

## AETIOLOGY AND CLINICAL PROFILE OF ORAL CANCERS IN PATIENTS ATTENDING A TERTIARY CARE HOSPITAL IN RURAL KERALA

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### ABSTRACT

#### BACKGROUND

Oral cancer is the sixth most common cancer in the world. Oral cancer represents 14% of all cancer cases in Kerala.

The aim of this study is to find out the aetiological factors, symptomatology, morphologic types and the distribution in the sub-sites of oral cavity.

#### MATERIALS AND METHODS

A cross-sectional study was conducted in the Department of ENT, Government Medical College, Thrissur, Kerala from May 2009 to October 2013; 136 patients (88 males and 48 females) with histopathologically confirmed oral cancers were studied. Variables such as age, sex, residing area, occupation, educational level, socio-economic status, substance abuse, oral hygiene, family history and premalignant conditions were assessed. The presenting complaints, the site, morphology and histopathology of the lesions were noted.

#### RESULTS

Mean age in this study was 57.83 with male-to-female ratio of 1.83:1. Majority of cases were from socially and economically weaker section, 62% patients were smokers, 45% patients were alcoholic, 41% patients were pan chewers and 90% had more than one bad habit; 72.05% patients had poor orodental hygiene. Most common symptom in our patients was growth in the mouth. Tongue and buccal mucosa were the most affected sites. Majority presented with ulcerative type and most of the cases were squamous cell carcinoma.

#### CONCLUSION

Oral cancers are mainly seen in males of 55 – 64 years' age group. Important aetiological factors identified in this study are substance abuse, poor oral hygiene and poor socio-economic status. Tobacco consumption is the most dominant risk factor. Most common symptom in our patients is growth in the mouth. Tongue and buccal mucosa are the most affected sites. Most of the cases were squamous cell carcinoma. The study of aetiology and common clinical presentations may help in prevention, early detection and management.

#### KEYWORDS

Oral Cancers, Oral Squamous Cell Carcinoma, Tongue Cancer Aetiology.

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#### BACKGROUND

Oral cancer is the sixth most common cancer in the world.<sup>1</sup> Oral cancer represents 14% of all cancer cases at Regional Cancer Centre (RCC), Kerala, India.<sup>2</sup> It constituted 17% of all cancers in males and 10.5% of all cancers in females making it the commonest cancer in males and the third commonest cancer among females.<sup>3</sup>

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The main objective of this study is to find out the aetiological factors that are responsible for such high prevalence in Kerala. This study also aims to find out the symptomatology, morphological types and the distribution in the sub-sites of oral cavity.

#### MATERIALS AND METHODS

We performed a clinical cross-sectional study of all histopathologically proved cases of oral cancers attended the Department of ENT, Government Medical College, Thrissur, Kerala from May 2009 to October 2013.

#### Inclusion Criteria

All patients attending the Department of ENT, Government Medical College, Thrissur from May 2009 to October 2013 with history of growth in the mouth, pain, burning sensation, dysphagia, dysarthria, halitosis, trismus, neck swelling and bleeding were thoroughly examined for any doubtful lesions

in the oral cavity or cervical lymph nodes and biopsy sent for histopathological examination. Patients confirmed to be having carcinoma in the oral cavity proper were included in the study group.

**Exclusion Criteria**

Cases without histopathologic confirmation, premalignant lesions and oropharyngeal lesions were excluded from the study.

This included 136 patients. There were 88 males and 48 females.

All were watched for variables such as age, sex, residing area, occupation, educational level and socio-economic status. The aetiological factors like substance abuse, oral hygiene, family history and premalignant conditions were assessed. The presenting complaints, the site, morphology and histopathology of the lesions were noted.

In this study, different statistical methods were adopted to identify the significance of observations and data collected. Two way and three way classifications were used to compare the characteristics. Standard normal test and chi square test were applied to regulate the data with general informations. A level of significance of 5% was applied in the whole study to identify the significant differences of the statistical tests.

**OBSERVATIONS AND RESULTS**

A total of 136 patients (88 males and 48 females) with histopathological confirmation were studied. About 70% of patients were belonging to age group of 50 - 70 years. This is verified using Standard Normal test as  $Z = 0.3598$  with  $p$  value =  $0.7189 > 0.05$ . Only  $< 10\%$  patients were seen in younger age group ( $< 40$  years).

Age	Patients	% Patients
$< = 30$	6	4
31 - 40	6	4
41 - 50	18	13
51 - 60	48	36
61 - 70	42	32
71 - 80	14	10
$> 80$	2	1
<b>Total</b>	<b>136</b>	

**Table 1. Age Distribution**

Mean	57.83824	Upper limit	69.97134
S D	12.13311	Lower limit	45.70513

**Table 2. Mean and SD of Age**

The confidence interval of average age is  $57.83 \pm 12.13$  (45.97134). The average age of our patients was 60 years and it is true as  $Z = 1.45839$ ,  $P$  value =  $0.14940 > 0.05$ .

There were 88 (64.7%) males and 48 (35.2%) females with a male-to-female ratio of 1.83:1. It is verified using Chi Square test as  $\chi^2 = 0.1184$ ,  $p$  value =  $0.7307 > 0.05$ .

The ratio of patients residing in village and town was 5:1.

88 (65%) patients were doing manual labour, 34 (25%) patients were unemployed and 14 (10%) were employed in office setup.

100 (73.5%) patients belonged to low socioeconomic class, 34 (25%) patients belonged to middle class and 2 (1.4%) patients belonged to upper class; 84 (62%) patients were smokers and 52 (38%) patients were non-smokers; 61 (45%) patients were alcoholic; 56 (41%) patients were pan chewers; 90% had more than one abuse; 98 (72.05%) patients had poor orodental hygiene and 38 (27.94%) had adequate hygiene. Family history of cancer was present in 9 (6.6%) patients, while family history of oral cancer was present in 2 (1.4%) patients.

Clinical presentations of study group: Most of the patients presented with multiple symptoms. Of the 136 patients, 76 (56%) presented with growth in the oral cavity as the main symptom; 60 (44%) complained of pain, 54 (40%) patients complained of burning sensation, 38 (28%) had dysphagia, 30 (22%) had neck swelling, 28 (20%) showed dysarthria, 24 (18%) had bleeding, 14 (10%) had halitosis and 4 (3%) had trismus.

Sites of Oral Cancers	Number of Patients
Tongue	60 (44%)
Buccal Mucosa	28 (21%)
Floor of Mouth	20 (15%)
Hard Palate	8 (6%)
Retromolar Trigone	8 (6%)
Lips	7 (5%)
Gingivo-Labial Sulcus	5 (3%)

**Table 3. Subsites of Oral Cancer Presentation**

45% of patients presented with ulcerative type, 43% with proliferative type and 12% with infiltrative type of morphology.

Histopathological classification of the study group showed 132 (97.05%) cases of squamous cell carcinoma, 2 (1.47%) cases of adenocarcinoma and 2 (1.47%) cases of verrucous carcinoma. Of the squamous cell carcinoma 68 (51.5%) were well differentiated, 34 (25.75%) were moderately differentiated and 30 (22.7%) were poorly differentiated in category.

**DISCUSSION**

The oral cavity or mouth is generally considered to extend from the lips to the palatoglossal folds. Inferiorly, is the floor of mouth and tongue, while superiorly is the hard palate. The buccal mucosa lines the cheeks from the commissure of the lips anteriorly to the palatoglossal fold posteriorly.<sup>4</sup>

Oral cancer is a major oncological problem in the regions of the world where tobacco habits in the form of chewing and/or smoking with or without alcohol intake are common.<sup>2</sup> It typically occurs in the elderly men during the fifth through eighth decade of life and is rarely seen in young people.<sup>2</sup>

In this study majority of the patients belonged to the age group 55 - 64, which is comparable to the hospital-based study conducted in Central India in 2000<sup>5</sup> and to another study conducted in Uttar Pradesh, India<sup>6</sup>; 65% of the subjects were males. High proportion of cases among males may be due to high tobacco consumption. Moreover, tobacco is consumed in both chewing and smoking form in

males, whereas in our society females are not indulged in tobacco smoking<sup>2,7,8</sup>; 65% of the patients were manual labourers; 84% of subjects came from village possibly representing the core of patients seeking medical care from Government Hospitals and the fact that our institution is situated in a rural area. Majority of the patients belonged to low socio-economic status. This is comparable with the study by Balaram P et al. Their study showed low educational attainment, occupation as a farmer or manual worker and various indicators of poor oral hygiene were associated with significantly increased risk.<sup>9</sup>

In our study, 62% were smokers and more than 50% of the patients had an average of fifty pack years highlighting the importance of pack years of smoking and oral cancer; 45% were alcoholic and 41% were pan chewers; 90% had more than one bad habit signifying the multiplicative effect of alcohol and tobacco in oral cancers. This is comparable to the observation by other studies.<sup>10,11</sup> Understanding this role is relevant to developing public health policies targeting at risk population.<sup>12</sup>

Most of our patients (56%) presented with growth in the oral cavity as the main symptom. Second common presentation was pain (44%). In a Spanish study, the most common presentation was pain<sup>13</sup>; 70% of our patients presented with more than one symptom.

Most common site of oral cancer was tongue (44%) followed by buccal mucosa (21%) and then floor of mouth (14%), which is in accordance with the statistics given in standard text books. But this is in contradiction to a study conducted in Central India, in which the commonest site was alveolus.<sup>5</sup>

Sub-Sites	Tata Memorial Mumbai	New York US Memorial	Neयोор S.I	Present Study
Lips	17	500	40	4
Alveolus	37	173	41	14
Tongue	95	525	96	60
Floor of Mouth	23	196	196	20
Buccal Mucosa	165	362	296	28
Hard Palate	52	207		8

**Table 4. Distribution of Intraoral Sites of Cancer in Different Studies<sup>14</sup>**

Oral cancer in Bombay, India. A Review of 1,000 Consecutive Cases\* V. R. Khanolkar, M.D. (From the Tata Memorial Hospital or the Treatment of Cancer and Allied Diseases, Bombay, India). These are approximate figures based on a study of 673 cases of "carcinoma of the tongue" at the Memorial Hospital by Hayes Martin.<sup>14</sup>

32% of patients had cervical lymphadenopathy at presentations, which is in accordance with the figures given in standard text books. One-third of the tongue carcinoma patients had lymphadenopathy at presentation. Majority of the patients presented with ulcerative type of lesion, closely followed by proliferative type. Most common histological type was well-differentiated squamous cell carcinoma, which was comparable to the study conducted in Central India.<sup>5</sup>

Verrucous carcinoma was found in buccal mucosa and adenoid cystic carcinoma was found in hard palate.

## CONCLUSION

Majority of the oral cancer patients belonged to the middle-aged group (55 - 64) with male predominance. Common aetiological factors seen in the patients were smoking followed by pan chewing and alcoholic intake. Most common presentation was mass followed by pain and burning sensation in the mouth; 32% patients had cervical lymphadenopathy at presentation. Ulcerative lesion was the most common morphological type and squamous cell carcinoma was the most common histopathological type. Tongue was the most common sub-site followed by buccal mucosa and floor of mouth. The study of aetiology and common clinical presentations may help in prevention, early detection and management. Anti-tobacco and anti-alcohol health education may prevent many of the oral cancers and proper screening in high-risk individuals may reduce morbidity and mortality.

## REFERENCES

1. Parkin DM, Pisani P, Ferlay J. Estimates of the worldwide incidence of eighteen major cancers in 1985. *Int J Cancer* 1993;54(4):594-606.
2. Iype EM, Pandey M, Mathew A, et al. Oral cancer among patients under the age of 35 years. *J Postgrad Med* 2001;47(3):171-176.
3. Padmakumary G, Varghese C. Annual Report 1997. Hospital Cancer Registry. Thiruvananthapuram; Regional Cancer Centre 2000:3-7.
4. Bannister LH. Alimentary system. In: Bannister LH, Berry MM, Collinis P, et al, eds. *Gray's anatomy*. 38<sup>th</sup> edn. New York: Churchill Livingstone 1995:1681-1691.
5. Khandekar SP, Bagdey PS, Tiwari RR. Oral cancer and some epidemiological factors: a hospital based study. *Indian Journal of Community Medicine* 2006;31(3):157-159.
6. Wahi PN. The epidemiology of oral and oropharyngeal cancer. *Bull World Health Organ* 1968;38(4):495-521.
7. Park K. Textbook of preventive and social medicine. 14<sup>th</sup> edn, Jabalpur: Banarsidas Bhanot Publishers 1994:261-265.
8. Mehta FS, Gupta MB, Pindborg JJ, et al. An intervention study of oral cancer and precancer in rural populations: a preliminary report. *Bull World Health Organ* 1982;60(3):441-446.
9. Balaram P, Sridhar H, Rajkumar T, et al. Oral cancer in southern India: the influence of smoking, drinking, paan-chewing and oral hygiene. *Int J Cancer* 2002;98(3):440-445.
10. Kuriakose M, Sankaranarayanan M, Nair MK, et al. Comparison of oral squamous cell carcinoma in younger and older patients in India. *Eur J Cancer B Oral Oncol* 1992;28B(2):113-120.

11. Znaor A, Brennan P, Gajalakshmi V, et al. Independent and combined effects of tobacco smoking, chewing and alcohol drinking on the risk of oral, pharyngeal and esophageal cancers in Indian men. *Int J Cancer* 2003;105(5):681-686.
12. Cancela Mde C, Ramadas K, Fayette JM, et al. Alcohol intake and oral cavity cancer risk among men in a prospective study in Kerala, India. *Community Dent Oral Epidemiol* 2009;37(4):342-934.
13. Bagan J, Sarrion G, Jimenez Y. Oral cancer: clinical features. *Oral Oncol* 2010;46(6):414-417.
14. Martin HE, Munster H, Sugarbaker ED. Cancer of the tongue. *Arch Surg* 1940;41(4):888-936.