Original Article

Oral Squamous Cell Carcinoma

# Examine the Prevalence of Risk Factors and Causes of Oral Squamous Cell Carcinoma

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## ABSTRACT

**Objective:** To examine the prevalence of clinical and histological proven cases of oral squamous cell carcinoma also examine the risk factors and challenges in diagnosis oral cancers.

**Study Design:** Retrospective/observational study

**Place and Duration of Study:** This study was conducted at the Department of Oral Pathology, Institute of Dentistry, CMH Lahore Medical College Lahore and Military Dental Centre, Lahore from July 2018 to Dec.2019.

**Materials and Methods:** One hundred and twenty patients of both genders with ages 20 to 70 years clinical and histologically diagnosed to have oral squamous cell carcinoma were included in this study. Patient's demographical details including age sex, residence and socioeconomic status were examined after taking informed consent. Incisional biopsy was taken from all the patients and sent to laboratory for examination. Prevalence and risk factors of oral squamous cell carcinoma were examined. Challenges in diagnosing were also examined.

**Results:** Ninety patients found to have oral squamous cell carcinoma in which 70 (77.76%) were males while 20 (22.22%) were females. 40 (44.44%) patients were ages 20 to 45 years, 38 (42.22%) patients had ages 46 to 60 years and 12 (13.33%) patients were ages above 60 years. Buccal mucosa was the most frequent site of oral squamous cell carcinoma found in 46 (51.11%) patients followed by lower alveolar and tongue. The most frequent risk factor was cigarette smoking found in 36 (40%) patients. delay due to patients unawareness found in 30 (33.33%) patients followed by misdiagnosed by expertise and lack of facility (diagnosing tools).

**Conclusion:** There is a high prevalence of oral cancer and smoking is the major risk factor of this malignant disease. Misdiagnosed at first visit is the major concern, Lack of diagnosis facilities and lack of awareness is also most important factor for increasing the rate of this malignant disorder.

**Key Words:** Oral squamous cell carcinoma (OSCC), Frequency, Risk factors, Diagnosis, Causes

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## INTRODUCTION

Globally, Oral cancer is considered most frequent life threatening malignant disorder and from last thirty years the incidence rate of oral cancer is going upward. Due to oral cancer the high rate of mortality is recorded and in Pakistan oral cancer contributed a great threat to public health with high rate of mortality and morbidity.[1]

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As per international reports oral cancer is the most common malignant disorder and in Pakistan it is the 2nd most common malignant disease that lead to increase rate of mortality.[2] From all the types of tumor, oral cancer in Pakistan rated 15% and this rate is 5 times greater than the worldwide incidence rate of oral cancer 3%.[3] According to the international researches, in sub-continent oral cancer incidence rate is quite high with incidence rate of 7.9% and mortality rate 3.8%.[4]

Many of studies reported that the patients with third to 5th decade of life has a high prevalence of oral cancer but now-a-days several studies reported early age. It is reported that majority of oral cancers are squamous cell carcinoma and accounted above 90%.[3-4]

Many of factors involves in raising the incidence of oral squamous cell carcinoma including genetic and environmental factors. Tobacco use, betel quid, alcohol, chewing tobacco and snuff are the most frequent risk factors.[5]

Worldwide, tobacco use and alcohol consumption considered the strongest risk factors and in developed countries these two factors are most common and contributed a high rate of incidence.[6,7] In developing countries like Pakistan, India, Bangladesh tobacco use

with betel quid and snuff with substitute are the major risk factors of oral squamous cell carcinoma.[8] Globally, early and accurate diagnosis of oral cancer is a big challenge for professional. Presenting instances in which pathologies were not diagnosed and/or treated in spite of obvious signs, should serve as a warning for dental professionals. The general practitioner is the "first line of defense" for symptomatic and asymptomatic patients and therefore the implementation of well-established screening protocols is of paramount importance. In light of the low sensitivity ratio of oral examinations, use of biopsies is mandatory when a lesion is suspected.[9-12]

# MATERIALS AND METHODS

This retrospective analysis was conducted at Department of Oral Pathology, Institute of Dentistry, CMH Lahore Medical College Lahore and Military Dental Centre, Lahore from 1st July 2018 to 31st December 2019. In this study total 90 patients of both genders with ages 20 to 70 years clinical and histologically diagnosed to have oral squamous cell carcinoma were included in this study. Patient's demographical details including age sex, residence and socioeconomic status were examined after taking informed consent. Patients with other severe infections, patients diagnosed to have no oral cancer and those who were not interested to participate were excluded from this study. All the patients had undergone incisional biopsy. A tissue was obtained and sent to laboratory for histopathological examination of the oral squamous cell carcinoma. Microscopic examination was done to examine the stages of tumor. Risk factors were also examined. Causes of severe malignancy were recorded. All the data was analyzed by SPSS 20.

# RESULTS

Out of 120 clinically proven cases, 90 patients found to have squamous cell carcinoma by histopathological examination. In which 70 (77.78%) were males while 20 (22.22%) were females. 40 (44.44%) patients were ages 30 to 45 years, 38 (42.22%) patients had ages 46 to 60 years and 12 (13.33%) patients were ages above 60 years. 50 (55.56%) patients had rural residency while 40 (44.44%) had urban residency. 46 (51.11%) patients had low socioeconomic status, 44 (48.89%) had middle status (Table 1).

As per pathological examination we found 46 (51.11%) patients had buccal mucosa, 24 (26.67%) patients had lower alveolar mucosa, 8 (8.89%) patients had tongue, 6 (6.67%) had lips and 6 (6.67%) patients had cheeks according to the sites of tumor (Table 2). The most frequent risk factor was cigarette smoking found in 36 (40%) patients followed by betel quid 24 (26.67%), alcohol 20 (22.22%), 6 (6.67%) smoking with tobacco chewing and 4 (4.44%) had others (Table 3)

Most important cause of malignancy was misdiagnosed by expertise at first visit found in 26 (28.89%), delay due to patients unawareness found in 30 (33.33%), delay in diagnosis due to lack of facility (Diagnosing Tools found in 12 [13.33%] (Table 4).

**Table No.1: Demographical characteristics of all the patients**

| Variable | No. | % |
|---|---|---|
| Gender | | |
| Male | 70 | 77.78 |
| Female | 20 | 22.22 |
| Age (years) | | |
| 30 – 45 | 40 | 44.44 |
| 46 – 60 | 38 | 42.23 |
| > 60 | 12 | 13.33 |
| Residence | | |
| Urban | 40 | 44.44 |
| Rural | 50 | 55.56 |
| Socioeconomic Status | | |
| Low | 46 | 51.11 |
| Middle | 44 | 48.89 |

**Table No.2: According to the sites of Oral squamous cell carcinoma**

| Sites | No. | % |
|---|---|---|
| Buccal Mucosa | 46 | 51.11 |
| Alveolar | 24 | 26.67 |
| Tongue | 8 | 8.88 |
| Cheeks | 6 | 6.67 |
| Lips | 6 | 6.67 |

**Table No.3: Risk factors of oral squamous cell carcinoma**

| **Risk factors** | **No.** | **%** |
|---|---|---|
| Cigarette smoking | 36 | 40 |
| Betel Quid | 24 | 26.67 |
| Alcohol | 20 | 22.22 |
| Smoking with tobacco chewing | 6 | 6.67 |
| Other | 4 | 4.44 |

**Table No.4: Causes of malignant oral tumor associated to diagnosing**

| Causes | No. | % |
|---|---|---|
| Misdiagnosed by expertise | 26 | 28.89 |
| Patients Unawareness | 30 | 33.33 |
| Lack of Diagnosing Tools | 12 | 13.33 |
| Others (faculty, procedure) | 6 | 6.67 |

# DISCUSSION

Oral squamous cell carcinoma is found to be more common in slightly older males all over the world but newer studies are revealing its development in younger age groups.[13] Many of studies reported that the patients with third to 5th decade of life has a high prevalence of oral cancer but in recent years several studies reported early age. Some previous studies showed that patients with age group 50 to 60 years had a high prevalence of

OSCC.[14-16] The present study was conducted aimed to examine the frequency and risk factors of oral squamous cell carcinoma also determine the causes of this malignant disorder associated to diagnosis. In our study majority of patients were males 77.78% while female patients were very low in numbers. These results showed similarity to some other studies in which male patients population was high 60 to 85% as compared to females.[17-18]

In present study we found that majority of patients were ages between 30 to 60 years. A study conducted by Akram et al[19] regarding oral squamous cell carcinoma reported patients with ages 30 to 60 years had a high prevalence of oral tumor. We found that 50 (55.56%) patients had rural residency while 40 (44.44%) had urban residency. Forty-six (51.11%) patients had low socioeconomic status, 44 (48.89%) had middle status. These results were comparable to some other studies in which most of the patients had low socioeconomic status. As per previous studies socioeconomic status and literacy contributed a lot for increasing the rate of oral tumors.[20-23] Forty-six (51.11%) patients had buccal mucosa, 24 (26.67%) patients had lower alveolar mucosa, 8 (8.89%) patients had tongue, 6 (6.67%) had lips and 6 (6.67%) patients had cheeks according to the sites of tumor. Most of the studies demonstrated buccal mucosa was the most frequent site of oral squamous cell carcinoma followed by alveolar mucosa.[23,24]

We found that smoking tobacco (cigarettes) was the most frequent risk factor for developing oral cancer 40% followed by betel quid and alcohol. These results were similar to some other studies but in contrast many of studies reported alcohol consumption, snuff and chewing tobacco were the most common risk factors.[24,25] The second most important objective of this study was to examine the causes, challenges associated to diagnosing oral cancers and we found most important cause of malignancy was misdiagnosed by expertise at first visit found in at first visit found in 26 (28.89%), delay due to patients unawareness found in 30 (33.33%), delay in diagnosis due to lack of facility (diagnosing tools found in 12 (13.33%). Many of previous studies shows the problems regarding malignancy and found misdiagnosed by expertise and delay in diagnosis due to unawareness were the most important challenges for diagnosing this malignant disorder.[26,27] In this study we observed that there is a need of trained professionals for diagnosing this malignant disorder also provide awareness to the people so that early diagnosis could be possible and may helps to reduce the morbidity and mortality rate in Pakistan.

# CONCLUSION

Oral cancers are the world's most common and life threatening malignant disorders. In Pakistan the rate of oral cancers is quite high as compared to developed countries. In this study, we concluded that that there is a high prevalence of oral cancer and smoking is the major risk factor of this malignant disease. Misdiagnosed at first visit is the major concern, Lack of diagnosis facilities and lacks of awareness are also most important factor for increasing the rate of this malignant disorder. Authorities should take a action for training the professionals and for providing the proper diagnosing tools so that mortality and morbidity could decrease. Also provide awareness to the people about this malignant disorder. Moreover, many of challenges contributed in raising the rate of oral cancer but importantly early diagnosis and prompt treatment are very helpful for decreasing the frequency of oral squamous cell carcinoma.

**Author's Contribution:**

| | |
|---|---|
| Concept & Design of Study: | Faiqua Yasser |
| Drafting: | Shakila Mushtaq, Asrar Ahmad |
| Data Analysis: | Ambreen Tauseef, Raja Yasser Shahbaz, Rizwana Kamran |
| Revisiting Critically: | Faiqua Yasser, Shakila Mushtaq |
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**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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