (93%) were males with male: female ratio of 14:1 with most common site involved being lateral border of tongue (36.6%) followed by buccal mucosa (30%). Out of the 30 patients, only 10 had palpable lymph nodes. 6 patients had N1 disease, 1 patient had N2a disease, 2 patients had N2b disease and 1 patient had N2c disease. There were no patients who had lymph node more than 6cm i.e. N3. Most common risk factor in the present study was tobacco use whether alone or in combination with alcohol i.e. in twenty four (80%) cases. 80% patients in the present study were tobacco users. Majority of males (73%) had a history of tobacco consumption, whereas tobacco use in females was low (6%). Among tobacco users, 70% patients were tobacco chewers and 12.5% were tobacco smokers. Majority of patients (66%) consumed fruits occasionally. The majority of patients (53%) consumed green leafy vegetables occasionally. The majority of patients (83%) were non vegetarian whereas only (16%) were vegetarians. In the present study most common clinical complaint was ulceration followed by swelling. Squamous cell carcinoma was the most common histological type found in 93% of patients in the present study.

**Conclusion:** There is high male predominance (14:1) since in our state tobacco intake, which is most potent risk factor, is predominantly seen in males and also because of male labour migration to our state. Tobacco intake for more than five years is commonest of all risk factors. Chewing of tobacco was more prevalent risk factor (70%) as compared to smoking. Buccal mucosa is next common site (30%) as it is affected more by chronic irritation caused by tobacco and alcohol. Majority of our cases were non vegetarian, though the exact reason for this is not fully established. Regular use of fruits and green leafy vegetables is found to decrease the risk of oral cancer, may be because of more minerals and antioxidants properties in them.

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#### INTRODUCTION

Oral cancers can be defined as a neoplasm involving the oral cavity which begins at the lips and ends at the anterior pillar of the fauces (Neville *et al.*, 2002). Oral cancer is the sixth most common cancer in the world (Parkin *et al.*, 1980). This exceptional high incidence of oral cancer in these countries far exceeds that of countries such as UK, USA or Australia where oral cancer contributes only 2 to 4% of all malignant tumours

(Johnson 1991). Oral cancer ranks number one (12 % of all cancers) among men and number three (8% of all cancers) among women in India (Sankaranarayanan 1990). The most common oral cancer is squamous cell carcinoma (Khandekar *et al.*, 2006). Among minor salivary gland tumours mucoepidermoid carcinoma was the most commonly encountered malignant tumour followed by low-grade (terminal duct, lobular, polymorphous) adenocarcinoma. Approximately 93% of lip tumours present on the lower lip, 5% on upper lip and 2% in commissures. Tobacco and alcohol are the most important risk factors associated with oral cancer. Other risk factors are poor oral hygiene, ill fitting dentures,

**\*Corresponding author: Manish Sharma,**  
Senior Resident, Government Medical College, Jammu

sharp jagged tooth, premalignant lesions like erythroplakia, leukoplakia and viruses like Human papilloma virus and Epstein barr virus (Webster, 2008). Various virus have been implicated in oral cancer like Epstein barr virus, Human herpes virus 8, Human cytomegalo virus and Human papilloma virus (HPV). HPV is an independent predictor in oral squamous cell carcinoma. Diagnosis of oral squamous cell carcinoma is confirmed with a biopsy for histopathological examination. This is still the gold standard. Keeping in mind the recent upsurge of oral cancer cases in our state, the present study is undertaken to find out the pattern of oral cancers and evaluating the relationship with habits of chewing, smoking, alcohol consumption and dietary habits of the population.

### Aims and objectives

To find out the topographical distribution, incidence of lymph node metastasis, type of malignancy and dietary habits of patients of oral cancers and associated predisposing factors.

## MATERIALS AND METHODS

The present study was conducted in the Department of E.N.T, S.M.G.S Hospital, G.M.C Jammu, for a period of one year, commencing from November 2015 to October 2016. Out of the patients attending/admitted in the Department of E.N.T, with suspected oral lesions, thirty histologically proved cases of oral cancer were taken for the study. A complete detailed history was taken followed by examination of neck, systemic examination and local examination of the lesion. All the patients were subjected to complete routine investigations. Biopsy (punch or excision biopsy) was taken from all the 30 patients for histopathological confirmation of diagnosis and for categorizing the type of malignancy.

### Observations

The following observations were made in the present study which comprised of 30 histopathological proved cases of oral cancer and was carried out in the Department of ENT, Head and Neck Surgery, SMGS Hospital, Government Medical College, Jammu. Majority of patients (50%) were in the age group of 51-60 years with mean age of  $53 \pm 7$ . Majority of patients (93%) were males with male: female ratio of 14:1 with most common site involved being lateral border of tongue (36.6%) followed by buccal mucosa (30%). Out of the 30 patients, only 10 had palpable lymph nodes. 6 patients had N1 disease, 1 patient had N2a disease, 2 patients had N2b disease and 1 patient had N2c disease. There were no patients who had lymph node more than 6cm i.e. N3. Most common risk factor in the present study was tobacco use whether alone or in combination with alcohol i.e in twenty four (80%) cases. (Table 1)

**Table 1. Risk factors for oral cancer**

Risk factor	Patients	
	(No.)	(%)
Alcohol + tobacco intake	10	33.3
Tobacco chewing alone	7	23.3
Smoking + tobacco chewing	4	13.6
Smoking alone	3	10
Sharp jagged tooth	5	16.6
Plain Betel chewing alone	1	3.3

80% patients in the present study were tobacco users. Majority of males (73%) had a history of tobacco consumption, whereas as tobacco use in females was low (6%). Among tobacco users, 70% patients were tobacco chewers and 12.5% were tobacco smokers (Table 2). Majority of patients (66%) consumed fruits occasionally whereas frequent and regular consumers of fruits were 20% and 13% respectively. The majority of patients (53%) consumed green leafy vegetables occasionally, 26% were frequent consumers and only 20% were regular consumers. The majority of patients (83%) were non vegetarian whereas only (16%) were vegetarians. In the present study most common clinical complaint was ulceration followed by swelling. Weight loss was seen in twenty cases. Other common complaints were pain, white lesion, bleeding, tongue fixation, dysphagia. Majority of patients (70%) presented between 7-8 months after the appearance of lesion in the present study. 13% of the patients presented 5-6 months after the appearance of the lesion. In the present study majority of patients (53%) had lesion between the size of > 2-4 cms i.e T2 disease. The commonest macroscopic appearance was of an ulcerative lesion in 76.6% of patients.

**Table 2. Relation of tobacco (both smoking and chewing) use to oral cancer**

Incidence	Male		Female		Total	
	(No.)	(%)	(No.)	(%)	(No.)	(%)
Present	22	73.3	2	6.66	24	80
Absent	6	20	-	-	6	20
Total	28	93.3	2	6.66	30	100

**Table 3. Histological type of lesion**

Lesion	Patients	
	(No.)	(%)
Squamous cell carcinoma	28	93.3
Basal cell carcinoma	-	-
Adenoid cystic carcinoma	1	3.3
Mucoepidermoid carcinoma	-	-
Adenocarcinoma	-	-
Undifferentiated	-	-
Verrucous carcinoma	-	3.3
Total	30	100

Squamous cell carcinoma was the most common histological type found in 93% of patients in the present study. Only 3% of patients had adenoid cystic carcinoma. (Table 3)

## DISCUSSION

This study is entitled "clinicopathological study of oral cancers". It comprised of 30 histologically confirmed cases of carcinoma of oral cavity. The study was undertaken with a view to find age, sex and topographical distribution, to analyse the dietary habits, smoking and alcohol abuse and to study the clinical features and pathological patterns of cancers of oral cavity.

### Age distribution

Mean age in our study was  $53 \pm 7$  years with majority of patients (50%) in the age group of 51-60 years. This finding is consistent with study of Rawi (2008), Jerjes *et al.* (2010), whereas Mishra *et al.* (2009), reported slightly earlier age group i.e. 4<sup>th</sup> decade.

## Sex distribution

Although most of the studies showed male preponderance but the male to female ratio in the present study was remarkably high i.e 14:1 which is not comparable with figures reported by most of the authors like Chattopadhyay (1989) 1.76:1, Perezl *et al.* (2007) 5:1, Rawi (2008) 2:1. The increased incidence of oral cancer in the males in the present study compared to females may be because habit of tobacco use and alcohol intake is still more common among men as compared to females in our state and increased number of male migrant labourers from other states who are using alcohol and tobacco (both smoking and chewing) regularly.

## Site of lesion

In the present study most common site involved was the lateral border of tongue (36.6%) followed by buccal mucosa (30%) with extension to surrounding area in one case. Alveolus, lip, retromolar, hard palate was involved in (6.6%) cases each respectively. Floor of mouth was involved in (3.3%). Sasaki *et al.* (2005), Patel *et al.* (2009) had also reported tongue as the commonest site of oral cancers. Jerjes *et al.* (2010) in 115 patients of oral cancer found that main primary sites are tongue, buccal mucosa, alveolus, floor of mouth. While some other authors had reported different topographical presentations like Chattopadhyay (1989) who found that buccal mucosa was the commonest site involved followed by gingival and alveolar ridge whereas Zheu *et al.* (2012) reported lower lip as the commonest site of oral cancer.

## Lymph node involvement

Lymph nodes were present in 10 cases (32%) and commonest level of lymph node involvement was level Ib (70%) and II (20%) which is comparable with Watkinson *et al.* (2008) who reported that Ib (Submandibular) lymph nodes were the most common lymph nodes involved in cancer of oral cavity.

## Risk factors for oral cancers

In many cases, more than one risk factor was found in our study like use of tobacco and alcohol and use of betel chewing and tobacco. Tobacco and alcohol has been widely implicated in the etiology of oral cancer. 80% of the patients in the present study were tobacco users in form of khaini or betel quid with tobacco and/or smoking. Among tobacco users 70%, patients were tobacco chewers and 12.5% were tobacco smokers. Majority of males (73%) had a history of tobacco consumption in different forms, where as incidence of tobacco intake in females was low (6%). Majority of the patients 73% in the present study were having the habit of tobacco use for more than 5 years. In our study only one patient out of thirty cases was betel chewer alone. The results are comparable with those of Mehta *et al.* (1972) who reported that chewing and smoking habits were present in 54.4% of the cases and most common habit among males was chewing tobacco with lime. Patel *et al.* (2009) who in a study reported that 58% of the patients were tobacco chewers. Majority of patients (53%) in the present study were not consuming green leafy vegetables and fruits regularly. This is consistent with the finding of Winn *et al.* (1984) and Malani *et al.* (2010) who found that risk of development of oral cancer bears inverse relationship with increased consumption of green leafy vegetables and fruits. Majority of the cases (83%) were non vegetarian whereas only 16% were vegetarians. This is consistent with the finding of

Winn *et al.* (1984) who conducted study on 227 women with oral cancer and pharyngeal cancer and found that meat and fish consumption was related to an increased risk of oral and pharyngeal cancer.

## Symptomology

Ulceration and swelling/induration was the most constant symptom present in the cases included in our study. Similar findings have been reported by Rawi (2008) who conducted study on 1425 cases of oral squamous cell carcinoma and found that most common clinical complaint was ulceration and swelling.

## Histological type

In the present study squamous cell carcinoma was the most common histological type found in 93% of patients. Only 3% of patients had adenoid cystic carcinoma. The high incidence of squamous cell carcinoma in the present study is comparable to that reported by various authors. Khandekar *et al.* (2006) found that squamous cell carcinoma was the most common type. Mishra *et al.* (2009) conducted study on 776 patients of oral cancer and found that squamous cell carcinoma was the most common lesion (57%). In present study most common among the squamous cell carcinoma was the well differentiated type (64%) followed by moderately differentiated (32%). This is comparable with Rawi *et al.* (2008) conducted study on 1425 patients of squamous cell carcinoma and found that more than 70% of cases were well differentiated.

## Summary

The disease appeared to be age specific, 50% of the patients being in the age group of 51-60 years. The disease was found to be more frequent in males. Male to female ratio being 14:1. The commonest site of lesion was lateral border of tongue (36.6%) followed by buccal mucosa (30%). Only in 10 cases, lymph nodes were present. Out of these ten cases 70% cases had level Ib lymph nodes. The commonest risk factor was tobacco intake (in different forms, with or without other risk factors) i.e. in 24 cases (80%). Alcohol use was in ten cases (33%). Sharp jagged tooth was present in five cases (16.6%) out of thirty cases. Sharp jagged tooth was risk factor in five out of twelve cases of tongue cancer. In majority of cases, tobacco chewing was main mode of tobacco intake in form of khaini, betel quid or plain tobacco. The majority of the patients (73%) were having the habit of tobacco use for more than five years. Dietary habits were also found to influence as risk factor since about 50% of cases were only occasional fruit and green leafy vegetable users. Majority of cases were non vegetarians (83.3%). Most common presentation was ulcerative lesion in 23 cases. In about 80% of cases, patient presented late to our department i.e. 7-8 months after developing of lesion. In 53.3% of cases, size of lesion noted was >2-4 cms (T2). Majority of cases (76.6%) had ulcerative lesion on gross appearance. Squamous cell carcinoma was most common histological type i.e. in 93.3% cases. Hence it is concluded in our study that oral cancer is a disease of middle age (51-60) but increase in incidence starts in thirties.

## Conclusion

There is high male predominance (14:1) since in our state tobacco intake, which is most potent risk factor, is

predominantly seen in males and also because of male labour migration to our state. Although commonest risk factor found was tobacco intake (80%) but sharp jagged tooth as risk factor cannot be overlooked especially in carcinoma tongue cases. Out of twelve cases of carcinoma tongue, five had sharp jagged tooth. Tobacco intake for more than five years is commonest of all risk factors. Chewing of tobacco was more prevalent risk factor (70%) as compared to smoking. This is probably because of more constant irritation of oral mucosa caused by tobacco chewing. Commonest site found in our study was tongue (40%) probably tongue is affected by risk factors like tobacco, alcohol and also by sharp jagged tooth. Buccal mucosa is next common site (30%) as it is affected more by chronic irritation caused by tobacco and alcohol. Majority of our cases were non vegetarian, though the exact reason for this is not fully established. Regular use of fruits and green leafy vegetables is found to decrease the risk of oral cancer, may be because of more minerals and antioxidants properties in them. Commonest presentation was ulcerative lesion with or without induration with commonest size >2-4 cms (T<sub>2</sub>). Though majority of cases presented 7-8 months after development of lesion but lymph node presentation was seen also in one third of cases, level Ib being commonest. Histopathologically well differentiated squamous cell carcinoma was the commonest oral cancer.

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