

Demographic Spectrum of Oral Squamous Cell Carcinoma in Public Health Care Facility in Karachi Pakistan

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ABSTRACT

Objective: The aim of this study was to evaluate the spread and proportion of oral squamous cell carcinoma in oral lesions.

Methods: Patient's biopsies were collected from January 2017 till July 2017 from histopathology lab in public health care institute. Two types of specimens either submitted for diagnosis or post-operative analysis of the lesion were reported. The data of oral tissue biopsies was analyzed and cases were sorted on the basis of benign and malignant lesions. The incidence of cancer and benign lesions was reported as; gender, age and site.

Results: Moderately differentiated histological subtype of oral squamous cell was found to be most prevailing in the middle age male population and the etiology and site were found to have the direct association.

Conclusion: Our study reveals that male patients are more affected with the disease and the age group ranges from young to middle age individuals. The alteration in lifestyle, awareness and strict laws against the consumption of carcinogenic agents is necessary to address the problem.

Keywords: Squamous Cell Carcinoma, Benign Lesion, Malignant Lesions, Biopsies

INTRODUCTION

Oral squamous cell carcinoma has a high rate of mortality and this rate is there since last five decades. The disease causes high functional and structural damage to oral structures. As a result the life activities are highly compromised. According to the data from western studies the commonly affected site is lateral border of tongue and most lethal being the base of tongue.¹

Pathogenesis involves mutation in oncogenes and tumor suppressor genes as a result of constant contact with the carcinogenic agents present in synthetic products having tobacco. They are responsible for mucosal alterations and development of premalignant and malignant lesions in oral cavity.²

Squamous cell carcinoma is a prevalent condition in south Asia due to abundant use of carcinogenic elements present in pan and tobacco. The pathology is initiated as hyperplasia which leads to dysplastic tissue and carcinoma in situ and ultimately followed by OSCC. Malignancy in most of cases is led by premalignant pathology.^{2,3} Quality of life is affected by oral health. It can retard daily life activities.⁴ Disease prognosis relies on many factors including the staging, progress and size of the lesion.⁵

The aim of this study was to evaluate the spread and proportion of oral squamous cell carcinoma in oral lesions. Patient's biopsies that were reported in the Histopathology Lab from January 2017 till July 2017 were analyzed on the basis of demographic details including age, sex and the most commonly affected site in oral cavity. The ratio of oral lesions and oral carcinoma among all the reported biopsies was also evaluated.

METHODOLOGY

Patient's biopsies were collected from January 2017 till July 2017 from histopathology lab in public health care institute.

Two types of specimens either submitted for diagnosis or post-operative analysis of the lesion were reported. The data of oral tissue biopsies was analyzed and cases were sorted on the basis of benign and malignant lesions. The incidence of cancer and benign lesions was reported as; gender, age and site.

The grading of malignancy was also analyzed as well differentiated, poorly differentiated or moderately differentiated.

The intraoral sites were categorized as cheek, lip, tongue, palate, and jaw. Salivary glands, cysts and rarely involved sites were included in the others category.

Human subject data was analyzed to evaluate the incidence of various histological subtypes of Oral carcinoma that were reported in the histology lab. The scrutiny of data was done to

assess ratio among the reported carcinomas, common site of involvement and its distribution according to demographic factors.

RESULTS

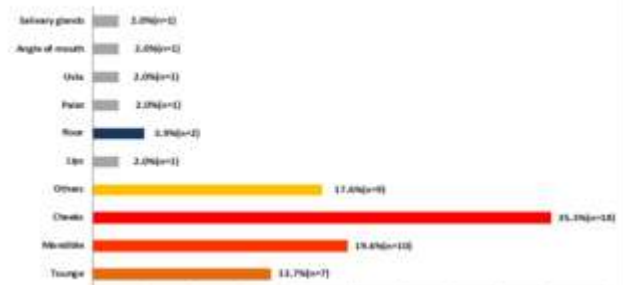
The reported number of biopsies in the lab during a defined time limit was 1200 and oral lesion ratio was 4.25%. Ratio of cases with benign and malignant oral lesions was 7:10. The mean age of the patients was 42.37±19.14. Of the entire sample, the male patients were around ¾ which indicates the higher frequency of oral pathologies in male gender.

The dominant histological type observed in the biopsies was the moderately differentiated oral squamous cell carcinoma.

Table 1: Baseline characteristics of study population

Variables		N	%
Gender	Male	39	76.5
	Female	12	23.5
Age (years)	42.37±19.14		
	<30	14	27.5
	30-40	15	29.4
	40-50	11	21.6
	50-60	4	7.8
	>60	7	13.7
Type	Benign	21	41.2
	Malignant	30	58.8
Sub type	Benign	19	37.3
	Well differentiated	2	3.9
	Moderately differentiated	30	58.9

Figure 1: Site wise involvement of Oral Cancer



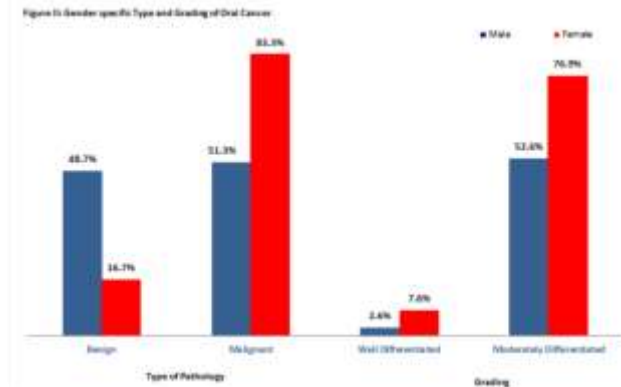


Figure 2 explains the gender wise spread of benign and malignant pathologies as well as the subtype. In males of middle age, the most prevalent type is the oral squamous cell with moderately differentiated histological subtype.

The widespread involvement of cheek was observed in most of the patient's biopsies followed by mandible and tongue. Moreover, less involved sites were gums, maxilla, vestibule and alveolar process.

DISCUSSION

Oral squamous cell carcinoma is a rather prevalent condition. It is most common in young and middle-aged males, according to our research, with the oral buccal mucosa being the most likely region of involvement.

Use of gutka is the most prevalent habit observed in oral squamous cell cancer patients, according to a study performed in Karachi, and it affects young people with 17.43 as an average age. The chemicals found in gutka as well as other products of areca nut have been linked to oncogene mutations and the activation of other pathogenic agents.⁶

Annually, 300 000 cases are reported across the globe, hike in cases has been seen in young individuals.⁷ Alcohol and cigarettes are recognized etiological variables for OSCC, according to a western investigation. Unknown provocative fundamental causes must be investigated in order to improve prognosis and management of this lethal disease.¹⁸

Tobacco use is linked to 75% of OSCC patients and older males from poorer socioeconomic backgrounds. In the west tobacco, along with alcohol has been identified as the primary cause of OSCC in the western world. HCV, HPV, immunological diseases, and vitamin shortages are all possible causes.⁹ Another study found that males were diagnosed with OSCC at an earlier age than females, correlating with our finding. In comparison to females, male patients had a higher prevalence of poorly differentiated squamous cell carcinoma, with the lateral border of the tongue being the most commonly involved region.⁸ According to a study conducted in Jerusalem, the male population is more impacted. The average age of the participants was 55 years, and the lateral border of the tongue and gums were the most usually implicated sites in females.¹⁰ The findings of an Indian investigation are consistent with our findings, indicating that the buccal mucosa is the most commonly affected region in OSCC patients with a male predominance. OSCC patients are on average over 50 years old.¹¹ Oral cancer was found to be prevalent in 81 percent of the male population in another south Asian country, with the majority of cases occurring in the sixth decade of life.¹²

Oral and lip cancer has a high death rate, notably in Central and South Asia and Eastern Europe, according to global statistics, with smoking and alcohol being the most prominent etiological causes.¹³ Buccal mucosa is the most usually affected place with oral cancer, according to a study conducted in Lahore, Pakistan. In the fourth decade of life, the prevalence reached its highest. The

most common behaviors mentioned by patients were smoking and tobacco use.¹⁴

In China, a study was conducted on young people with head and neck oral squamous cell carcinoma to determine the etiological factor, as the gene and prognosis were discovered to be different in young and elderly people. Immunity, infection, and persistent irritation, in addition to the traditional variables, were found to be contributors in the condition.¹⁵ Another study discovered that genes specific to gingivobuccal OSCC are commonly changed, indicating a hereditary influence on disease pattern.¹⁶

Early treatment and eradication of causative factors prevents the carcinogenic transformation of oral ulcers.¹⁷ Along with other etiological factors in disease occurrence carcinogenic components in betel quid and carcinogens have been associated with down regulation of antioxidant proteins and generation of ROS.¹⁹ Another study also supports the vital role of altered balance of oxidants and antioxidants in pathophysiology of head and neck cancers.²⁰

CONCLUSION

The etiology is an important factor that determines the site that is frequently involved in oral cancer. The western and eastern data is different due to difference in the etiology of the disease. In the present study the buccal mucosa has been found as the most common site. In South Asia the frequent areca nut consumption results in involvement of buccal mucosa as the most common site in OSCC patients. Our study reveals that male patients are more affected with the disease and the age group ranges from young to middle age individuals. The alteration in lifestyle, awareness and strict laws against the consumption of carcinogenic agents is necessary to address the problem.

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