# Histopathological Grading of Squamous Cell Carcinoma at Time of Presentation in Tertiary Care Hospital

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## ABSTRACT

**Objective:** To evaluate the histopathological grading of oral squamous cell carcinoma in patients at the time of presentation on biopsy.

**Study Design:** Cross sectional study

**Place and Duration of Study:** This study was conducted at the Oral & Maxillofacial Surgery Department of Jinnah Postgraduate Medical Center, Karachi from 17th June 2022 to 30th November 2022.

**Materials and Methods:** A total of 212 patients were enrolled in study diagnosed cases of squamous cell carcinoma on biopsy were evaluated for histopathologic features. Main variables of study were Age, gender, lesion site and histopathologic grading. SPSS version 24 was used for data analysis. Frequency and means were calculated categorical and numerical variables respectively. P value less than or equal to 0.05 was considered as significant.

**Results:** The average age of the patients was $51.66 \pm 12.19$ years. Most of the patients 49.1% were having age between 41-60 years of age group. Buccal mucosa was the most common site in the study patients as 72.6% followed by tongue 17.5%, lower lip 8.0%, hard palate 1.9%. According to histopathological grading, the 97 (45.7%) patients had well differentiated. Only 2.4% patients were diagnosed with undifferentiated OSCC. Buccal mucosa site was highly associated with histopathological grading, ($p<0.001$).

**Conclusion:** Histopathology is useful diagnostic tool for oral squamous cell carcinoma, most of cases in this study were found well differentiated with buccal mucosa as common site of lesion. Male gender and middle age of 20-40 years are more prone to OSCC.

**Key Words:** Oral squamous cell carcinoma, Histopathology, Biopsy, Tertiary care hospital, Site of lesion

## INTRODUCTION

Most frequent type of head and neck carcinoma is oral squamous cell carcinoma (OSCC) with 2.5% increase in incidence rate every year 1.9% death rate worldwide[1]. Origin of OSCC is mucous membrane (oral cavity) and spread to labial, buccal mucosa, retro molar area, gingival, lip, hard palate, floor of the mouth, cheeks and mobile portion of tongue[2]. Associated risk factors of OSCC are alcohol, tobacco, viral infection (HPV, EBV, herpes virus, ill fitting

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denture, improper oral hygiene like decay and sharp teeth, genetic predisposition, nutrition and ultraviolet exposure[3].

Area specific etiological factors in different populations can change the etiology of oral cancers[4]. Use of tobacco in different forms including, Gutka, beeri, betel liquid, areca nut, naswar, khiwam, khaini, mawa, boiled tobacco (zarda), pan masala pan and supari are some common etiological factors that can cause OSCC[5]. In South Asian countries use of pan, areca nut and betel quid is common and associated with site of tumor and its availability of in sachet pack made it more appealing in persons of all ages either teenagers, children and adult age group[6]. Composition of betel quid consist of proteins, carbohydrates, alkaloids, fats, sodium, minerals, manganese, copper and calcium. Alkaloids include four potentially fatal components like guvacoline, arecaidine, guvacine and arecoline[7].

OSCC treatment and prognosis depends upon the site of tumor and degree of differentiation on histology[8]. Habits of tobacco use contribute behavior of risk factors about anatomic zone[9]. There are few different types of OSCC on histology and present as multiple variants which include spindle cell, adenoid, papillary, adenosquamous carcinoma and all these variants have

different pattern on histopathology[10]. Histological differentiation is the degree of deformed cells deviated from normal and usual cells; it also represents the grad of OCSS which classified as well differentiated, moderately and poor differentiated[11,12].

Number of studies conducted before for establishing the correlation of OSCC grade and histopathological differentiation but is still limited; our study will help to give current knowledge histopathological pattern correlation with OSCC.

# MATERIALS AND METHODS

Study was conducted at Oral & maxillofacial surgery department of Jinnah Postgraduate Medical Center, Karachi from 17th June 2022 to 30th November 2022. Study was started after ethical approval from hospital ethical review board. Verbal and written informed consent was obtained from all patients after declaring purpose of study and assuring confidentiality of data. Non probability consecutive sampling technique was used. A total of 212 known cases of squamous cell carcinoma were included in the study. All cases were diagnosed with biopsy and examined for histopathological features. Patient's age, gender, site of lesion and histopathological grading were noted. Patients with age 20-80 years, OSCC and mouth opening above 20 to 25mm and patients aware of their disease were included in the study. Patients with recurrent disease, received radiotherapy or chemotherapy, mouth opening below 20mm and not willing for consent were excluded from the study.

Data analysis was done by using SPSS version 24. Frequency and percentages were calculated for categorical data like gender, site of lesion and histopathological grading. Mean and SD were calculated for numerical data like age. Age and gender were dealt as independent variables and site and grading were dealt as dependant variables. P value less than or equal 0.05 was taken as significant.

# RESULTS

Overall, 212 patients were included in our study, both sexes. The average age of the patients was 51.66±12.19 years. Most of the patients 104 (49.1%) having age between 41-60 years of age group. Buccal mucosa was the most common site in the study patients as 154 (72.6%) followed by tongue 37 (17.5%), lower lip 17 (8.0%), hard palate 4 (1.9%). (Table. 1).

According to histopathological grading, the 97 (45.7%) patients had well differentiated. Only 5 (2.4%) patients were diagnosed with undifferentiated OSCC. (Figure-I). Buccal mucosa site was highly associated with histopathological grading, ($p < 0.001$). (Table. 2).

**Table No.1: Demographic and clinical characteristics of the patients**

| Variable | Mean±S.D | N (%) |
|---|---|---|
| Age (years) | 51.66±12.19 | |
| 20-40 | | 68 (32.1) |
| 41-60 | | 104 (49.1) |
| 61-80 | | 40 (18.9) |
| **Sex** | | |
| Male | | 141 (66.5) |
| Female | | 71 (33.5) |
| **Site** | | |
| Buccal mucosa | | 154 (72.6) |
| Tongue | | 37 (17.5) |
| Lower lip | | 17 (8.0) |
| Hard palate | | 4 (1.9) |
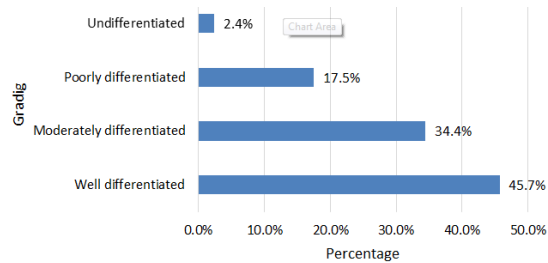


**Figure No.1: Histopathological grading**

**Table No.2: Association of histopathological grading with demographic and clinical characteristics**

| Variable | Category | Well differentiated N (%) | Moderately differentiated N (%) | Poorly differentiated N (%) | Undifferentiated N (%) | Test of sig. |
|---|---|---|---|---|---|---|
| Age (years) | 20-40 | 29 (29.9) | 23 (31.5) | 14 (37.8) | 2 (40.0) | $\chi^2$=1.75 p>0.050 |
| | 41-60 | 51 (52.6) | 36 (49.3) | 15 (40.5) | 2 (40.0) | |
| | 61-80 | 17 (17.5) | 14 (19.2) | 8 (21.6) | 1 (20.0) | |
| Sex | Male | 65 (67.0) | 48 (65.8) | 23 (62.2) | 5 (100.0) | $\chi^2$=2.86 p>0.050 |
| | Female | 32 (33.0) | 25 (34.2) | 14 (37.8) | 0 (0.0) | |
| Site | Buccal mucosa | 66 (68.0) | 61 (83.6) | 25 (67.6) | 2 (40.0) | $\chi^2$=28.72 p<0.001 |
| | Tongue | 21 (21.6) | 6 (8.2) | 10 (27.0) | 0 (0.0) | |
| | Lower lip | 7 (7.2) | 5 (6.8) | 2 (5.4) | 3 (60.0) | |
| | Hard palate | 3 (3.1) | 1 (1.4) | 0 (0.0) | 0 (0.0) | |

# DISCUSSION

In squamous cell carcinoma patients after treatment prognosis is slow and varied because of variation in histological findings and clinical features[13]. Histopathologic evaluation and staging was adopted for proper planning on treatment and better prognosis which concluded in previous literature that advance stage of disease is associated with poor prognosis[14].

In our study most of patients were male 80% were male and 20% were female and most of patients were having age between 40-60 years. In a study Costa Ade L et al[15] reported majority of (55.2%) male patients with age range 50-70 years. Side border of tongue was reported as most common site of lesion followed by lower lip in observed in 10 cases. In our study most common site was buccal mucosa. Woodhouse EC et al[16] conducted a study on this topic and described that majority of patients were male may be due to their common exposure to tobacco products.

Brougham et al[17] carried out a study on squamous cell carcinoma patients and reported mean age of patients was 74 years and most common sites were cheeks and lips on histopathologic evaluation well differentiated cases was common finding. In another study Daniyal et al[18] carried out a study on distant metastasis in SCC patients and reported that major portion of study cases of squamous cell carcinoma developed distant metastasis which is well differentiated stage of metastasis 41.8%. Like our study most common site was also reported buccal mucosa observed in 58.3% cases.

In concern of histopathologic pattern in our study majority of cases 55.1% were diagnosed as well differentiated followed by moderately differentiated 30.1% and poorly differentiated 9.9%. In a study by Abdul Hafeez et al[19] reported that tongue is most frequent site of lesion occurrence and total35% lesions well differentiated. In another study by Neville et al[20] under the title of oral and maxillofacial pathology were reported only 10% cases of well differentiated squamous cell carcinoma.

Yasin et al[21] conducted a study in 2022 on correlation of histopathology and squamous cell carcinoma and reported contrast findings, moderately differentiated cases were common 76.5% followed by 18.6% cases of well differentiated OCSS. Poorly differentiated cases were only 2.9% in this study. Ramasamy et al[22] reported similar findings to our study as well differentiated squamous cell carcinoma is more frequent followed by moderately and poorly differentiated cases,

Saadia et al[23] also reported similar findings that well differentiated squamous cell carcinoma is found in majority of cases 60% and located site was buccal mucosa in 54% of cases. Male patients were in majority because of tobacco use. Rakia et al[24] also conducted a study on Pakistani population (Lahore) and reported tongue as frequent site of lesion and well differentiated cases were more common.

# CONCLUSION

Histopathology is useful diagnostic tool for oral squamous cell carcinoma, most of cases in this study were found well differentiated with buccal mucosa as common site of lesion. Male gender and middle age of 20-40 years are more prone to OSCC.

**Suggestions:** Prevalence rate squamous cell carcinoma can be reduced by giving knowledge about oral cancer and its risk factors in overall population.

**Recommendations:** Further multi center studies with larger sample size are recommended.

**Author's Contribution:**

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|---|---|
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**Conflict of Interest:** The study has no conflict of interest to declare by any author.

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