

CLINICOPATHOLOGICAL SPECTRUM OF ORAL SQUAMOUS CELL CARCINOMA AMONG TOBACCO CONSUMERS: AN INSTITUTIONAL STUDY

Kiran Arif¹, Fouzia Shaikh², Faraz Ahmed Baig³, Rizma Khan⁴, Saba Arif⁵

¹ Research Fellow, Department of Pathology, Ziauddin Medical College, Karachi, Pakistan.

² Professor, Department of Pathology, Ziauddin Medical College, Karachi, Pakistan.

³ Associate Professor, Department of Pathology, Ziauddin Medical College, Karachi, Pakistan.

⁴ Assistant Professor, Department of Molecular Genetics, Dr. Ziauddin University Hospital, Karachi, Pakistan.

⁵ Ex-RMO, Darul-Sehat Hospital, Karachi, Pakistan.

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Corresponding author: Dr. Kiran Arif

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Abstract

Background: Oral squamous cell carcinoma (OSCC) constitutes 90% of all oral malignancies. Tobacco products, viral infections and additional risk factors are common etiological elements for this tumor.

Objective: The aim of this study is to analyze the clinicopathological and sociodemographic features of patients diagnosed with oral squamous cell carcinoma.

Material and Methods: Histologically confirmed 35 OSCC cases were selected for study. The clinicopathological data was obtained from patients and analyzed using SPSS software version 20.

Results: Majority of cases was men and diagnosed with disease during fourth decade of life. Buccal mucosa was the common site while gutka chewing was observed as leading habit among our cases. Also, stage II and moderate histological differentiation was predominant among prognostic indicators of OSCC.

Conclusion: Our data suggested that men, gutka consumers and early onset of disease are more prevalent characteristics in oral squamous cell carcinoma cases from our population. Most tumors classically affected buccal mucosa and late diagnosis seems to be common among our cases.

Keywords: Malignancy, Squamous Cell Carcinoma, Oral Cavity, Tobacco

Introduction

OSCC is a debilitating and lethal form of cancer arising in the vicinity of oral cavity, accounting for a mortality rate ranging from 3 to 10% globally.¹ According to Globacon, 354,864 new cases of OSCC are reported annually, while the highest incidence was reported from Indo-Pak region in the year 2018.² In Pakistan, the prevalence of OSCC is around 10% with an alarming increase in incidence annually.¹

The etiology of OSCC can be attributed to diverse risk factors like; personal habits related to tobacco products, smoking, chewing gutka, alcohol consumption and occupational exposure. Besides that, viral infections like; HPV and EBV also play an important role in the etiopathogenesis of OSCC.^{3,4} A preferential trend for male gender compared to female is reported in multiple studies, however, the difference is now narrowing due to rising incidence of tobacco consumption among women.^{1,5} OSCC can be originated from any part of oral cavity however, tongue and buccal mucosa are sites predominantly affected by this disease.¹

In Pakistan smokeless tobacco in the form of gutka is often used in combination with other carcinogenic substances such as; Betel nut, Arica nut and Lime.⁶ Positive relationship between intensity and duration of tobacco consumption have been reported, having the most profound impact in development of OSCC.⁷ Therefore, this institutional study is designed to assess the clinicopathological features and demographic characteristics of patients of OSCC in Pakistan.

Methods:

A cross sectional study was undertaken from December 2019 to February 2020 after seeking approval (1870120KAPAT) from ethics review committee of Ziauddin University Karachi Pakistan. A total of 35 clinically and pathologically confirmed oral squamous cell carcinoma cases were recruited for study after written informed consent. All patients were receiving in- patient and out-patient care at Ziauddin University tertiary care hospital Karachi, Pakistan. Most patients presented with the complaints of swelling, painful growth and ulcers within oral cavity. The clinicopathological data was obtained from

patients and analyzed using SPSS version 20 and presented as mean and percentages.

Results:

Overall, majority of cases were men (60%) compared to women (40%). In this research mean age of study subjects was observed to be 40.0 years. The demographic characteristics of our cases reflected Urdu speaking as the leading ethnic group (57.1%) affected from OSCC compared to Sindhi, Punjabi and Pashtoon ethnicities. However, no case from Balochi ethnicity was found in our study. While comparing habits, we came across gutka (45.7%) as the most commonly used substance observed in our series. This is followed by smoking (20%), pan (17.1%), betel nut (8.6%) and naswar (8.6%). Among anatomical locations, most of the cases originated from buccal mucosa (71.4%) while tongue (28.6%) was observed as the second most frequently involved site for OSCC. The prognostic indicators of tumor show moderate differentiation and stage II as predominate parameters with frequencies of 62.9% and 71.4% respectively.

Table 1: Presents the distribution of demographic and clinicopathological profile of all study subjects.

Clinicopathological Characteristics	Cases (n=35)	Frequency (%)
Gender		
Male	21	60.0%
Female	14	40.0%
Ethnicity		
Urdu Speaking	20	57.10%
Sindhi	10	28.60%
Punjabi	3	8.60%
Pashtoon	2	5.70%
Balochi	0	0%
Habit		
Smoking	7	20.0%
Betel quid	3	8.60%
Pan	6	17.10%
Gutka	16	45.70%
Naswar	3	8.60%
Tumor Site		
Buccal Mucosa	25	71.40%
Tongue	10	28.60%
Tumor Stage		
Stage 1	3	8.60%
Stage 2	22	62.90%
Stage 3	10	28.90%
Tumor Grade		
Well differentiated	2	5.70%
Moderately differentiated	25	71.40%
Poorly differentiated	8	22.90%

Discussion:

The present study is a cross sectional analysis of demographic and clinicopathological profiles of OSCC patients registered for treatment in our tertiary care centre. Oral squamous cell carcinoma is the most frequent type of oral malignancy with a complex epidemiology and etiopathogenesis, which justifies the importance of epidemiological and sociodemographic study in our setup. In this study, majority of subjects were men constituting male to female ratio of 3:2 for OSCC. Patel et al. and Bhat et al. reported similar trend in their studies carried out in our region.^{4,8} This larger proportion of affected men could be explained by more frequent use of tobacco products especially smokeless chewable tobacco by men in our population compared to women who usually do not indulge in such activities.

Most diagnosed cases of OSCC in our study were aged between 35 to 50 years, contrary to typical pattern of older patients observed in most cancers.⁴ In line with our findings, multiple studies have observed that young people are more likely to develop OSCC than their older counterpart, postulating a possible shift towards early onset of disease in patients from our population.⁹⁻¹¹ We believed that, this increased incidence of OSCC in younger patients could be the consequence of readily available tobacco products accompanied with effective marketing strategies attracting youth towards tobacco consumption. In addition to that, inadequate efforts of government for deterrence for substance of abuse also proving to be another contributor of this early onset of this disease.

Considering risk factors, previous studies have indicated variety of determinants in our society which are quite different from western countries. Unfortunately, the use of chewing tobacco in the form of gutka is becoming a social norm especially among younger men.¹² Lack of education and peer pressure could be the primary reasons for encountering gutka as the most commonly abused substance among our study subjects. Parallel to our findings, similar observation was reported by other studies from Indo-Pak subcontinent.⁷

Site has important value in predicting the overall course of disease. Typically, OSCC has an irregular distribution within oral cavity with tongue being the commonest site of oral malignancy in western countries whereas; buccal mucosa is the primary site in our part of the world.¹³ Consistent with regional studies, we also found most cases arising from buccal mucosa in line with previous studies done by Bhatt SP et al., Ahluwalia et al., Wahid et al. and Ahmed et al.^{8, 13-15} Direct exposure of buccal mucosa to tobacco products could have led to this site preference. Additionally, smokeless tobacco products also generates carcinogens especially tobacco specific nitrosamine, impeding the antioxidant activity causing accumulation of

reactive oxygen species which in turn responsible for accelerating mucosal damage initiating carcinogenesis, as reported previously.³

Among the clinicopathological prognostic indicators, high prevalence of advance stage OSCC was found along with aggressive histological differentiation, corroborating with other investigations.^{7, 8, 16} We believe that ignorance of signs and symptoms by patients and poor health care system in our country may have contributed to delayed diagnosis and presentation of patients to health care setup. This may result in lower survival and poor expected outcome in cases from our population.

Ethnicity is an important determinant in development of different cancers, due to distinct genetic profile of population.¹⁷ In present research, we came across majority of Urdu speaking cases. It is difficult to generate an inference on this characteristic as Urdu speaking is the major ethnicity residing near the institution's vicinity and thus could have influenced our sampling.

A common limitation to most comparative studies of OSCC is limited sample size. We also found it difficult to encounter cases following a prospective sampling design. We recommend that a multicentre study with a longer sampling time frame would be more useful to overcome this limitation.

In the light of these findings, we conclude that, young smokeless tobacco consumers are more prone to develop oral squamous cell carcinoma with aggressive behaviour in our community. The disease also showed potential for gender distribution due to high prevalence of substance abuse among men. However, large-scale multicentre studies are required to further explain the epidemiological characteristics of this disease.

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