

# HISTOPATHOLOGICAL PATTERNS OF ORAL SQUAMOUS CELL CARCINOMA

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## ABSTRACT

*The objective of this study was to provide a baseline data on the pattern of oral squamous cell carcinoma in Karachi.*

*The retrospective cross sectional study was conducted. The patients of oral squamous cell carcinoma were examined from January 2007- December 2010 at oral maxillofacial department, Darul Sehat Hospital Karachi. All retrievable case files were obtained and necessary data were extracted regarding age, gender, site and histological type. All cases were clinically examined and provisionally diagnosed. Biopsy was taken from the lesions and tissues were fixed in 10% buffered formalin and submitted to histopathologic department for histological confirmation.*

*62% of males and 38% females were diagnosed with squamous cell carcinoma. 30% were observed in age group of 41-50 years old. 45 % of squamous cell carcinoma were on buccal mucosa.*

*OSCC was most common of all oral malignancies of which most were in the older age group. Serious thought should be given to prevention and early detection.*

**Key Words:** Oral Squamous Cell Carcinoma, Biopsy, Gender.

## INTRODUCTION

Cancer is one of the major threats to public health in the developed world and increasingly in the developing world. According to (WHO perspective) cancer is the second common cause of death in developed countries.<sup>1</sup> Oral cancer is a neoplasm which involves oral cavity, which begins at the lips and ends at the anterior pillar of fauces.<sup>2</sup> The oropharyngeal cancer is more common in developing countries as compare to developed world.<sup>3,4</sup> The prevalence of oral cancer is particularly high among men, the eighth most common cancer worldwide.<sup>3,4</sup> Incidence rates for oral cancer vary in men from 1 to 10 per 100 000 population in many countries.<sup>3,4</sup> In south-central Asia, cancer of the oral cavity ranks among the three most common types of cancer.<sup>3,4</sup>

The incidence of squamous cell carcinoma is higher in Pakistan and other South East Asian countries. Smoking, betel quid, and tobacco chewing habits are the

factors which cause high incidence in vast population in south East Asia.<sup>5</sup> The most common form of oral cancer is squamous cell carcinoma which is the histological form and constitute 90%-95% to 88.72%.<sup>6</sup> The buccal mucosa is the most common site for Squamous cell carcinoma followed by anterior 2/3rd of tongue, lower gum, lip, hard palate, floor of mouth and upper gingiva.<sup>6</sup> Similarly, strong evidence exist which shows the association between carcinoma and history of smoking involving posterolateral surface of tongue and floor of mouth.<sup>7</sup>

Squamous cell carcinoma (SCC) is a malignant neoplasm of epithelial cells exhibiting squamous differentiation as characterized by the formation of keratin and the presence of intercellular bridges.<sup>8</sup> The cell of origin of oral squamous cell carcinoma is the oral keratinocyte.<sup>9</sup> The intracellular cause of oral squamous cell carcinoma is DNA mutation, often spontaneous but increased by exposure to any of a range of mutagens, chemicals, physical or microbial.<sup>9</sup> Histologically, oral squamous cell carcinoma is of different types which are conventional type, basaloid type, spindle cell type, verrucous type, papillary and Mucoepidermoid, adenosquamous, acantholytic and cuniculatum.<sup>10</sup> The Verrucous type is lesser aggressive form of squamous cell carcinoma SSC compared to more aggressive basaloid form.<sup>10</sup>

The objective of this study was to provide a baseline data on the pattern of oral squamous cell carcinoma in

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Karachi. Secondly, this knowledge is hoped to ascertain the magnitude of the problem and thereby improvement in its diagnosis, treatment and prevention.

**METHODOLOGY**

The retrospective cross sectional study was conducted. The patients of oral squamous cell carcinoma were examined from January 2007-December 2010 at oral maxillofacial department, Darul Sehat Hospital Karachi. All retrievable case files were obtained and necessary data were extracted regarding age, gender, site and histological type. The attributes that were essential for the subject selection were, subject must able to understand instruction, accept consent for biopsy, must not be mental and physically disabled.

The study consisted of 100 patients of oral squamous carcinoma that reported at outpatient department of oral and maxillofacial surgery. All cases were clinically examined and provisionally diagnosed. Biopsy was taken from the lesions and tissues were fixed in 10% buffered formalin and submitted to histopathologic department for histological confirmation. All biopsy samples were processed for routine H/E staining. The stained slides were thoroughly examined by expert pathologist for histological diagnosis.

TABLE 1: AGE AND GENDER DISTRIBUTION OF SQUAMOUS CELL CARCINOMA

Age in years	Male	Female	Percentage
31-40	12	12	24%
41-50	20	10	30%
51-60	25	14	39%
71 +	5	2	7%
Total	62%	38%	100%

TABLE 2: DISTRIBUTION OF HISTOLOGIC TYPES OF ORAL SQUAMOUS CELL CARCINOMA

Site		Spindle Cell Form	Basaloid Cell Form	Verrucous Form	Papillary Form	Mucoepidermoid Form	Total
Buccal Mucosa	Count	30	4	10	1	0	45
	Percentage	66.7%	8.9%	22.2%	2.2%	0	100%
Lower Gingiva	Count	15	1	5	1	0	22
	Percentage	68.2%	4.50%	22.7%	4.50%	0	100%
Aveolus	Count	10	1	6	1	0	18
	Percentage	55.6%	5.6%	33.3%	5.6%	0	100%
Retromolar Trigone	Count	5	0	2	0	0	7
	Percentage	71.4%	0	28.6%	0	0	100%
Hard Palate	Count	3	0	0	0	1	4
	Percentage	75.0%	0	0	0	25.0%	100%
Tongu	Count	1	0	3	0	0	4
	Percentage	25.0%	0	75.0%	0	0	100%

TABLE 3: HISTOLOGIC TYPES OF OSC IDENTIFIED IN PARTICIPANTS

Histologic Type	Percent
Spindle cell carcinoma	65%
Verrucous cell carcinoma	25%
Basaloid cell carcinoma	6%
Papillary cell carcinoma	3%
Mucoepidermoid	1%

**RESULTS**

The SPSS version 17 was used to perform statistical analysis. 62% of males and 38% females were diagnosed with squamous cell carcinoma. Distribution of squamous cell carcinoma patients by age is shown in Table 1. 39% were in age group of 51-60 years old. While 30% were observed in age group of 41-50 years old. 45% of squamous cell carcinoma were on buccal mucosa. 5 histologic types were identified in this study as shown in Table 3.

**DISCUSSION**

In this study a significant number (39%) of squamous cell carcinoma were in age group of 51-60 years, which is similar to a study conducted at Shuakat Khanum Memorial Hospital from the period of 2003-2008 in which the mean age of the patient was 53 years.<sup>11</sup> However, the results of that study are different from our study as far as site of carcinoma is concerned. According to the present study the most common site for carcinoma was buccal mucosa. The study conducted at Shuakat Khanum Memorial Hospital shows that the most common site of carcinoma was anterior tongue followed by buccal mucosa, lower gingiva and alveolus.

Similarly, study conducted at Ayub medical College, Abbotabad showed that the (38%) were in age group of 41-50 years and 22% were between 51-60 years. Factors such as consumption of naswar and use of chewing tobacco in Khyber Pakhtunkhwa province could be a cause of squamous cell carcinoma at an early age. In addition, the most common site of oral squamous cell carcinoma in this study was buccal mucosa (45%) which is similar to the study conducted at Ayub Medical College, Abbotabad.<sup>12</sup> Another study conducted in western India also showed that 68.75% of squamous cell carcinoma occurred on the buccal mucosa.

The gender distribution in the present study shows that more male (62%) participants had SSC compared to females (38%). Similar trend was observed in many publications. However, study conducted by Zulfiqar et al.<sup>13</sup> at Mayo Hospital, Lahore observed equal prevalence of SSC in both genders. In addition, some studies have shown high tendency in females which may be due to changing habits in high socioeconomic group and cultural habits in some rural area.<sup>14</sup> Similarly, two studies carried out in India reported a higher M: F ratio of 2.2:1 and 4.2:1 respectively.<sup>15,16</sup> The analysis of histologic profile in this study reveals that well differentiated lesions predominated with spindle cell type, which is similar to a study conducted at Shaukat Khanum Memorial Hospital, and in a study conducted in Zimbabwean population.<sup>17</sup> It is observed that most of the lesions were present in the older adult age group. Similarly, maximum cases of oral squamous cell carcinoma were observed in older age group in a study conducted by Mathur et al.<sup>18</sup>

Data obtained and interpreted from a single institution has obvious limitations. In present study, the information regarding tobacco and alcohol consumption is very limited. However, the descriptive data presented in this study is important for many reasons including the extent of problem, and which groups in population are at the highest and lowest risk. Secondly, the limited data reflects the specific patient population reporting to this hospital and not the community as a whole. Further such studies spread over longer time periods at different levels of referral centers may help in identifying the prevalence patterns of this alarming disease, so that prevention activities can be carried out in order to decrease the incidence and mortality rates.

## CONCLUSION

Findings in our study show that oral squamous cell carcinoma (OSCC) is common in the older age group and also common in young age group in Pakistan. Serious thought should be given to prevention and early detection. Whenever a dentist or a physician finds an ulcer, a growth or a white patch in the oral cavity that

lesion should be immediately biopsied to confirm the diagnosis. More future studies in large populations should be done to achieve a reliable and definite conclusion about the nature of OSCC in young patients, its etiology and risk factors.

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