**Original Article**

# EMERGING CLINICAL AND HISTOPATHOLOGICAL SPECTRUM OF ORAL SQUAMOUS CELL CARCINOMA

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## ABSTRACT

***Objective:*** *To evaluate and analyze the emerging clinical and histopathological spectrum of oral squamous cell carcinoma in population reporting to Oral and Maxillofacial Unit Dental Section Bacha Khan Medical College, Khyber Pakhtunkhwa.*

***Material and Methods:*** *Data of 46 patients with oral squamous cell carcinoma reported to the Oral and Maxillofacial Surgery Unit, Bacha Khan Medical College Mardan, from Jan 2013 to March 2015 were reviewed. The diagnosis, established, was based on history, clinical examination and biopsy in all cases. Data regarding the age, gender, site, clinical presentation and degree of differentiation were evaluated and analyzed.*

***Results:*** *Male outnumbered female. The most common age group involved was sixth decade. Clinically non-healing ulcer (50%) pre-dominated other patterns. It occurred more on the mandibular alveolar ridge (37%) followed by cheek (26%), while least on the floor of mouth. Majority of the cases were moderately differentiated (54.4%) followed by well differentiated (37%). Moderately and well differentiated OSCC were evenly distributed among both genders.*

***Conclusions:*** *This study showed that OSCC was more common in aged males. It commonly presented as non healing ulcer and mostly occurred on the mandibular alveolar ridge. Majority of the cases were moderately differentiated.*

***Key words:*** *Oral Squamous Cell Carcinoma, Non- healing Ulcer, Alveolar Ridge, Degree of Differentiation*

## INTRODUCTION

Oral malignancies presents the majority of head and neck cancers and represent about 5% of all malignant tumors in human body. Oral cancer is the third and tenth common malignancies in Pakistan and across the world respectively. Squamous cell carcinoma is the most common malignant tumour of oral cavity, representing about 95% of all oral cancers. Therefore, Oral Squamous Cell Carcinoma (OSCC) is often designated as "oral cancer". The other 5% includes adenocarcinoma, adenoid cystic carcinoma and malignant melanomas[1,2].

Most cases have been reported in middle and older age groups but an earlier age of incidence have also been reported in recent years. It occurred more in male than female with ratio of 2:1, however, its incidence varies within the developed and developing countries. The common sites involved in OSCC are buccal mucosa, alveolus, anterior tongue, floor of the mouth, lips, palate and retro molar trigone[3,4].

OSCC shows geographical variation with respect to the age, gender, site and habits of the population. Its incidence is even higher in Pakistan and other South East Asian countries[5]. This higher incidence can be attributed to the use of betel quid, smoked and smokeless tobacco among a vast population in this region[3,5,6].

OSCC clinically presents in varied forms like non-healing ulcer with indurated margins, exophytic, ulceroinfiltrative, exophytic fungating or fung-ulcerative or simply a white / erythroplakic patch[7,8]. Biopsy is the most definitive way to establish the diagnosis. Contrast-enhanced CT (CECT) and/or MRI of head and neck are also required to know the extent/nature of disease, staging, bony involvement and vascular/neurological involvement. Management options include radiation, chemotherapy, surgery, or a combination of these modalities[9].

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The objective of this study was to provide a baseline data on the emerging pattern of OSCC in patients reporting to Oral and Maxillofacial Surgery Unit, Bacha Khan Medical College, regarding the correlation of OSCC with age, gender, site, clinical presentation and degree of differentiation. Secondly, this will help to ascertain the magnitude of the disease and thereby improving its diagnosis, treatment and timely prevention.

## METHODS AND MATERIALS

The present study which is descriptive (case series) had been carried out on 46 consecutive patients of both gender and irrespective of age presenting with the features of OSCC at Oral and Maxillofacial Surgery Unit, Bacha Khan Medical College Mardan from Jan 2013 to March 2015.With the consent of the patients, a detailed history was taken and thorough clinical examination was carried out. Routine investigations, orthopentograph (OPG), CT and MRI were performed for every patient. Patients having recurrent OSCC were excluded from the study. The diagnosis, established, was based on history, clinical examination and biopsy in all cases. The data concerning the study was obtained on preformed proforma and evaluated and analyzed by applying descriptive statistics.

## RESULTS

Gender distribution showed that OSCC was common in male (58.7%) with male to female ratio of 1.42:1. The age of patients at the time of presentation ranged from 32- 88 years, with a mean age 64.65 years ±10.45 SD. The most common age group involved was 6th decade (26%) followed by 7th and 8th decades (19.5% each). The details of age and gender distribution are given in Table-1.

OSCC presented most commonly as non healing ulcers (50%) followed by exophytic fungating mass (30.5%). Details is given in Figure-1.

OSCC occurred more on the mandibular alveolar ridge (37%) followed by cheek (26%), while least on the floor of mouth. Sites distribution is given in Table-2.

Majority of the cases of OSCC were moderately differentiated 25(54.4%) followed by well differentiated 17(37%), while there was no case of undifferentiated type. Well and moderately differentiated cases were equally distributed among the various sites, while poorly differentiated occurred more on the mandibular

**Table-1: Age and Gender Distribution of Oral Squamous Cell Carcinoma**

| Age group in years | Male | | Female | | Total | |
|---|---|---|---|---|---|---|
| 31-40 | 3 | 6.52 | 3 | 6.52 | 6 | 13.04 |
| 41-50 | 2 | 4.35 | 4 | 8.70 | 6 | 13.04 |
| 51-60 | 8 | 17.39 | 4 | 8.70 | 12 | 26.09 |
| 61-70 | 7 | 15.22 | 2 | 4.35 | 9 | 19.57 |
| 71-80 | 6 | 13.04 | 4 | 8.70 | 10 | 21.74 |
| More than 80 years | 1 | 2.16 | 2 | 4.35 | 3 | 6.52 |
| **Total** | **27** | **100** | **19** | **100** | **46** | **100** |

**Table-2: Distribution according to site of involvement and gender of patients**

| Gender | Mandibular Alveolus | | Cheek | | Anterior Tongue | | Maxillary Alveolus | | Lips | | Floor of Mouth | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | n | % | n | % | n | % | n | % |
| Male | 10 | 21.8 | 7 | 15.2 | 3 | 6.5 | 3 | 6.5 | 3 | 6.5 | 1 | 2.2 | 27 | 58.7 |
| Female | 7 | 15.2 | 5 | 10.8 | 3 | 6.5 | 2 | 4.4 | 1 | 2.2 | 1 | 2.2 | 19 | 41.3 |
| **Total** | **17** | **37** | **12** | **26** | **6** | **13** | **5** | **10.9** | **4** | **8.7** | **2** | **4.4** | **46** | **100** |

**Table-3: Distribution according to site and degree of differentiation**

| Degree of Differentiation | Mandibular Alveolus | | Cheek | | Anterior Tongue | | Maxillary Alveolus | | Lips | | Floor of Mouth | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | n | % | n | % | n | % | n | % |
| Well differentiated | 5 | 10.87 | 3 | 6.5 | 4 | 8.70 | 2 | 4.35 | 3 | 6.52 | 0 | 0 | 17 | 36.96 |
| Moderately differentiated | 9 | 19.57 | 8 | 17.39 | 3 | 6.52 | 2 | 4.35 | 1 | 2.17 | 2 | 4.35 | 25 | 54.35 |
| Poorly differentiated | 3 | 6.52 | 1 | 2.17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 8.69 |
| Undifferentated | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **17** | **37** | **12** | **26** | **7** | **15.2** | **4** | **8.7** | **4** | **8.7** | **2** | **4.4** | **46** | **100** |

**Table-4: Distribution according to gender and degree of differentiation**

| Gender | Well Differentiated | | Moderately Differentiated | | Poorly Differentiated | | Undifferentiated | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| Male | 10 | 21.7 | 14 | 30.5 | 03 | 6.5 | 0 | 0 | 27 | 58.7 |
| Female | 07 | 15.2 | 11 | 23.9 | 01 | 2.2 | 0 | 0 | 19 | 41.3 |
| **Total** | **17** | **37** | **25** | **54.4** | **04** | **8.6** | **0** | **0** | **46** | **100** |

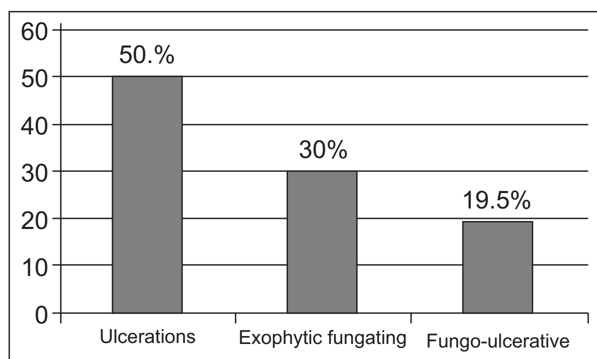


**Figure-1: Clinical Presentation of Oral Sqamous Cell Carcinoma**

alveolar ridge and cheek. Detail is given in Table-3.

Distribution according to gender and degree of differentiation according to clinical and histopathological grading revealed that moderately differentiated squamous cell carcinoma occurred more in male (30.5%) than female patients. Similarly, well differentiated carcinoma also occurred more in male (21.7%). Details is given in Table-4.

## DISCUSSION

From the past studies it has been observed, that men are commonly affected OSCC than woman. Present study shows that OSCC occurred more in male, with ratio of male to female of 1.42:1. Previous studies conducted in Pakistan have given similar results (1.5:1) about the gender distribution[2,9]. Studies in Middle East[10] also reported similar ratio about the gender distribution. Study done in Taiwan has revealed a ratio of male to female 10.5:1[11]. This is a comparably higher value reported so far. However, study conducted by Rehman et al[12] at Peshawar observed nearly equal preva¬lence of SSC in both genders. Some studies have shown high tendency in females which may be due to changing cultural habits in these patients. Similarly, studies carried out in India reported a higher male to female ratio ranging from 2.2:1 to 4.2:1[13]. The relatively high percentage of men in this study may be attributed to the use of smokeless (snuff dipping) and smoked tobacco in these patients.

OSCC is the disease that occurs mainly in the elderly. However, while most of the cases of OSCC occur between 50 and 70 years of age[12,14,15] it can occur in young age in the absence of any known risk factors[16]. The most common age group involved, in this study, was 6th decade (26%) followed by 7th and 8th decades (19.5% each). It is higher around 64 years, in Thailand[17]. Recently, there has been a shift towards younger age at diagnosis[16]. In this study 12% patients are below 40 years of age. Similar results about the age distribution have been given the previous studies[9,12,15,17].

OSCC presented most commonly as non healing ulcers (50%) followed by exophytic fungating mass (30.5%). Studies conducted by Qureshi[6] and Musani[8] also demonstrated that ulceration is the common presentation followed by fungating lesions. This pattern of clinical presentation is nearly same across the world.

Globally, the most commonly reported sites involved in OSCC include floor of the mouth (FOM) and lateral borders of the tongue. Tongue is the most common (40-50%) site for OSCC in European and American population. In Asian population, OSCC occurred more on buccal mucosa due to the use of betel quid/tobacco chewing habits[17]. Study done by Naseem and coworkers[18] at Peshawar had reported that alveolus was commonly involved (40.1%). In present study, OSCC occurred more on the mandibular alveolar ridge (37%) followed by cheek (26%), while least on the floor of mouth. These results are consistent with previous studies done in Peshawar[1,18]. Contradictory findings were reported from studies conducted in North America and Europe, where the most common site was tongue followed by buccal mucosa[19]. The high percentage of OSCC on alveolus in this study may be attributed to the use of naswar (snuff dipping) in our population, where it is placed persistently near the alveolus[1,12,18].

Histopathologically OSCC presents itself as well, moderately and poorly differentiated tumour. These findings have got a great bearing on prognosis and 5 year survival because the prognosis for poorly differentiated tumour is poor as compared to well differentiated one. Majority of the cases in this study were moderately differentiated 25(54.4%) followed

by well differentiated 17(37%), while there was no case of undifferentiated type. Well and moderately differentiated cases were equally distributed among the various sites, while poorly differentiated occurred more on the mandibular alveolar ridge and cheek. In the studies of Zulfiqar[3] and Mehrotra[20], moderately differentiated SCC was the most common type, which correlates well with the present study. Studies by John Isaac[21] on PAAN users and Muslim Khan[1] on snuff users had reported well differentiated as the common type. These differences in the results may be attributed to the sampling size, technique and selection.

Ninety one percent of patients were graded as well and moderately differentiated, which shows that the prognosis of the OSCC is good as far as the degree of differentiation is concerned, but unfortunately this is not the case when it comes to the staging. At the time of presentation of these tumours, most of them were reported in advanced stages, with involvement of the bone, skin and lymph nodes[1,6,15,20].

## CONCLUSIONS

It can be concluded from the present study that OSCC is common in males in their 6th decade of life. OSCC is commonly presented as non healing ulcer on alveolar ridge which are moderately differentiated histopathologically.

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