Original Research Paper

Oral Pathology

THE PREVALENCE OF SQUAMOUS CELL CARCINOMA IN DIFFERENT SITES OF ORAL CAVITY AT A TERTIARY REFERRAL CENTRE IN HYDERABAD, TELANGANA – A RETROSPECTIVE 5-YEAR STUDY

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ABSTRACT

BACKGROUND: The purpose of this study was to determine the prevalence of Oral squamous cell carcinomas (OSCCs) depending upon the involvement of different sites of oral cavity, its variation with age and gender over a period of 5 years and to compare with other national and international studies.

MATERIALS AND METHODS: Data for the study were obtained from the reports of patients diagnosed with OSCCs between 2014 and 2018 and the following variables were analyzed: age, gender and anatomical location.

STATISTICAL ANALYSIS: The data was analysed with Statistical Package for Social Sciences (SPSS) for Windows 20.0 (SPSS, Inc. Chicago, Illinois). The observed data was analyzed by Pearson's Chi square test. Confidence intervals were set at 95% and values of p < 0.05 were interpreted as statistically significant.

RESULTS: In a total of 1620 biopsies, OSCCs accounted for 364 cases among all the lesions. Maximum number of cases fell in the age group of 40-59 years among which 170 were male. The most common site was buccal mucosa followed by lateral border of the tongue.

CONCLUSION: This study provides epidemiological information on OSCCs at an institutional level. The relative frequency of these OSCCs can be analyzed at a global level to understand their prevalence, incidence biological behavior, and distribution.

KEYWORDS : Oral Squamous Cell Carcinoma, Prevalence, Buccal Mucosa, Gingiva Buccal Carcinoma

INTRODUCTION

Cancer of the oral cavity is the 11th most common malignancy in the world and about 90% of tumors are subtyped to oral Squamous cell carcinoma (OSCC) which are found on the lip, floor of the mouth, buccal mucosa, gingiva, palate, or in the tongue.[1] More than 300,000 new cases of OSCC are diagnosed annually worldwide,[2] and the incidence rate of OSCC is continuously increasing in many countries.[3] It is the most common cancer in the males and the third most common cancer in the females in India.[4] Even within one geographic location, the incidence varies among groups categorized by age, sex or histological differentiation.[5] Descriptive oral cancer data is important for many reasons, including understanding the extent of the problem, determining which groups within the population are at highest and lowest risk, and relating the burden of oral cancer to that of other cancers to evaluate the allocation of resources for research, prevention, treatment and support services.[6] The worldwide mortality caused by cancer of the oral cavity and lip was estimated to be 128,000.[7] Camisasca et al. have reported that the 5-year survival rate was 92% in OSCC patients without recurrence and 30% in patients with recurrence (P < 0.001, log-rank test).[8] Although the survival remains 50% past several decades, cell differentiation was used as one of the major diagnosis and prognosis factors for oral squamous cell carcinoma.[9] Despite enormous advancements in the field of diagnostics and therapeutics, the overall survival rate in most countries ranges between 45% and 50% and has not shown a significant improvement during the past few decades.[10]

However, very few studies have been reported on the prevalence and trends of OSCC with respect to age, sex and site distribution. The purpose of this retrospective study was to identify any trends in prevalence of OSCCs at specific anatomic sites and within specific age or sex groups.

MATERIALS AND METHODS

A retrospective study was carried out by collecting data from the archives of Department of Oral and Maxillofacial Pathology, Government Dental College and Hospital, Afzalgunj, Hyderabad from a period of January 2014 to September 2018. Pervious patients' records were retrieved from biopsy registers, which included all OSCCs. Details of patient's age, gender, location of OSCCs were recorded. The data recorded was subjected to statistical analysis

STATISTICAL ANALYSIS

The data was analysed with Statistical Package for Social Sciences (SPSS) for Windows 20.0 (SPSS, Inc. Chicago, Illinois). The observed data was analyzed by Pearson's Chi square test. Confidence intervals were set at 95% and values of p < 0.05 were interpreted as statistically significant.

RESULTS

Over a period of 5 years, out of 1620 cases, 364 patients were diagnosed with OSCCs with a prevalence of 273 cases in males and 91 cases in females with the most common site being buccal mucosa.

Association of gender and age with OSCCs

Majority of patients were in the age group of 40-59 years followed by a age group of 20-39 years. Out of 364 patients 273(75%) were males and 91(25%) were females with the gender differentiation being statistically significant **(table 1) (figure 1).** There was also a statistically significant difference between 20-39, 40–59 and 60 years above age groups.

Table 1: Prevalence of OSCCs according to age and gender

Gender	Age Groups			Total	X^2 (df = 2)	P value
	20-39 Years	40-59 Years	60 Years and Above			
Male	92	135	46	273	36.484	.0001
Female	13	35	43	91		
Total	105	170	89	364		

**Figure 1: Age distribution and number of patients with OSCC**
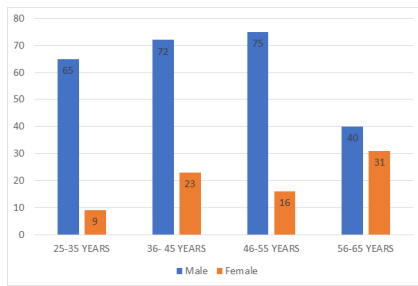
Site wise distribution of OSCCs

Buccal mucosa was the most common site showing a total of 194 cases in both males and females. In males the distribution of cases with right and left buccal mucosa was 77(28.2%) and 66(24.2%) cases and in females it was 21(23.1%) and 30(33%) cases respectively. The second most common site was lateral border of the tongue 61(16.8%) followed by alveolus 47(12.9%). The least affected site was hard palate followed by ventral surface of the tongue. **(table 2) (figure 2)**. A statistically insignificant difference was found in the prevalence of OSCC between different sites and the gender in our patients.

Table 2: Site wise distribution of patients with OSCCs

Location	Sex		Total(%)	X^2(df = 10)	P value
	Male	Female			
Dorsum of tongue	5 (1.8)	1(1.1)	6 (1.6)		
Ventral surface of tongue	2(0.7)	1(1.1)	3(0.8)		
Lateral surface of tongue	44(16.1)	17(18.7)	61(16.8)		
Floor of the mouth	24(8.8)	5(5.5)	29(8)		
Alveolus	36(13.2)	11(12.1)	47(12.9)		
Right buccal mucosa	77(28.2)	21(23.1)	98(26.9)	10	0.208
Left buccal mucosa	66(24.2)	30(33)	96(26.4)		
Upper lip	4(1.5)	0	4(1.1)		
Lower lip	10(3.7)	3(3.3)	13(3.6)		
Soft palate	5(1.8)	0	5(1.4)		
Hard palate	0	2(2.2)	2(0.5)		
Total	273	91	s364		

Figure 2: Location of OSCC vs Age groups
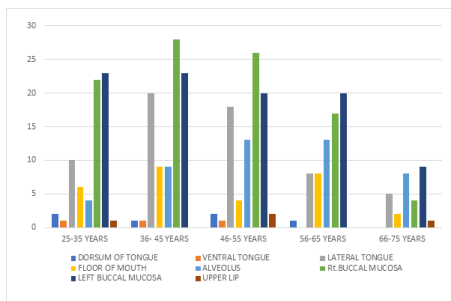
DISCUSSION

Tumors of head and neck comprise an important group of neoplasia. Carcinoma of the oral cavity is one of the most frequent malignant tumors worldwide with major predominance in South-East Asia and India. More than 95% of cancers of oral cavity are of SCC type and their high incidence is due to widespread habits of tobacco chewing, smoking and alcohol consumption. OSCC represents a worldwide problem with a poor prognosis. Despite advances in the OSCC therapy, it remains as a disease of later diagnosis and high level of recurrence. The incidence of OSCC seems to be increasing and is a global health problem with increasing incidence and mortality rates; around 300,000 patients are annually estimated to have oral cancer worldwide.[11]

In the present study over a period of 5 years, out of 1620 cases, 364 patients were diagnosed with OSCCs accounting for 22% of the total number of cases reported.

In our study out of 364 patients diagnosed with OSCC, 273 were males and 91 were females. This gender difference may largely reflect different cultural behaviour and lifestyle factors among the population. Worldwide, the incidence of head and neck cancer is higher for males than for females.[12] This may be because of the greater indulgence of men in the risk factors.

The present study revealed the largest number of OSCCs being reported between the age group of 40-59 years. This was in contrast to the data mentioned in the previous study by Ajay et al (2018)[13] where the highest incidence of oral cancer was seen in the age group of 60 years and above. This might be due to the prevalence of gutka chewing habits in a relatively younger age group of 40-59 years due to the ease of access in this population and also a habit to apply tobacco in the oral cavity for a long duration.

In India, the gingivo-buccal complex (alveolar ridge, gingival-buccal sulcus, buccal mucosa) forms the most common sub-site for cancer of the oral cavity,[14] in contrast to the tongue and floor of the mouth that is more common in the western world.[15] This difference can be correlated with tobacco consumption habits. In India smokeless tobacco exposure is more common when compared to the smoked version in the West. Traditionally, the paan is placed in the gingival-buccal sulcus and often retained for a prolonged duration, which is responsible for the high prevalence of gingivo-buccal cancer.[16] In our study, the most common anatomical site was buccal mucosa with 53.3% of the patients were seen with the involvement of buccal mucosa. This is in accordance with the study of Mehrotra et al.[17]

In a total of 194 patients with squamous cell carcinoma on buccal mucosa, 143 (52.4%) were males and 51(56.1%) females. This is in accordance with the study given by Parul et al.[18] This can be possibly related to rampant use of chewable tobacco and habits in males when compared to females in this region. The grade and metastatic status of OSCC at the time of detection are vital as it determines the treatment plan and the prognosis. Various treatments such as radiotherapy, chemotherapy, surgery, and brachytherapy are available depending on the stage and site of OSCC. Better treatment outcomes are possible if OSCC is detected at an early stage of development. In India, late diagnosis of OSCC is one of the major factors which worsens the disease prognosis and accountable for high mortality rates.

CONCLUSION

Oral cancer is a life threatening and debilitating disease that is severely affecting the mankind. It is estimated that around 43% of cancer deaths are due to tobacco use, alcohol consumption, unhealthy diets, inactive lifestyle, and infection.[19] Use of smoking and smokeless tobacco is one of the major causes of oral cancer especially OSCC. Relatively high usage of tobacco in younger individuals, lack of awareness of the initial signs and symptoms and low financial status has made oral cancer a challenging health problem in rural areas of India. Regular free screening camps should be organised to detect dysplastic lesions at an early age and health care providers and diagnostic centres should be made available at short distances. Given the demographic, epidemiological and economic transitions and changes in pattern of tobacco use in India, the mortality rate will grow even larger, unless effective interventions and policies to reduce these habits are implemented.

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