

Fashionable Tobacco Habits an Alert for Oral Cancer Epidemic

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IN BRIEF

Introduction: Oral cancer is a major health problem across the world; the most common cancer in Indian men (56.4%) and women (44.9%), as reported by the National Cancer Registry of India[1]. Traditionally, oral cancer is a disease mainly affecting the older age group, attributed to indiscriminate tobacco usage. However, recent studies show an increasing incidence among young adults due to changing life styles.

Aim and Objectives: The purpose of this study was to study the clinical profile of oral cancer cases with emphasis on demographic and clinicopathologic variables.

Materials and Methods : Data of 514 oral cancer cases reported between Jan 2006-Dec 2010 were retrieved from the case records. Statistical analysis included calculation of percentages and proportions.

Results: Majority of the subjects belonged to the 41-50 years age group, of the lower-middle and upper lower socioeconomic status. About 411 (80.2%) subjects consumed tobacco in various forms and males used more tobacco (66.53%) as compared to females (33.47%). Gingivobuccal sulcus was the most common site of oral cancer, with a commonest histopathological type being squamous cell carcinoma.

Conclusion: Majority of the cases were squamous cell carcinoma and presented in the advanced stages of the disease.

Key words : Oral squamous cell carcinoma; tongue cancer.

INTRODUCTION

Oral cancer is the most common cancer in developing countries. In India there are 75,000-80,000 new cases of oral cancer each year[2]. Oral cancer is cancer found in the oral cavity and the oropharynx.

The sides of the tongue and the floor of the mouth are the maximally affected sites. Although heredity plays a factor, life styles like smoking, alcohol consumption, and chewing of betel quid with or without tobacco or areca nut increases person's risk for developing oral cancer[3].

Tobacco (80-90%) use in the form of smoking, chewing, snuff, quid, gutkas, betanut chewing, plus alcohol use, prolonged sunlight exposure, chronic irritation, lack of fruits and vegetables in diet are some known predisposing factors[4].

Symptomatology varies with the individuals, which could be a sore, patch, lump, ulcer, pain, change in voice, difficulty in swallowing, bleeding, numbness in the mouth of varied duration.

Of the several histological types of oral malignancies, squamous cell carcinoma is the most commonest of all (90%).⁴ Leukoplakia, erythroplakia are considered as premalignant conditions. According to the American Cancer Society, about 15% of leukoplakias and 51% of erythroplakias develop into cancer. Biopsy helps to confirm the diagnosis and to determine the pathological pattern.⁴

AIM

To study the clinical profile of oral cancer cases and to confirm the diagnosis with a biopsy.

OBJECTIVES

- 1) To study the demographic characteristics of oral cancer cases.
- 2) Identify possible risk factors.
- 3) Histopathological analysis of cases.
- 4) Correlation between some risk factors and histopathological diagnosis.

MATERIALS AND METHODS

Study design and study population

Descriptive-type, hospital-based, retrospective analysis.

Place of study

Patients were recruited at the surgical oncology outpatient department at S.S. Institute of Medical Sciences.

Study eligibility criteria

Patients with a suspicion of oral cancer during the five year period (Jan 2006 to Dec 2010) were included for the study.

Inclusion criteria

Both male and female patients attending the oncology outpatient with complaints suspicious of oral cancer and willingness to participate.

Exclusion criteria

- Minors below the age of 18 years.
- Refusal to give informed consent.

METHODOLOGY

Study procedure

At the outpatient clinic, detailed history regarding age, socioeconomic status, literacy rates, risk factors like tobacco, alcohol usage, duration of symptoms were collected in the local language. A detailed physical examination of the oral cavity and neck was done. Informed consent was taken and a biopsy was carried out using a punch biopsy forceps. Specimens were put into the labelled formalin bottles and sent to the pathology department of S.S. Institute of Medical Sciences for a histopathological diagnosis. Reports were received within five days of sampling.

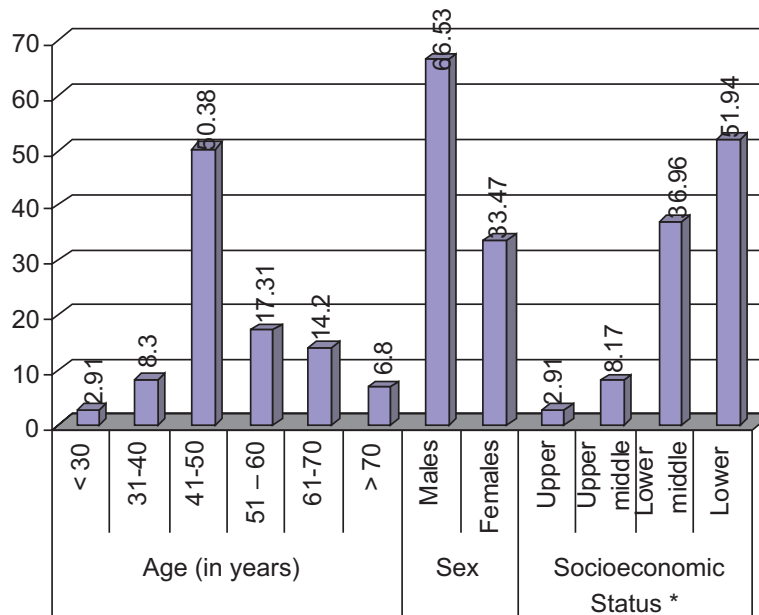
RESULTS

A total of 514 cases attended the oncology outpatient clinic, all of whom had a biopsy and clinical examination.

Table 1. Distribution of study subjects according to demographic characteristics

Characteristics	Number of subjects (%)
Age (in years)	
< 30	15 (2.91%)
31-40	43 (8.3%)
41-50	259 (50.38%)
51 - 60	89 (17.31%)
61-70	73 (14.20%)
> 70	35 (6.80%)
Sex :	
Males	342 (66.53%)
Females	172 (33.47%)
Socioeconomic Status *	
Upper	15 (2.91%)
Upper middle	42 (8.17%)
Lower middle	190 (36.96%)
Lower	267 (51.94%)

*by Kuppuswamy's Scale 4



The demographic characteristics of the study subjects are depicted in Table 1. Majority of the subjects belonged to the 41-50 years age group, 342 (66.53%) of them were males and 172 (33.47%) were females. Most of them belonged to the lower middle socioeconomic scale according to modified Kuppuswamy scale.

Tobacco consumption habits with dose and duration of such habits are shown in Table 2.

A total of 411 (80.2%) subjects consumed tobacco either in the form of chewing 291 (70.8%), smoking 254 (61.82%) or both 102 (24.75%).

Table 3 shows the TNM staging and histopathological staging of oral cancer. A majority of patients 207 (44.70%) presented in stage II as per TNM staging.

Histopathologically, 108 (23.32%) were well differentiated, 222 (47.94%) moderately

Table 2. Distribution According to Tobacco habits characteristics in the tobacco consumer

Characteristics	Number of subjects (%)
Type	
Tobacco chewing	291 (70.8%)
Tobacco smoking	254 (61.82%)
Tobacco chewing and smoking	102 (24.75%)
Duration :	
< 5 years	57 (13.86%)
5-10 years	205 (49.87%)
10 years	147 (36%)
Dose :	
< 20 g/ day	84 (20.43%)
20-40 g/day	201 (48.90%)
40 g/ day	126 (30.65%)

Table 3. Distribution according to clinical and histopathological staging

Of the total 514 cases, 463 (90%) had malignancy while 51 (10%) were benign in the form of submucosal fibrosis 25 (4.8%), leukoplakia 20 (3.89%) and erythroplakia in 6 (1.16%) cases.

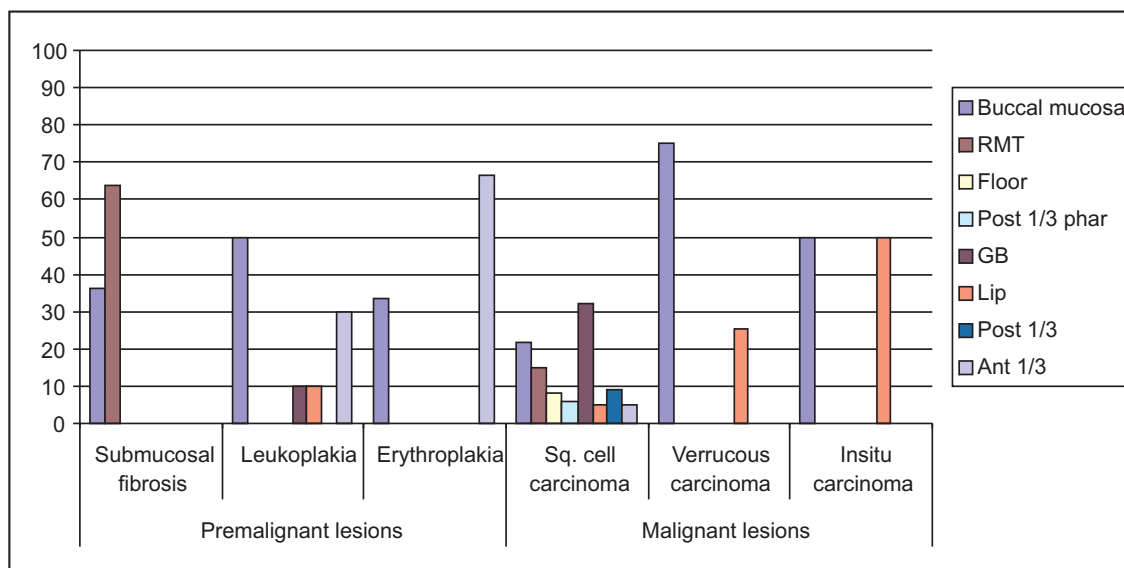
Characteristics	Number of subjects (%)
(TNM)	
Stage I	73 (15.76%)
Stage II	207 (44.70%)
Stage III	138 (29.80%)
Stage IV	45 (9.71%)
Histopathological grading (Bryne's)	
Verrucous carcinoma	8 (1.72%)
Grade I squamous cell carcinoma(well diff)	108 (23.32%)
Grade II squamous cell carcinoma(mod diff)	222 (47.94%)
Grade III squamous cell carcinoma(poorly diff)	115 (24.83%)
In situ carcinoma	10 (2.15%)

Table 4. Different forms of tobacco usage

Chewing habits	Number of subjects (%)	Sex of patient	Number of quids / day	Chewing habits (hrs)	Total amount of tobacco chewed (g/day)
a) Betel Quid chewers					
Without tobacco	41 (7.9%)	M + F	6-8 / day	> 10 yrs	-
With tobacco	116 (40%)	M + F	5-6/day	> 10 yrs	4-6g/ day
b) Pan Masala					
Without tobacco	21 (20%)	M + F	3-4 / day	> 10 yrs	-
With tobacco	157 (54%)	M + F	5-6 / day	> 6 yrs	2-4 g/ day
c) Betel quid and pan masala chewers	17 (6%)	M + F	4-6/day	> 10 yrs	2-3 g/day
d) Alcohol consumers	10	M	-	> 15 yrs	-
e) Smokers					
f) Smokers with pan masala chewers	102	M	20 + 10	5 – 10 yrs	2-4 g/ day
g) Smokers + alcohol consumers	254	M	20 + 2-4 pegs	5-10 yrs	2-4 g/ day

Table 5. Anatomical site and histological type of oral cancer

Histological type	Anatomical site								Total n(%)
	Buccal mucosa n (%)	RMT n(%)	Floor n(%)	Post 1/3 phar n(%)	GB n(%)	Lip n(%)	Post 1/3 n(%)	Ant 1/3 n(%)	
Premalignant lesions									
Submucosal fibrosis	9 (36)	16 (64)	-	-	-	-	-	-	25 (49.1)
Leukoplakia	10 (50)	-	-	-	2 (10)	2 (10)	-	6 (30)	20 (39.21)
Erythroplakia	2 (33.33)	-	-	-	-	-	-	4 (66.66)	6 (11.76)
Malignant lesions									
Sq. cell carcinoma	95 (21.38)	66 (14.83)	36 (8.08)	26 (5.84)	41 (31.68)	21 (4.71)	39 (8.76)	21 (4.71)	445 (90)
Verrucous carcinoma	6 (75)	-	-	-	-	2 (25)	-	-	8
In situ carcinoma	5 (50)	-	-	-	-	5 (50)	-	-	10



differentiated, and 115 (24.83%) were poorly differentiated squamous cell carcinoma, and a small proportion of cases were verrucous and insitu carcinomas.

Table 4 shows the different forms of tobacco usage: 157 subjects consumed betel quid with or without tobacco, 17 of them had betel quid with pan masala, 102 of them smoked tobacco and were male subjects, while 254 of the total group were smokers with alcohol consumers.

The various anatomical sites along with the histological type of oral cancer are depicted in Table 5. Ninety percent of biopsy reports showed a squamous cell carcinoma, while 10% of them had a premalignant lesion. Submucosal fibrosis was the commonest among the premalignant lesions and squamous cell carcinoma was the most prevalent histology.

The buccal mucosa, retromolar trigone, and the anterior one-third of the tongue were common sites of premalignant lesions; in comparison, the buccal mucosa, retromolar trigone, and the lip were the common anatomical sites of malignant lesions. In situ carcinoma was seen in 10% patients, seen in the buccal mucosa and lip regions. Depending on the TNM staging, patients underwent either surgery, prosthesis, chemotherapy, or radiation as per the oncologist opinion.

A total of 180 cases underwent surgery at our institute.

DISCUSSION

Oral cancer is the commonest cancer in India accounting for 50-70% of total cancer mortality[5]. Our study results point out that

cases of oral cancer were mostly seen in the fourth decade as observed by Sherin *et al*[6]. There was a steady rise in the incidence during the study period. High proportion of cases among males may be due to high prevalence of tobacco consumption habits, with male : female ratio being 3:1. Ravi *et al*[7] observed a 2.3:1 ratio.

Most patients belonged to the lower socioeconomic status, which may account for lower educational status, dietary factors, poor oral hygiene, thereby raising the risk of oral cancer in tobacco users, as observed by Balaram *et al*[8]. Tobacco consumption is a well established risk factor for development of oral cancer[9].

Dose and duration of tobacco usage definitely influences the incidence of malignancy. In the present study, 80% of subjects consumed tobacco in various forms, for a duration of more than 10 years, dose more than 2g/day. Quids, khaini, or pan masala with flavoured tobacco are famous forms of tobacco products. This correlated with the results of Ravi, *et al*[7].

Alcohol consumption is also a recognized risk factor for oral cancer, particularly when combined with tobacco usage, where it has an additive effect[10]. About 40% of patients in our study consumed tobacco and alcohol. About 15% of patients had a past history of smoking and chewing tobacco and now developed oral cancer almost 15 years later. Although 103 (19.8%) patients had no tobacco habits, but still developed oral cancer probably due to chronic irritation (30%), betel nut (40%) and pan chewing (20%) or alcohol consumption (10%). This can be compared with 34%, as reported by Sherin *et al*[6]. Histologically, grade II squamous cell carcinoma dominated the profile, similar to Iype *et al*[3].

High number of betel nuts chewed per day by an individual (6-8 /day), acts as a continuous irritant to the buccal mucosa. Smokeless tobacco (Pan Parag, Zarda) revealed a four fold increase in incidence of

oral cancer after a period of 10 years of usage as compared with results reported by Gupte, *et al*[11].

Gingivobuccal sulcus (31%), buccal mucosa (21%), retromolar trigone (14%) faced the major brunt of the disease in our study. Iype, *et al*[3] reported tongue as the commonest site of malignancy in their study.

Oral submucosal fibrosis was the predominant premalignant lesion in our study. Several studies have reported that chewing of areca nut with or without tobacco is a risk for oral submucosal fibrosis in a dose-response relationship[12].

Younger age group at presentation, low socioeconomic status, alcohol and tobacco habits, pan masala chewing will predispose the person to oral malignancy, more so the squamous cell carcinoma[13].

CONCLUSION

Oral cancer is the commonest cancer in India accounting for 50-70% of total cancer mortality[5]. High proportion of cases among males may be due to high prevalence of tobacco and alcohol consumption habits. Low socioeconomic status and poor oral hygiene further increase the risk of oral cancer.

Tobacco is a major risk factor implicated in oral cancer. The risk is directly related to the duration, frequency, and form of tobacco usage[15]. Young adults adopt fashionable habits of tobacco usage and predispose themselves to oral cancer risk.

Community health education regarding hazards of tobacco and alcohol consumption, eliminating the use of pan, pan masala, creating smoking free zones, restricting tobacco trade through public education and control programmes can go a long way in reducing the incidence of oral cancer.

Screening of the general population by regular dental checkups may help in detecting cases earlier[14].

The magnitude and pattern of oral cancer in India are essential indicators for urgent public health measures, like public education and oral cancer awareness are required to curb this avoidable epidemic.

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