ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 13, Issue, 01, pp. 15811-15814, January, 2021

DOI: https://doi.org/10.24941/ijcr.40597.01.2021

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

PREVALENCE OF VARIOUS ORAL POTENTIALLY MALIGNANT DISORDERS AND ORAL SQUAMOUS CELL CARCINOMA IN TERTIARY CARE CENTRE IN INDORE, MADHYA PRADESH: A RETROSPECTIVE STUDY

***Dr. Utkarsha Singh and Dr. (Major Gen.) S. K. Nema**

Index Medical College, Hospital and Research Centre, Indore

ARTICLE INFO

Article History:
Received 10th October, 2020
Received in revised form
11th November, 2020
Accepted 28th December, 2020
Published online 30th January, 2021

Key Words:

Oral Squamous cell Carcinoma, Leukoplakia, Verrucous Carcinoma and Verrucous Vulgaris.

ABSTRACT

Aim and Objectives: The purpose of this study was to determine the number of cases, location and types of oral lesions in patients attending OPD in Index Medical College, Hospital and Research Centre, Indore. **Material & Method:** The patients who came with complain of oral lesions were registered and detailed clinical data were recorded. These cases were divided in three age groups,i.e. less than 40 years of age, 40 to 60 and more than 60 years of age**.** The biopsy was taken and it was subjected to histopathological examination. **Results**: Total 70 patients were included in study who had complaint of oral lesions. Among 70 patients, 58.6% patients were diagnosed as Well Differentiated Oral Squamous Cell Carcinoma, 20% Moderately Differentiated Oral Squamous Cell Carcinoma, 8.6% Poorly Differentiated Oral Squamous Cell Carcinoma, 10% have Leukoplakia, Verrucous carcinoma and Verrucous Vulgaris 1.4% each. **Conclusion:** The present study shows the increasing number of oral malignant lesions, most frequently due to use of tobacco in any form and alcohol.

Citation: ***Dr. Utkarsha Singh and Dr. (Major Gen.) S. K. Nema. 2021.*** "Prevalence of various oral potentially malignant disorders and oral squamous cell carcinoma in tertiary care centre in Indore, Madhya Pradesh: a retrospective study", *International Journal of Current Research*, 13, (01), 15811-15814.

INTRODUCTION

Oral cancer is the most common cancer among men in India (16.1% of all cancers), and the second most common cancer among women in India (10.4 % of all cancers), according to GLOBOCAN 2018 data. 80-90% of oral cancers are caused due to tobacco.(1) The other risk factors for oral cancer are smokeless tobacco, severe alcohol intake, cigarette smoking, betel nut chewing, and Human Papilloma Virus (HPV) (2,3). Poor dental hygiene and poor diet have also been reported to cause oral cancer (4) In India, squamous cell carcinoma constitutes 90-95% of oral cancers.(5) It is predicted that the incidence of cancer in India will increase from 1 million in 2012 to over 1.7 million in 2035, and cancer-related death rates will also increase from 6,80,000 to 1-2 million in the same time period (6). Males are more commonly affected than females, but this gap is slowly reducing, and the cases of oral cancer are increasing in both elderly and young females. (7,8,9) It has been seen that oral cancer primarily affects middle-aged and old people.(7) There is an increase reported incidence of oral squamous cell carcinoma (OSCC) in people aged less than 45 years.(10,11). With death rates of oral squamous cell carcinoma going rampant, we thought of undertaking a study to evaluate the clinical presentation and histopathological diagnosis of oral cancer in our tertiary centre retrospectively from the available oral biopsies and to find out the prevalence of this disease in and around this centre. This will help in developing some guidelines or awareness activities to motivate the common masses to shun from consuming tobacco and tobacco used products.

Corresponding author:** ***Dr. Utkarsha Singh,
Index Medical College, Hospital and Research Centre, Indore.

METHODOLOGY

This retrospective study was carried out from June 2018 to December 2019, in which data of 70 oral biopsies of the patients who presented to OPD of our institution was collected. The data related to age, gender, history of tobacco and alcohol use, site of lesion, clinical presentation and histopathological diagnosis were obtained and analysed. Permission to use the hospital records data for study purposes was taken from the Medical Records Department of the hospital. Information related to the personal identity of the patients was kept confidential. Paraffin sections of all cases were examined and the data was tabulated case wise for each patient. Subsequently they were analysed with help of statistician.

RESULTS

Among all 70 patients who were histopathologically reviewed and diagnosed with oral mucosal lesions, the males were 47

Table 1. Histopathological diagnosis according to Age and Gender

Diagnosis	Gender	AGE			Sub total	Total
		<40 years	40 – 60 years	>60 years		
WD OSCC	Male	07	20	02	29	41 (58.6%)
	Female	00	11	01	12	
MD OSCC	Male	01	08	01	10	14 (20%)
	Female	00	03	01	4	
PD OSCC	Male	01	03	00	4	06 (8.6%)
	Female	00	01	01	2	
Leukoplakia	Male	00	03	00	3	07 (10%)
	Female	01	03	00	4	
Verrucous Carcinoma	Male	00	01	00	1	01 (1.4%)
	Female	00	00	00	0	
Verrucous Vulgaris	Male	00	00	00	0	01(1.4%)
	Female	00	00	01	1	
TOTAL	-	10	53	07	-	100%

Table 2. Common site of oral lesions

SITE OF LESIONS	TOTAL CASES (n=70) (%)
Buccal Mucosa	41 (58.57%)
Tongue	18 (25.71%)
Hard Palate	04 (5.71%)
Soft Palate	01 (1.43%)
Floor Of Mouth	02 (2.86%)
Alveolus	03 (4.29 %)
Retromolar Area	01 (1.43%)

Table 3. Habit history with histomorphological diagnosis

Habit	WD OSCC	MD OSCC	PD OSCC	Leukoplakia	Verrucous Carcinoma	Verrucous vulgaris
Tobacco Chewing	25	09	02	03	01	00
Tobacco Smoking	09	02	02	01	00	00
Betal Quid	05	01	02	01	00	01
Alcohol	02	02	00	02	00	00

Table 4: Time Delay in diagnosis according to age

Delay in Diagnosis	<40 years n =10	40-60 years n =53	>60 years n =7	Total n=70 (%)
< 1month	2(20%)	9(16.98%)	0	11(15.74%)
2-6months	3(30%)	24(45.28%)	4(57.14%)	31(44.28%)
7-12months	3(30%)	11(20.85%)	2(28.57%)	16(22.85%)
>12months	2(20%)	5(9.43%)	1(14.29%)	8(11.42%)
Not known	0	4((7.54%)	0	4(5.71%)

(67.1%) & 23(32.9%) were females patients. Of the total sample the most commonly affected age group was 40 – 60 years (75.71%), followed by < 40 years (14.29%) and >60 years (10%). Table 1 shows histomorphological diagnosis according to age and gender. Well Differentiated Oral Squaous Cell Carcinoma constituted the majority of the cases (58.6%) followed by Moderately Differentiated Oral Squamous Cell Carcinoma (20%), Poorly Differentiated Oral Squamous Cell Carcinoma (8.6%), Leukoplakia (10%), Verrucous Carcinoma and Verrucous Vulgaris shares the same percentage (1.4%). Table 2 shows the prevalence of oral mucosal lesions according to the site. It was observed that a large number of lesions were on the buccal mucosa (58.57%) followed by tongue (25.71%) and hard palate (5.71%). Buccal mucosa is very sensitive and most of the time the patients are habitual to keep tobacco products for long time in the mouth. Similarly the maximum impact is taken by the oral mucosa with each inhalation of smoking.

DISCUSSION

The prevalence of Oral Squamous Cell Carcinoma vary in different part of the world; in India it is the most commonly diagnosed cancer in males whereas in western world it is 1-4% of all cancers.(12) The 2009–2010 Global Adult Tobacco Survey (GATS) in India reported the highest prevalence of use of areca nut-based tobacco products among males in Madhya Pradesh followed by Gujarat, Maharashtra and Delhi.(13) The survey showed the use of tobacco was higher among males than females. Though, the pattern of use of chewing tobacco was the same among middle-aged and elderly males and females and it was found to be more prevalent among India's uneducated masses (14). According to gender distribution there was male predominance 47(67.1%) in the present study compared to females 23(32.9%). The male predominance was in accordance with Jayasooriya et al (15) and MP Singh et al. (16), this can be due to males easy access to the tobacco outlets whereas because of cultural constraints, women have to maintain certain image and are less likely to practice unhealthy habit. The most commonly affected age group in our study was between 40 to 60 years (75.71%) followed by < 40 years age group (14.29%) and >60 years of age (10%). The study done by Patil S et al shows the prevalence of oral mucosal lesions was more in older patients than in younger individuals. Medication, infection, nutritional factors, metabolic changes and alcohol or tobacco habits are the certain factors that leads to change in the oral mucosa (17).

India has the highest number of oral cancers in the world (20%) with an estimated 1% of the premalignant oral lesion population (16). Occurrence of oral malignancies was the most common oral mucosal lesion in the present study. The most frequent oral malignancy in the present study was Well Differentiated Oral Squamous Cell Carcinoma (58.6%) which was seen predominantly in males of 40 to 60 years of age group. Prevalence of Moderately Differentiated Oral Squamous Cell Carcinoma was the second common oral mucosal lesion seen in the study (20%) followed by Poorly Differentiated Oral Squamous Cell Carcinoma as the third most common oral mucosal lesion (8.6%) and Verrucous carcinoma (1.4%). The prevalence of potentially malignant lesions was less, Leukoplakia (8.6%) and Verrucous vulgaris (1.4%). In the present study, the use of tobacco in different forms was the most common cause of oral mucosal lesions.

A study done by Chi AC showed that the use of tobacco is a significant risk factor for oral and Oropharyngeal Squamous Cell Carcinoma.(18) Gupta B and Johnson NW found a strong correlation between the use of smokeless tobacco and the risk of Oral Squamous Cell Carcinoma development (19). Tobacco chewing was commonly seen in males (59.57%) and females (52.17%) than the use of bidi or cigarette smoking in the present study. The use of betal quid was more commonly seen in females (39.13%) than in males (2.13%), followed by the least consumption of alcohol in females than in males (12.77%). A study done in Western Uttar Pradesh, India, by Sharma P, Saxena S and Aggarwal P revealed that smokeless tobacco habit (60 percent) was more prevalent in both males and females than bidi or cigarette smoking habits (36.26 percent).(20) Another study conducted by Shenoi R et al in Western India concluded that tobacco chewing was the main cause of OSCC development (21).Chi AC et al stated that the most common location for oral lesions was buccal mucosa and tongue followed by hard palate, while the most common sites of OSCC were buccal mucosa and GBS followed by alveolus. The tongue is known to be the most common site of primary OSCCs in industrialized countries, but in developing countries betel quid and/or tobacco chewing results more frequently in buccal cancer (18,22).

The most common site of oral mucosal lesion in the present study was buccal mucosa (58.57%) followed by tongue and hard palate which can be because of prolonged placement of betal quid or smokeless tobacco in the buccal area. This causes generation of carcinogens such as tobacco-specific nitrosamines (e.g., N-nitrosonornicotine, nicotine-derived nitrosamine ketone, N'-nitrosoanatabine, and N-nitrosoanabasine) and free radicals that can impede antioxidant enzymes such as glutathione S-transferase, glutathione reductase, superoxide dismutase, catalase, and glutathione peroxidase (23). The time of delay (Table 4) in the diagnosis of oral mucosal lesions in most of the cases was 2 to 6 months (44.28%). Illiteracy, poverty, lack of knowledge and awareness and home remedies are certain possible factors which can be the cause of delay in diagnosis. (21) The time interval between the onset of symptoms and the start of treatment depends on various factors such as patient's behaviour, clinical course of the illness, and the quality of the health services (24). A study conducted in Sri Lanka by P R Jayasooriya et al revealed that males are more commonly affected by OSCC compared to females in both developed (male: female ratio 2.5:1) and developing (male: female ratio 3:1) countries, which may be due to the easy acceptance of male habits. But this gender distribution gap has been decreasing in developed countries due to more females adopting tobacco-related habits like smoking (15). The limitation of the present study is that it was carried out retrospectively on patients who had oral biopsies done. The results would have been more accurate if a cross-sectional study would have been done and small sample size is another limitation of this study. We recommend that a large cross-sectional study to be carried out which will help in coming to better evaluation of oral cancer in the population in and around this tertiary care centre.

Summary

Our study revealed the fact that the number of cases of OSCC and premalignant conditions has shown higher incidence of Oral squamous cell carcinoma in society. According to Indian Council of Medical Research's National Cancer Registry Programme, Madhya Pradesh had 35,000 cases of oral cancer in 2010. According to the 2010 Global Adult Tobacco Survey, 31% of the population aged 15 years and above use chewing tobacco in the state, said Dr. Lalit Shrivastava, patron of Voice of Tobacco Victims (VoTV). The 2009–2010 Global Adult Tobacco Survey (GATS) in India recorded the highest prevalence of the use of areca nut-based tobacco products among males in Madhya Pradesh followed by Gujarat, Maharashtra and Delhi (13).

Conclusion

The present study exhibited that the tobacco in any form, alcohol abuse and poor oral hygiene has been main contributing factors in ever increasing prevalence of Oral Squamous Cell Carcinoma in Indian population. The government of India and the other NGOs working for tobacco free India need to intensify the campaign to ban tobacco and alike products to overcome this menace.

REFERENCES

NCRP – Consolidated Report of Hospital Based Cancer Registries 2007-2011, National Cancer Registry Programme (Indian Council of Medical Research), Bangalore, 2013.

Anil K. Chaturvedi, William F. Anderson, Joannie Lortet-Tieulent, Maria Paula Curado, Jacques Ferlay, Silvia Franceschi, Philip S. Rosenberg, Freddie Bray, and Maura L. Gillison, "Worldwide Trends in Incidence Rates for Oral Cavity and Oropharyngeal Cancers". J Clin Oncol 2013 Dec 20;31(36):4550-9.

Jornet PL, Garcia FJ, Berdugo ML, Perez FP, Lopez AP. "Mouth self-examination in a population at risk of oral cancer. Aust Dent J.2015 Mar;60(1):59-64.

Wen-JiunLin, Rong-SanJiang, Shang-HengWu, Fun-JouChen, Shih-AnLiu. "Smoking,Alcohol, and BetelQuid and Oral Cancer: A Prospective Cohort Study".J Oncol.2011;2011:525976.

Manisha Sharma, Manas Madan, Mridu Manjari, Tejinder Singh Bhasin, Spriha Jain, Saumil Garg. "Prevalence of Head and Neck Squamous Cell Carcinoma (HNSCC) in our population: The clinicpathological and morphological description of 198 cases".IJAR 3(1):827-33

Bray F, Ren JS, Masuyer E, Ferlay J, "Global estimates of cancer prevalence for 27 sites in the adult population in 2008".Int J Cancer 2013 Mar 1,132(5):1133-45.

Scully C. Cancers of the Oral Mucosa. Medscape; 2016. Available from: http://www.emedicine. medscape. com/article/1075729- overview#a6(Last accessed on 2017 Jun 23).

Koo K, Barrowman R, McCullough M, Iseli T, Wiesenfeld D. Non-smoking non-drinking elderly females: A clinically distinct subgroup of oral squamous cell carcinoma patients. Int J Oral MaxillofacSurg 2013;42:929-33.

Toporcov TN, Znaor A, Zhang ZF, Yu GP, Winn DM, Wei Q, *et al.* Risk factors for head and neck cancer in young adults: A pooled analysis in the INHANCE consortium. Int J Epidemiol 2015;44:169-85.

Beena VT, Binisree SS, Ayswarya T, Paikkadan I, Padmakumar SK, Sivakumar R. Oral squamous cell carcinoma in patients younger than 40 years: A 10 year retrospective study. Int J Sci Stud 2016;4:150-3.

Feller L, Lemmer J. Oral squamous cell carcinoma: Epidemiology, clinical presentation and treatment. J Cancer Ther 2012;3:263-8.

Joshi P, Dutta S, Chaturvedi P, Nair S. Head and neck cancers in developing countries. Rambam Maimonides Med J. 2014;5(2):e0009.

Mehta FS, Bhonsle RB, Murti PR, Daftary DK, Gupta PC, Pindborg JJ, *et al.* Central papillary atrophy of the tongue among bidi smokers in India: A 10-year study of 182 lesions. J Oral Pathol Med 1989;18:475-80.

Singh A, Ladusingh L. Prevalence and determinants of tobacco use in India: Evidence from recent global adult tobacco survey data. PLoS One 2014;9:e114073.

Jayasooriya PR, Pitakotuwage TN, Mendis BR, Lombardi T. Descriptive study of 896 oral squamous cell carcinomas from the only university based oral pathology diagnostic service in Sri Lanka. BMC Oral Health 2016;16:1.

Singh MP, Kumar V, Agarwal A, Kumar R, Bhatt ML, Misra S, *et al.*Clinico-epidemiological study of oral squamous cell carcinoma: A tertiary care centre study in North India. J Oral BiolCraniofac Res. 2016;6:31-4.

Patil S, Yadav N, Patil P, Kaswan S. Prevalence and the relationship of oral mucosal lesions in tobacco users and denture wearers in the North Indian population. J Family Community Med 2013;20:187-91.

Chi AC, Day TA, Neville BW. Oral cavity and oropharyngeal squamous cell carcinoma – An update. CA Cancer J Clin 2015;65:401-21.

Gupta B, Johnson NW. Systematic review and meta-analysis of association of smokeless tobacco and of betel quid without tobacco with incidence of oral cancer in South Asia and the pacific. PLoS One 2014;9:e113385.

Sharma P, Saxena S, Aggarwal P. Trends in the epidemiology of oral squamous cell carcinoma in western UP: An institutional study. Indian J Dent Res 2010;21:316-9.

Shenoi R, Devrukhkar V, Chaudhuri, Sharma BK, Sapre SB, Chikhale A, *et al.* Demographic and clinical profile of oral squamous cell carcinoma patients: A retrospective study. Indian J Cancer 2012;49:21-6.

Madani AH, Dikshit M, Bhaduri D, Jahromi AS, Aghamolaei T. Relationship between selected socio-demographic factors and cancer of oral cavity – A case control study. Cancer Inform 2010;9:163-8.

Scully C. Oral cancer aetiopathogenesis; past, present and future aspects. Med Oral Patol Oral Cir Bucal 2011;16:e306-11.

Kerdpon D, Sriplung H. Factors related to delay in diagnosis of oral squamous cell carcinoma in Southern Thailand. Oral Oncol 2001;37:127-31.

****