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RESEARCH ARTICLE

CURRENT CLINICAL TRENDS OF ORAL CANCER IN MALWA REGION (INDIA): A RETROSPECTIVE STUDY

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ABSTRACT

Introduction: The aim of present study is to assess the current clinico-epidemiological trends of oral squamous cell carcinoma in Malwa(M.P) region and to discover out the association among different variables in the study.

Material & Methods: Oral squamous cell carcinoma cases were retrieved and analyzed for the retrospective study from the records of 2013 to 2014 for clinical and histological details and the results were expressed to chart the trends in Malwa (M.P) population (India).

Results: The study included 300 patients of oral squamous cell carcinoma. Out of 300 patients, 52% patients belong to the age group of 40-60 yrs. 67% patients were coddled in habit of chewing tobacco. 46.67 % patients had their lesions on buccal mucosa followed by tongue 27.67% and then alveolus 16.67%. The histological grade observed in our study is well differentiated which is 54.33% followed by moderately differentiated 41.67%. In present study, we found a highly significant association between TNM staging and the histopathological grade of the tumor and a significant association between the histopathological grade and the age of the patient.

Conclusion: Mainstream of the patients are indulged in habit of chewing tobacco. Buccal mucosa is the commonest site of involvement with well differentiated as the most common histological presentation. The age of the patient and the histopathological grade of the tumor have significant association with the TNM staging of the tumor.

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INTRODUCTION

Oral cancer is the sixth commonly seen cancer worldwide. More than 90% of all oral cancers are squamous cell carcinoma. The peakprevalence and incidence of oral SCC is found in the Indian subcontinent where the risk of evolving oral SCC is augmented by the very prevalent habits of chewing tobacco, betel quid and areca nut (Madani *et al*., 2012). The mutagenic hazards of tobacco, areca nut, betel nut and alcohol are reliant on upon dose, frequency and duration of use, and are boosted and exaggeratedby the concurrent use of two or more of these agents. Oral SCC more frequently affects men than women (M:F=1.5:1), most probably due to high risk habits (Madani *et al*., 2012). The chances of evolving oral SCC increases with the period of exposure to risk factors, and growing age adds the further dimension of age-related mutagenic and epigenetic changes. The oral SCC marks the tongue, floor of the mouth, buccal mucosa, gingiva, palate and so on. The floor of the mouth and ventral surface of the tongue are the sites most commonly affected by SCC because they are lined by thin non-keratinized epithelium (Siddiqui, 2012). Important factors at the time of diagnosis of oral SCC determining the survival are the presence of regional lymph node metastases, the size and depth of the carcinoma, the oral anatomical site affected and the histopathological grade of the carcinoma (Patel, 2004), After treatment these factors correlating with the treatment and thus predict the survival to an extent.

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Aim and Objectives

The aim of present study is to assess the current clinico-epidemiological trends of oral squamous cell carcinoma in Malwa (M.P) region, India and to find out the association among –

- Age of the patient with the histopathological grade of the tumor.
- Site of the tumor and the histopathological grade of the tumor.
- Site of the tumor with the TNM staging of the tumor.
- TNM staging and the histopatholgical grade of the tumor

MATERIAL AND METHODS

This is a retrospective clinico-epidemiological study of the oral squamous cell carcinoma conducted on patients admitted to the oncology unit of Sri Aurobindo Medical College and Government Cancer Hospital, Indore from year 2013 to 2014. The total 300 patients with a established diagnosis of oral squamous cell carcinoma were included in the study. Detailed data from the case files were collected and compiled for further analysis. The data investigated were age of presentation, gender, site, histopathological grade and the TNM staging. We assessed the clinical and the histopathological findings and tried to correlate and predict the prevalence in the Malwa region by using Chi square test.

RESULTS

The study included 300 patients of oral squamous cell carcinoma. Out of 300 patients, 73% were males and 27% females with M:F as 2.7:1showing male preponderance. The age group of presentation 40-60 years accounts for 52%. followed by 31.33% for 20-40 years, 15.67% for 60-80 years and only 1% for above 80 years of age (Table/Fig 1).

Table 1. Age Wise Distribution of Patients

Age Group	Number	Percentage
21-40 years	94	31.33
41-60 years	156	52.00
61-80 years	47	15.67
> 80 years	3	1.00
Total	300	100

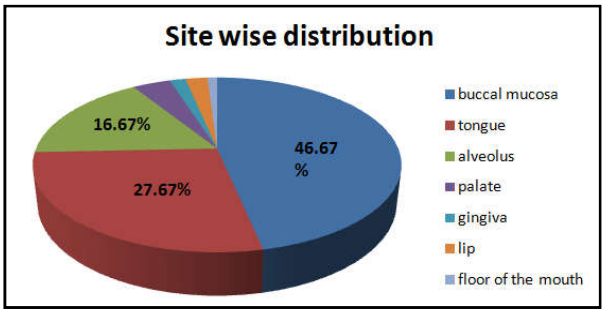

Figure 1. Histopathological Grading Wise Distribution of Patients

In our study, we have found that 87.67 % of patients were indulged in adverse habit. Out of which 63.66% were tobacco chewers. 12.33% of the patients were not allied with any kind of adverse habits (Table/Fig 2).

Table 2. Habit Wise Distribution of Patients

Habit history	Number	Percentage
Smokeless tobacco	191	63.66
Smoked tobacco	43	14.33
Alcohol	29	9.68
Non habit	37	12.33
Total	300	100.00

The site of involvement varies, 46.67% were found on buccal mucosa followed by tongue 27.67% and then alveolus 16.67%. (Table/Fig 3) (Table/Fig 4). The histopathological presentation of the oral squamous cell carcinoma in our study was found to be well differentiated type (54.33%) followed by moderately differentiated (41.67%) and poorly differentiated (4%). (Table/Fig 5) (Table/Fig 6).

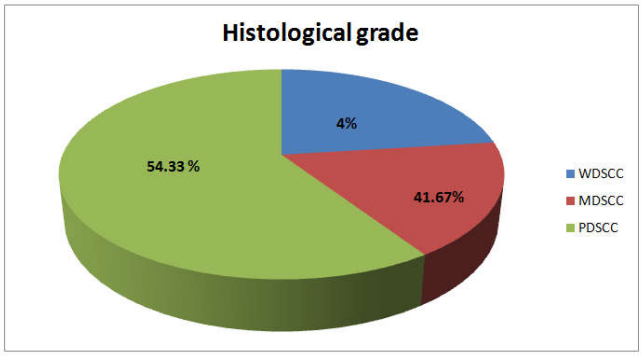

Figure 2. Histopathological grade distribution

Table 3. Site Wise Distribution of Patients

Site	Number	Percentage
Alveolus	50	16.67
Buccal mucosa	140	46.67
Floor of mouth	3	1.00
Gingiva	5	1.67
Lip	7	2.33
Palate	12	4.00
Tongue	83	27.67
Total	300	100.00

Table 4. Histopathological Grading Wise Distribution of Patients

Histopathological Grading	Number	Percentage
WDSCC	163	54.33
MDSCC	125	41.67
PDSCC	12	4.00
Total	300	100.00

Table 5. Distribution of Histopathological Grading According to Age Group

Age Group	Histopathological Grading			Total
	MDSCC	PDSCC	WDSCC	
21-40 years	40	1	53	94
41-60 years	58	8	90	156
61-80 years	25	2	20	47
> 80 years	2	1	0	3
Total	125	12	163	300

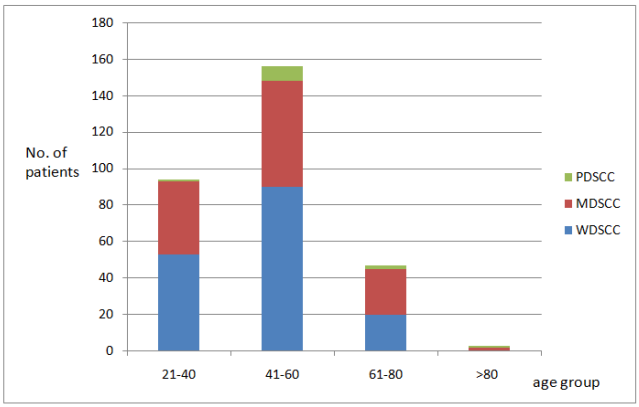

Figure 3. Association of age with the histopathological grade

By using Chi square test, we found the association between the parameters in present study which revealed that there is a highly significant relation between histopathological grade and TNM staging, a significant association between histopathological grade and age. But no significant association

was found between site of the tumor and histopathological grade and site of the tumor with TNM staging. (Table/Fig 7,8) Association between variables and their significance is represented in Table/Fig 9.

Table 6. Association between variables and their significance

S.No	Association between the variables	Chi-square value	DF	P value	Significance
1.	Histopathological grade & age of the patient	14.930	06	0.0208	Significant
2.	Histopathological grade & site of tumor	7.871	12	0.07951	Not significant
3.	Histopathological grade & TNM staging	86.016	46	0.0003	Highly significant
4.	Site of tumor & TNM staging	159.865	138	0.0982	Not significant

DISCUSSION

The cancer of the oral caviety is one of the most life threatening disease. Intake of tobacco as smoking of bidi and cigarettes or as smokeless forms like tobacco chewing or mishri (tobacco used as tooth cleanser) is the main etiological mediator of oral cancer (Madani, 2012). Studies have shown that the habit of tobacco in various forms is mounting at the rate of 2 to 3% yearly, and it is expected to cause about 13% of deaths in India by 2020 (Siddiqui, 2012). In the present study, oral squamous cell carcinoma most commonly occur in males as compared to females with M:F ratio as 2.7:1 which is in accordance with most of the studies carried out in India.In a study by Patel *et al* (Patel, 2004), 75% of patients were males. Mehrotra Ravi *et al* (Mehrotra, 2003), from Allahabad, India reported a male: female ratio of 3.27:1. Iype EM *et al*. (Iype, 2001), from Trivendrum, Kerala found a higher majority in males (70%) compared to females (30%). In present study, the oral cancer was more commonly found in the 40-60 years of age group followed by 20-40 yrs which is in accordance with Dhar *et al* (Dhar, 2000), who reported maximum incidence (35.7%) in the age range of 51-60 years. According to Dias *et al*. (Dias, 2007), the average age of diagnosis of oral malignancy was 62 years, with a standard deviation of 12 years. Brandizzi *et al* (Brandizzi, 2008), stated the mean age of oral malignancy to be 62 years, with a range of 19 to 95 years. According to study conducted by Wahid *et al* (2005), in Pakistan, the commonest age group affected in oral cavity squamous cell carcinoma was 41-50 years (38%), trailed by 51-60 years (34%).

Gangane *et al* (2007) and Saraswathi *et al*. (2006) reported majority of oral malignancies in the 50 to 59 years age group and 40 to 61 years age group respectively. Thus proving OSCC to be common in older adults. This study shows 54.33% of oral cancers were well differentiated, 41.33% were discreetly differentiated and 4.00% were ill differentiated. In the study by Patel, 60.12% of the tumors were well differentiated. 38.7% were moderately differentiated and 1.18% was poorly differentiated. Mehrotra *et al* also stated that the maximum number of well differentiated squamous cell carcinoma (Mehrotra, 2003). Iype *et al* (Iype, 2001), found well differentiated squamous cell carcinoma in 52.6% cases, moderately differentiated in 34.2% and poorly differentiated in 8.9% of cases. In the study by Dias *et al*, majority of the tumors of oral cavity were well differentiated tumours. The more proportion of cases being well-differentiated might be due to increasing awareness of oral cancer among people of this region coupled with cancer awareness programs by the government. Our findings were similar to that of Iype *et al* who reported that 52.6% of their patients had well-differentiated tumors. However, Ayaz (2011) reported that majority of OSCC in their study were moderately differentiated. Statistically a highly significant association was found between age and histological grading of the tumor which is in accordance with the study carried out by Channanna *et al*. (2014) The reason behind these findings might be the decreased immunity or defense mechanism of the body towards the disease. Also a significant association was found between histological grade and the TNM status of the patient which can be due to the aggressiveness and the invasion of the tumor cells which leads to the poor prognosis of the patient.

Conclusion

In Malwa region, males are more commonly affected form oral cancer. Majority of the patients are indulged in habit of chewing tobacco. Buccal mucosa is the commonest site of involvement with well differentiated as the most common histological presentation. The age of the patient and the histopathological grade of the tumor have significant association with the TNM staging of the tumor. Much work is required to understand the caveats related to global demography, risk factors and their diagnostic and prognostic markers for this disease. Therefore, it is recommended that prevention of oral SCC with early detection, early treatment intervention, and withdrawal from risk habits are important factors for improving the well being of the people.

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