

Prevalence of Potentially Malignant Disorders in Western Population of Maharashtra.¹Ms. Ketki Kulkarni, ²Dr. Ashwinirani SR

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Abstract

Aim: To assess the prevalence of potentially malignant disorders and to determine the potential risk factors associated among general population aged 18-80 years of Karad region, Maharashtra.

Materials and Methods: A total of 37840 patients were screened in the outpatient department of department of Oral Medicine and Radiology, School of Dental Sciences, Karad after obtaining the ethical clearance. All the relevant information regarding the subject was documented and clinical examination of the oral soft tissues was carried out. Patients clinically diagnosed as potentially malignant disorders were subjected to tobacco cessation counselling followed by prescription of multivitamins. Those with severe lesions were to undergo biopsy followed by necessary treatment.

Results: Out of a total of 37840 patients who attended the outpatient Department during the one year span between July 2017 to June 2018, 180 patients (Male: Female ratio 4.6:1) show occurrence of potentially malignant disorders accounting for incidence of 0.47%. Amongst it, Oral Sub mucous Fibrosis was the most common lesion comprising 47.7% of the study population. It was followed by Oral

Lichen Planus (25.5%) and Leukoplakia (7.6%). Only 1 patient was affected by Discoid Lupus Erythematosus, Erythroplakia and Smokers Palate respectively.

Conclusions: The results of the present prospective study provide data regarding the prevalence of oral mucosal lesions among patients seeking dental care in western part of Maharashtra. This information can help to determine the epidemiology, severity and also helps to identify risk factors for oral lesions. It will also serve as a baseline for future studies with the goal of finding ways to improve oral health in this country.

Keywords: Potentially malignant disorders, Leukoplakia, Lichen planus, Oral sub mucous fibrosis.

Introduction

In India, oral cancer (OC) is one of the leading cancer today. Its incidence is 12.6 per 1,00,000 population. ^[1,2] The majority (84%–97%) of OCs are squamous cell carcinoma (SCC) which arise from pre-existing “potentially malignant” lesions or more often from normal appearing epithelium. ^[3] India has world’s highest number (nearly 20%) of OCs with an estimated 1% of the population having oral premalignant lesions. ^[4] Clinically

for a precancerous lesion or condition to be considered, World Health Organization (WHO) suggested a definition for a precancerous lesion as “a morphologically altered tissue in which oral cancer is more likely to occur than its apparently normal counterpart” and the precancerous condition as “a generalized state associated with significantly increased risk of cancer.”^[5] Later in 2005, to avoid the confusion between the terminologies WHO workshop recommended to abandon the distinction between the precancerous lesions and conditions and to use instead the term “potentially malignant disorders (PMD)” .^[6] The following were identified as PMD’s by WHO working group on oral cancer: Oral Leukoplakia, Erythroplakia, Palatal lesion of reverse cigar smoking, Oral Lichen Planus, Oral Sub mucous Fibrosis (OSMF), Discoid Lupus Erythematosus.^[7]

Tobacco and alcohol are the foremost etiological factors for oral cancer. A great percentage of youth is in a habit of tobacco consumption. This prospective study aims at accounting the incidence of PMD’s amongst the patients reporting the Department of Oral Medicine and Diagnostic Radiology (OMDR), Krishna Hospital, Karad.

Materials And Methods

This one year prospective study was conducted in the Department of Oral Medicine and Diagnostic Radiology, Krishna Hospital, Karad. Those visiting the outpatient department were examined for PMD’s and were included in the study. Prior ethical clearance was obtained before commencement of the study. All the patients who agreed to participate were made to sign consent form.

A total of 37840 patients were included in this study during the one year span between July 2017 to June 2018. The diagnostic criteria to detect the presence of oral PMD’s by WHO was used.^[7]

Results

Out of a total of 37840 patients who attended the outpatient Department during the one year span between July 2017 to June 2018, 180 patients show occurrence of PMD’s accounting for incidence of 0.47%.

Patients falling in the age group of 18-80 were included in the study. The age group most commonly affected was 41-60 accounting 46.6% of the study population. [Table 1] Males were affected more than females (Male: Female ratio 4.6:1) [Table 2]

Amongst the PMD’s, OSMF was the most common lesion comprising 47.7% of the study population. It was followed by Oral Lichen Planus (25.5%) and Leukoplakia (7.6%). Only 1 patient was affected by Discoid Lupus Erythematosus, Erythroplakia and Smokers Palate respectively. [Table 3]

The most common site to be affected was the buccal mucosa followed by multiple site involvement and lateral aspect of tongue. Other sites were less affected. [Table 4]

Discussion

It is widely understood that neither do all precancerous lesions progress to cancer nor all cancers necessarily originate from such lesions, but it has been proved that the majority of these lesions and conditions progress to cancer unless diagnosed early and treated. Oral PMD’s may be considered a blessing in disguise as they help in early diagnosis and prevention of oral malignancies which can decrease the burden of cancer prevalence, especially in youth and working class of the society.

In our hospital based study, the incidence rate was found out to be 0.47% annually. The incidence is found to be (0.62%) in the study by Phookan and Saikia^[8] while Charles A Waldron’s^[9] study showed it to be as 1.5%. In contrast, our prevalence of lesions and conditions were much lower when compared with the study done by Bhonsle et al.^[10] (1.78%), Warnakulasuriya et al (4.2%)

^[11] Rao et al., in 1998 ^[12] (3.98%), and Lim et al ^[13] (4.2%) suggestive of geographical influence on the study.

In our study the age group mostly affected was 41-60. The study by Mehrotra R et al ^[14] and Dietrich et al ^[15] showed maximum number of cases were in 6th decade as in accordance with our study. In a study by Murtiet al. ^[16] maximum numbers of subjects were from 35 to 44 years and 45-54 years age group, but in Hazarey et al. ^[17] study contrast results were seen as the maximum number were in third decade

Males were more affected than females (M:F ratio 4.62:1) This finding is similar to the one noted by Dietrich et al ^[15] , Mishra et al ^[18] , Hosaggade et al ^[19] and Liu et al ^[20] . This further supports the fact that habits are more commonly noted in men.

Regarding the site of involvement, in our study we found the buccal mucosa to be most commonly involved 47 (52.2%) followed by multiple site involvement with 20 patients (22.2%) and lateral aspect of tongue 20 (22.2%), palate 1 (1.1%), lip 2 (2.2%). Our study coincides with that of Shafer and Waldron ^[9] , Bhonsle^[10] , Pindborg^[5].

Amongst the PMD's, OSMF was the most common comprising 47.7% of the study population. It was followed by Oral Lichen Planus (25.5%) and Leukoplakia (7.6%). Only 1 patient each was affected by Discoid Lupus Erythematosus, Erythroplakia and Smokers palate respectively. Patil et al.^[21] reported 30% OSMF, 22% leukoplakia, 18% lichen planus, and 2% squamous cell carcinoma, which was in concordance with our study. In contrast, Cebeci et al ^[22] and Mujicaet et al ^[23] showed lower prevalence of these lesions compared to our study.

Oral Sub mucous Fibrosis: [Figure 1]

It is an insidious chronic disorder characterized by fibrosis of the mucosa of the upper GIT. South Asian population mainly has habit of areca nut chewing along with betel quid, OSMF is mainly seen in this population. Other

etiological agents like ingestion of chilies, genetic, immune, nutritional deficiencies such as B₁₂ have been noted. Prodromal symptoms include burning of mucosa which is followed by fibrotic bands on the buccal mucosa thus giving rise to trismus and difficulty in eating. The treatment of oral sub mucous fibrosis should be focused on chewing habit cessation. Usually cessation of the habit reverts the patient with good prognosis. Other treatment modalities include topical and systemic steroids, vitamin supplementation and surgical procedures.

Lichen planus: [Figure 2]

The prevalence of Lichen planus in our study is found to be 25.5% which is extremely greater than the one seen in the study by Charles A Waldron ^[9] 1.5%.

It is a chronic, autoimmune, inflammatory disease. Several etiological factors are responsible for it which includes genetic, drugs, infectious agents (mostly viral), dental material, autoimmune, stress, diabetes, immunodeficiency etc. It affects skin, oral mucosa, genitals, nails, scalp etc. Any part of oral mucosa may be affected but dorsum of tongue is most common site. Patient presents with symmetrical, bilateral lesion. Surface is white with fine white striations, "Wickham's Striae". Various forms like reticular, plaque, atrophic, papular, erosive, bullous were noted. Since the etiology of Lichen Planus is unknown, most of the treatment strategies aim at reducing or eliminating symptoms. Several topical drugs have been suggested including steroids, calcineurin inhibitors, retinoids and phototherapy with steroids being the first line of treatment.

Leukoplakia: [Figure 3]

Leukoplakia defined by the WHO working group as "A keratotic white patch or plaque that cannot be scrubbed off and cannot be characterized clinically or pathologically as any other disease". ^[7]

The incidence of leukoplakia was found to be 22% in our study which was in accordance to Bhonsle et al ^[10] 18%, Crivelli et al ^[24] 20.5% but it is much higher than Petit J.C. ^[25] 0.2%-11.70%.

The etiological factors implicated for leukoplakia are tobacco, alcohol, chronic irritation, syphilis, nutritional deficiencies, human papilloma virus infection, ultraviolet radiation, hot spicy foods etc. It has the strongest association with the use of tobacco in various forms like chewing tobacco (as in paan, paan masala, gutka, zarda), heavy smokers etc. There is risk factor leads to hyperplastic or dysplastic squamous epithelial lesions which progress to -carcinoma in situ to invasive squamous cell carcinoma. Treatment includes elimination of the etiological factor as the foremost treatment plan for which tobacco cessation counselling needs to be done. If histopathology shows moderate to severe dysplasia, excision is obligatory.

Erythroplakia

Erythroplakia is defined by WHO as “Any lesion of the oral mucosa that presents as a bright red velvety patch or plaque which cannot be characterized clinically or pathologically as any other recognizable condition”. ^[7] Its causes include alcohol, smoking or an idiopathic cause. Clinically it presents as red, often velvety patches usually seen on the soft palate, floor of the mouth, buccal mucosa and lateral border of the tongue. Mainly seen in middle age, peak age being 65-74 years showing male predominance. Treatment is usually guided by the histopathological diagnosis. In our study the population showing presence of potentially malignant disorders were given Medical treatment in the form of anti oxidants and multivitamins. Patients further were counselled regarding the harmful effects of their habits and were provided help in cessation of tobacco and alcohol.

Figures and Tables

Figure 1- Photograph showing OSMF



Figure 2- Photograph showing LP



Figure 3- Photograph showing Leukoplakia



Table 1: Age Wise Distribution of the PMD's

Age Group (In Years)	Number Of Patients	% Of Population Affected
<20	2	1.1

21-40	78	43.3
41-60	84	46.6
61-80	16	8.8

Table 2: Gender Wise Distribution of the PMD's

Age Group (In Years)	Number Of Patients	Males	Females
<20	2	2	0
21-40	78	64	14
41-60	84	74	10
61-80	16	8	8

Table 3 : Lesion Wise Distribution Of The PMD's

Potentially Malignant Disorder	Patients Affected	% Of Population Affected
Leukoplakia	32	17.7%
Lichen Planus	49	27.2%
Osmf	96	53.3%
Discoid Lupus Erythematosus	1	0.5%
Erythroplakia	1	0.5%
Smokers Palate	1	0.5%

Table 4: Site Wise Distribution of the PMD's

Site Involved	Number Of Patients	% Of Population Affected
Buccal Mucosa	47	52.2%
Lateral Aspect Of Tongue	20	22.2%
Palate	1	1.1%
Lip	2	2.2%
Multiple Sites	20	22.2%

Conclusion

Significant number of oral cancer cases present initially with precursor lesion. Early detection of premalignant oral lesion is of utmost importance to prevent further progress to oral cancer. We observed various premalignant oral

lesions in the present study which include leukoplakia, oral sub mucous fibrosis, lichen planus, actinic cheilitis and erythroplakia. Oral sub mucous fibrosis was most common lesion in the present study.

The results of the present prospective study provide data regarding the prevalence of oral mucosal lesions among patients seeking dental care in a South Maharashtra cohort. This information can help determine the epidemiology, severity and also help identify risk factors for oral lesions. It will also serve as a baseline for future studies with the goal of finding ways to improve oral health in this country.

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