

A Study of 89 Cases of Oral Squamous Cell Carcinoma Presenting at Teaching Hospitals of Lahore, Pakistan



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ABSTRACT:

OBJECTIVE: Oral squamous cell carcinoma (OSCC) is one of the most prevalent malignant neoplasm in south Asia and a major public health problem in Pakistan due to its high morbidity and poor survival rates. The objective of the study was to describe the clinical pattern of oral squamous cell carcinoma in tertiary care hospitals of Lahore.

METHODOLOGY: A cross sectional study was done at tertiary care hospitals of Lahore where demographic and clinical data of eighty nine histologically diagnosed cases of OSCC was studied.

RESULTS: Mean age of the patients was 53.13 ± 14.82 years and male to female ratio was 1.4:1 with 58.4% males and 41.6% females. Tongue was the most frequently affected site 37.1% followed by buccal mucosa 30.3%. The most common presenting complaint was non healing ulcer 50.6%. Mean duration of lesions at presentation was 5 ± 3.68 months. 66.3% cases reported with history of smoking, chewing tobacco/snuff and betel quid. Smoking was the most prevalent etiological agent accounting for 22.5% cases and was found to be significantly higher in the male population ($p < 0.001$).

CONCLUSIONS: Most cases of oral squamous cell carcinoma (OSCC) in major hospitals of Lahore, Pakistan are reported in 5th to 6th decade of life, with male preponderance. Ulceration is the most common clinical manifestation in OSCC patients with about two-third cases reporting within 6 months of onset of lesions. Tongue is the most commonly affected site and smoking tobacco and betel quid chewing are the main risk factors implicated in OSCC.

KEYWORDS: Oral Squamous Cell Carcinoma; oral cancer; risk factors; smoking

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INTRODUCTION

Oral cancer is a potentially fatal disease with continuing increase in worldwide incidence and constantly poor survival rates.¹ Oral squamous cell carcinomas (OSCC) is one of the most frequent globally reported malignant neoplasm, accounting for > 90% of oral cancers. It arises from the mucous membrane of the oral cavity and may affect any anatomical site in the oral cavity including lips, retromolar area, buccal and labial mucosa, gingiva, palate and the floor of the mouth.

Globally, there is a marked variation in geographical distribution and incidence of oral cancer. The geographic incidence of 3-6 % and 30% is seen in the Western and Eastern countries respectively.² In Pakistan, it is the second most common malignancy³ and constitutes 15% of estimated new cancer cases compared to 3% found worldwide.⁴ The risk of developing OSCC rises with age and most of the cases occur after the fifth decade of life in the Asian populations. Globally, the incidence and mortality rates of oral cancer are higher for men than women due to greater indulgence in high risk habits by males as compared to the females.⁴ In developing countries like Pakistan, greater prevalence of use of tobacco, areca nut and betel quid is known as a strong risk factor for developing oral cancers and oral potentially malignant disorders.⁵

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OSCC is manifested in various clinical forms. It may present as leukoplakia (white plaque), verrucous leukoplakia, erythroplakia (red lesion) or erythroleukoplakia. With time, it may eventually develop into an ulcer with irregular, indurated and rolled border or as an exophytic broad-based mass or a fungating mass with the invasion of local structures.⁶ OSCC may also present as a lump, as a non-healing extraction socket or as a cervical lymphadenopathy, characterized by hardness or fixation.⁷

Mortality and morbidity of OSCC has not changed considerably over the last few decades due to its high degree of local invasiveness and a high rate of metastasis.⁸ The 5-year survival rate is only 50%⁹ with maximum patients usually dying within the first 2-3 years of illness.¹⁰ Thus, there is a great need to establish novel, effective and less toxic therapeutic alternatives to standard therapy in order to improve the prognosis for patients with oral cancer. The present study was carried out to describe the clinical pattern of oral squamous cell carcinoma presenting at tertiary care hospitals of Lahore.

METHODOLOGY

A cross sectional study was conducted from January 2010 to September 2015 in Lahore, Pakistan. Demographic and clinical data of eighty nine cases were collected through the departmental records of Mayo hospital, Sheikh Zaid Hospital and Allama Iqbal Medical College/ Jinnah Hospital, Lahore. Histopathology was done at Department of Morbid Anatomy and Histopathology/Oral Pathology, University of Health Sciences, Lahore. The data was analyzed using SPSS 21.0. Pearson Chi square / Fisher Exact test were applied to determine associations between the variables including age, gender, site of involvement, clinical presentation, etiological agent and the duration of OSCC lesion. A p value of ≤ 0.05 was considered as statistically significant. This study was approved by the institutional ethical review committee and also from Advanced Studies and Research Board of University of Health Sciences Lahore, Pakistan (ERC approval vide letter no: UHS/Education/126-15/1776)

RESULTS

The overall mean age of the study population was 53.13 ± 14.82 years with the age range of 25-80 years. The male to female ratio was 1.4:1 with 52 (58.4 %) males and 37 (41.6%) females. Most cases reported in 5th to 6th decade of life with male predominance ($p < 0.001$) (Fig. 1).

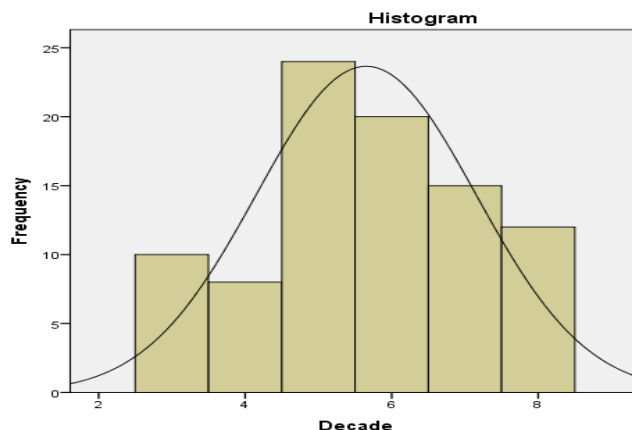


Fig. (1). Age distribution of OSCC cases.

Regarding the site of involvement of oral cavity, occurrence of OSCC was found considerably higher on the tongue followed by buccal mucosa and other sites (Table 1). In males, predominant involvement of buccal mucosa was seen 17(32.7%) whereas in females, tongue involvement was higher 18(48.6%).

Diverse clinical presentations were recorded among study patients (Fig. 2) with most of the cases presenting with non-healing ulcer (Table 1). The presence of ulcer was found to be significantly higher on the tongue ($P < 0.001$).

The duration of lesions in the study cases varied between 0-6 months in 61(68.5%) cases, 7-12 months in 22(24.7%), and > 12 months in 6(6.7%) cases. Mean duration of lesions at presentation was 5 ± 3.68 months (ranging from 1 month to 19 months). Mean duration was longer for males (5.17 ± 3.81 , ranging from 1 to 19 months) than for females (4.76 ± 3.53 , ranging from 1 to 18 months). Significant association was found between the duration of lesions and age ($p < 0.001$) and site of involvement ($p = 0.01$) of OSCC.

As regards the etiology, 59(66.3 %) cases reported with history of smoking, chewing tobacco/snuff and betel quid. While 30(33.7%) cases had no identifiable risk factors. Smoking was the most common etiological agent in the current study accounting for 20(22.5%) cases and was found to be significantly higher among the male population 19(36.5%) while betel quid chewing was more common in females 10(27%) ($p < 0.001$). A significant association was found between the etiological agents and the site of involvement of the tumor ($p < 0.001$). However, it was not possible to determine smoking, betel quid and tobacco consumption in terms of frequency and duration of use.

Table 1. Site Distribution with respect to Gender and Clinical Presentation of OSCC.

Site	Gender		p-value	Clinical Presentation				Total (%)	p-value
	Female	Male		Ulceration	Lump/swelling	Verrucous/exophytic mass	White patch (leukoplakia)		
Buccal Mucosa	10	17	0.286	13	6	5	3	27(30.3%)	<0.001
Gingiva	0	3		1	2	0	0	3(3.4%)	
Hard Palate	1	1		2	0	0	0	2(2.2%)	
Lip	4	9		2	11	0	0	13(14.6%)	
Retromolar area	0	3		0	1	2	0	3(3.4%)	
Sub-mandibular gland	4	4		2	6	0	0	8(9%)	
Tongue	18	15		25	2	2	4	33(37.1%)	
Total	37	52		45	28	9	7	89(100%)	

Chi square/ Fisher Exact test was applied at 0.05 level of significance.

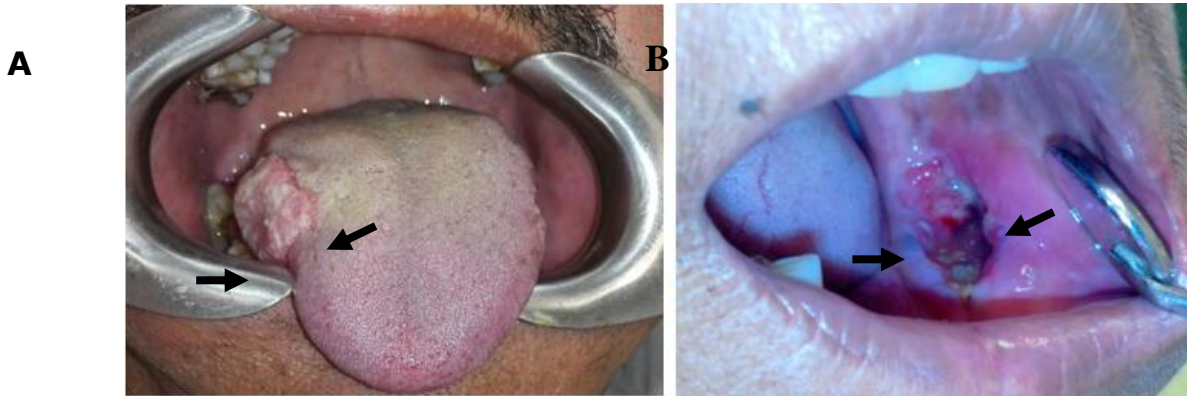


Fig. (2). (A) An exophytic lesion of OSCC on the right lateral border of tongue (B) An ulcerated lesion of OSCC on left buccal mucosa.

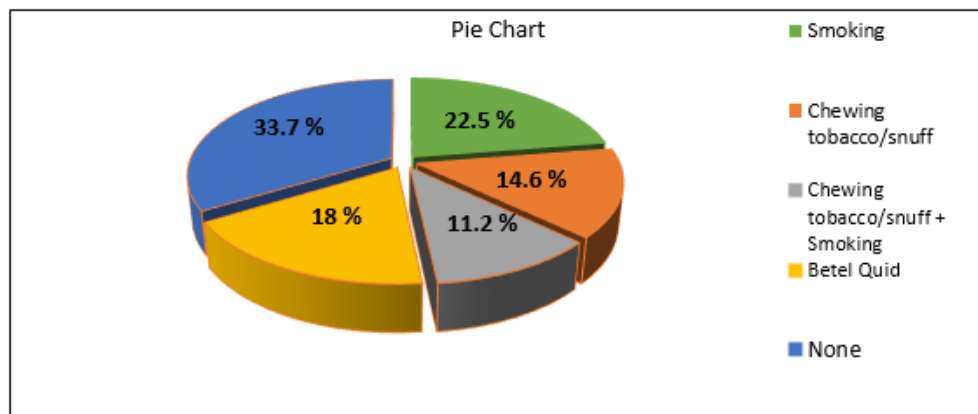


Fig. (3). Frequency of common etiological agents in OSCC patients.

DISCUSSION

Incidence of oral squamous cell carcinomas (OSCCs) widely differs worldwide with the prevalence being highest in the Indo-Pak subcontinent. Identifying trends in the incidence rates of oral squamous cell carcinoma (OSCC) in relation to age, gender, site distribution and tumor stage are essential in making the therapeutic decisions. A total of 89 cases, histologically diagnosed as OSCC were recruited in the study. In the present study, the overall mean age at the time of presentation/ diagnosis of OSCC was 53.13 ± 14.82 years. The age range in males was 25 to 80 years while in females the age range was 25 to 75 years with most cases reported in 5th to 6th decade of life. These findings were consistent with the study done in Karachi¹¹ demonstrating age of patients ranging from 25 to 80 years with most cases seen in the fifth decade. Similarly, a study conducted by Rahman *et al.*¹² reported 50.46 ± 3.78 years mean age which is similar to the present study. Contrarily, Alamgir *et al.*¹³ in their study on 150 OSCC cases, reported mean age 47.1 ± 12.22 years.

The gender related findings of the present study showed male to female ratio 1.4:1, showing male predilection. This was consistent with the local¹⁴ and international studies¹⁵ both of which showed definite male preponderance. The highest male predilection for OSCC was reported in Taiwan where male to female ratio of 10.5:1 was seen.¹⁶ In Pakistani society males are more exposed to risk factors such as tobacco, areca nut and betel quid use compared to females, thus resulting in developing more OSCC.

As regards the site of OSCC, tongue was involved most frequently in the present study (37.1%) followed by buccal mucosa (30.3%). An epidemiological study of OSCC carried out in Mexico by Hernandez-Guerrero *et al.*¹⁵ reported tongue as the predominant site of involvement (44.7%). Similar results demonstrated by Tahas *et al.*¹⁷ as well. On the contrary, Bhurgri¹⁸ in her report from South Karachi demonstrated that in oral malignancy, the buccal mucosa was most frequently involved (55.9%), followed by tongue (28.4%). The site predilection varied throughout the world. In Iraq, lip was preferential site in people exposed to ultraviolet radiation¹⁹ whereas in Hungary, floor of mouth was the most frequently affected site in OSCC patients.²⁰ The site variations could be attributed to the intensity of exposure to different risk factors prevalent worldwide. Moreover Subashraj *et al.*²¹ reported that the high risk relating these sites is due to saliva mixed with carcinogens constantly bathe these sites and the thinner, non-keratinized mucosa lining these sites offer decreased protection against carcinogens.

In the present study, a slightly higher frequency of buccal mucosa tumors in males was seen whereas among females, tongue was predominantly involved. Contrarily, Kruse *et al.*²² showed that females were affected more by OSCC on the palate and maxillary alveolar ridge whereas among males, most common site was mandibular alveolar ridge. The reason for this differential site predilection for OSCC in both the genders is unknown.

Clinical aspect of the tumor revealed that ulceration was the most frequent manifestation seen in the present study (50.6%) followed by swelling/lump, white patch (leukoplakia) and verrucous/ exophytic mass in descending order. Akin to the findings of the present study, studies carried out by Khaleel *et al.*¹⁴ demonstrated that ulceration was the most common presentation in OSCC patients. Whereas Falaki *et al.*²³ observed exophytic lesion with ulcer as the most common clinical presentation in OSCC of young patients in Iran.

A significant association ($p < 0.001$) was found between the site of involvement and the clinical presentation of the tumor in the present study showing that the lesions of tongue generally ulcerate. This finding was consistent with other observations.²⁴

In the present study, the mean duration of the lesions at presentation was 5 ± 3.68 months which is somewhat similar to the study conducted in Kenya²⁵ reporting a mean duration of 7.2 months. Consistent with the findings of Shenoie *et al.*²⁶, 68.5% of patients reported within 6 months of onset of the lesions. Delayed presentation can be attributed to lack of awareness about the symptoms and misinterpretation of oral symptoms as minor oral conditions.²⁷ Morelato *et al.*²⁸ reported that, both patients and professionals were responsible for the delay in diagnosis and the treatment.

Consistent with the findings of Syam *et al.*²⁹, smoking was the most prevalent etiological agent among the OSCC patients in the present study. Schmidt *et al.*³⁰ stated that smoking is the most common form of tobacco consumption, accounting for 41% of OSCC cases with the smokers being 6-8 times more prone to develop OSCC compared to non-smokers. In accordance with the present study, Akram *et al.*¹¹ demonstrated that betel quid chewing was more common in females while tobacco smoking habit was prevalent among males. However Sharma *et al.*³¹ reported that the consumption of smokeless tobacco was more common than smoking habits in both the genders.

The limitations of the present study are small and distinct sample population taken from particular hospital settings that subsequently restricts generalizability of findings of this study. Secondly, the clinical stage of squamous cell carcinoma in study patients is not described in the present

study as a comprehensive and detailed data collection in this regards is underway for future research purpose.

CONCLUSIONS

In major hospitals of Lahore, Pakistan, most cases of oral squamous cell carcinoma (OSCC) are reported in 5th to 6th decade of life, with male preponderance. Tongue is the most frequently affected site, followed by buccal mucosa. Ulceration is the most prevalent clinical presentation with majority of the patients reporting within 6 months of the onset of lesions.

CONFLICT OF INTERET

Authors declare NO conflict of interests.

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CONTRIBUTION BY AUTHORS

- 1 RakiaSahaf:** Conception, synthesis and planning of the research interpretation, analysis and discussion.
- 2 Nadia Naseem:** Conception and planning of the research interpretation.
- 3 RabiaAnjum:** Active participation in methodology.
- 4. Aman-ur-Rehman:** Active participation in methodology.
5. AH Nagi: Supervisor.

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