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ORIGINAL ARTICLE

THE CLINICAL AND MORPHOLOGICAL STUDY OF 75 CASES OF ORAL PREMALIGNANT LESIONS

Syed Salman H[1], S. Nazia Ambreen[2], S. M. Rashinkar[3], M. V. Watve[4]

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ABSTRACT: BACKGROUND: Oral cancer is of significant public health importance to India. Oral cancer will remain a major health problem and efforts towards early detection, and prevention will reduce this burden. A premalignant lesion is a disease, syndrome, or finding that, if left untreated, may lead to cancer. **OBJECTIVE:** To understand the prevalence, clinical and morphological profile of oral premalignant lesions. **MATERIALS AND METHODS**: Clinical material for present study comprises 75 cases with oral premalignant lesions. The parameters studied were types of oral premalignant lesions, age distribution, sex distribution, the local habits of addiction and the sites of involvement. **RESULTS**: Maximum number of cases was between 21-30 years of age. The sex incidence was more in males with the ratio of 9:1. Out of total 75 cases, 64% cases were of oral submucous fibrosis, 17.3% cases were of leukoplakia, 8% cases of erythroplakia, 6.6% cases of traumatic dental ulcer and 4% cases of lichen planus. In cases of oral submucous fibrosis, betel nut chewing was the commonest habit (89.5%). In cases of Lichen planus no addictions were found. Buccal mucosa was the commonest site involved in premalignant lesions. **CONCLUSION:** Premalignant lesions are seen mainly in early adulthood. The number of cases is increased due to adverse oral habits. Its prevalence can be reduced if awareness is created among such patients. This study mandates close cooperation between dentist and ENT surgeons.

KEYWORDS: Oral submucous fibrosis, leukoplakia, erythroplakia, lichen planus, oral ulcer.

INTRODUCTION: An Indian house-to-house survey showed that about 80% of oral cancers were preceded by oral pre-cancerous lesions or conditions.[1] Oral cancers account for four in ten of all cancers in India. The evidence that oral leukoplakia is pre-malignant is mainly derived from follow-up studies, mostly obtained on hospital-based observations. The World Health Organization (WHO) has accepted the latest international attempt on terminology and definitions[2, 3], subdividing oral pre-cancer into pre-cancerous lesions and pre-cancerous conditions. In the Indian subcontinent the prevalence of oral cancer is the highest even though it is only the sixth most common cancer worldwide.[4]

More than one million new cases are being detected annually only in the Indian subcontinent. The premalignant conditions of the oral cavity are those which have got a potentiality to turn malignant in its due course if left untreated. In 1967, an international reference center for the study of Oral Pre-cancerous Lesion was established by the WHO. The main importance was given to leukoplakia, lichen planus, oral submucous fibrosis and erythroplakia conditions and considered them as premalignant. These lesions have got a very close association with the local habits practiced by the people. Chewing tobacco is one of the most significant risk factors for the development of oral cancer, which, if undetected, can be extremely hard to treat. Leukoplakia and erythroplakia are most common in tobacco smokers and chewers.[5, 6] Oral lichen planus is an idiopathic condition. Some of

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the types have a predisposition to develop carcinoma.[7] Oral submucous fibrosis is an insidious, chronic disease affecting any part of the oral cavity. Hence, the present study helps to understand the prevalence, clinical and morphological profile of oral premalignant lesions.

MATERIALS AND METHODS: The study was approved by Institutional Ethical Committee of Al-Ameen Medical College, Bijapur. Detailed and signed informed consent was obtained from the subjects in the presence of witness, after oral reading of the protocol in verbatim and explaining it in the subject's own language. It was a prospective tertiary hospital based study. The present study comprises of 75 cases of various oral premalignant lesions presenting to the out-patient at the Department of Otorhinolaryngology in Al-Ameen Medical College Hospital, Bijapur between October 2011 and October 2013. The parameters studied were types of oral premalignant lesions, age distribution, sex distribution, the local habits of addiction and the sites of involvement. All the patients came from either lower or middle socioeconomic group. Cases with frank oral malignancy and patients presenting with white patch in the oral cavity other than leukoplakia, e.g., oral thrush were excluded.

RESULTS:

Types of oral premalignant Lesions: In Table 1, out of the total 75 cases in the study, 48 (64%) cases were of oral submucous fibrosis (Figure 1), 13 (17.3%) cases were of leukoplakia, 6 (8%) cases of erythroplakia (Figure 2), 5 (6.6%) cases of traumatic dental ulcer (Figure 3) and 3 (4%) cases of lichen planus.

Premalignant Lesion	No. of patients	Percentage (%)
Oral Submucosal Fibrosis	48	64
Leukoplakia	13	17.30
Erythroplakia	6	8
Traumatic Dental Ulcer	5	6.60
Lichen Planus	3	4
Total	**75**	**100**

Table 1: Incidence of various oral premalignat lesions

Fig. 1

Fig. 2

Fig. 3

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Age Distribution: Table 2 showed the age of patients varied from 15-70 years. The maximum cases (27 cases, 36%) were in 21 – 30 years age group. In the 31 – 40 year age group 16 cases (21.3%) were seen. In oral submucous fibrosis, 22 cases were in 21 – 30 years age group. The youngest was 15 years old and oldest was 60 years old. In leukoplakia, highest incidence was found in the age group of 21 – 30 years (4 cases), the youngest being 21 year old male & eldest being 70 year old.

In erythroplakia, highest incidence was seen in the age group of 31 – 40 years (3 cases). In traumatic dental ulcer patients, higher incidence was found in the age group of 41 – 50 years (2 cases). The oldest patient in the study was of 65 years.

Age Group (years)	Oral Submucosal Fibrosis	Leukoplakia	Erythroplakia	Lichen Planus	Traumatic Dental Ulcer	Total	Percentage (%)
11-20	13	0	0	0	1	14	18.66
21-30	22	4	1	0	0	27	36
31-40	9	2	3	2	0	16	21.33
41-50	1	3	2	1	2	9	12
51-60	3	2	0	0	1	6	8
61-70	0	2	0	0	1	3	4
Total	48	13	6	3	5	75	100

Table 2: Age distribution of the patients

Sex Distribution: Out of the total 75 cases, 67 cases were male (90%) and 8 were female (10%), with a male to female ratio of 9:1. But in lichen planus, out of the total three cases, two were female, with the ratio being 1:2 (Table 3).

Premalignant lesion	Male	Percentage (%)	Female	Percentage (%)
Oral Submucosal Fibrosis	45	60	3	4
Leukoplakia	12	16	1	1.33
Erythroplakia	5	6.66	1	1.33
Lichen Planus	1	1.33	2	2.66
Traumatic Dental Ulcer	4	5.33	1	1.33
Total	**67**	**90**	**8**	**10**
Male to Female ratio	9:1			

Table 3: Sex distribution of the patients

The local habits of Addiction: Out of the total 75 patients in the study, 58 cases (77.3%) had habit of tobacco chewing, 51 cases (68%) chewed betel nut, 20 cases (26.6%) were smokers and 16 cases (21.3%) were alcoholics. 12 cases (16%) patients were not having any addictions (Table 4). Out of 48 cases of OSMF, 43 cases (89.5%) patients were having a habit of chewing betel nut. Most common form of addiction found in patients of leukoplakia was tobacco chewing, 12 casess (92.3%); followed

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by smoking, 9 cases (69.2%). In cases of erythroplakia, tobacco chewing (83.3%) and smoking (83.3%) were seen equally. In cases of lichen planus, no addictions were found.

Premalignant lesions	Addictions											
	Tobacco		Betel nut		Paan		Smoking		Alcohol		None	
	Patients	%	Patients	%	Patients	%	Patients	%	Patients	%	Patients	%
OSMF	40	83.3	43	89.5	7	14.5	6	8	6	8	3	4
Leukoplakia	12	92.3	5	38.4	4	30.7	9	69.2	4	30.7	1	7.6
Erythroplakia	5	83.3	3	50	3	50	5	83.3	5	83.3	0	0
Lichen Planus	0	0	0	0	0	0	0	0	0	0	3	100
Traumatic Dental Ulcer	1	20	0	0	0	0	0	0	1	20	5	100
Total	**58**	**77.3**	**51**	**68**	**14**	**18.6**	**20**	**26.6**	**16**	**21.3**	**12**	**16**

Table 4: Addictions in the patients

The sites of Involvement: Table 5 depicts that out of total 48 cases of OSMF, all had involvement of the buccal mucosa (100%); second most site of involvement was soft palate with 40 cases (83.3%). Other areas involved included retromolar trigone (77%), pillars (75%), uvula (75%), lips (33.3%) and tongue (24%). All patients with trismus had fibrosis of pillars and retromolar trigone. Out of total 13 cases of leukoplakia, 9 cases (70%) had a white plaque over the buccal mucosa, 3 cases (23%) over tongue and 1 case (7%) over the lip. Out of the 6 cases of erythroplakia, 4 cases (66%) had involvement of the buccal mucosa and 1 each had involved lip and tongue (17%). All the 3 cases of lichen planus in the study had lesion over buccal mucosa. Out of 5 cases of traumatic dental ulcer in the study, 3 had ulcer over the buccal mucosa (60%) and 2 cases over the tongue (40%).

Oral Submucosal Fibrosis (OSMF)				Erythroplakia			
Sl. No.	Site Involved	No. of patients	Percentage (%)	Sl. No.	Site Involved	No. of patients	Percentage (%)
1	Buccal Mucosa	48	100	1	Buccal Mucosa	4	66
2	Lips	16	33.3	2	Tongue	1	17
3	Retromolar trigone	37	77	3	Lip	1	17
4	Pillars	36	75		Total	6	100
5	Soft Palate	40	83.3	**Lichen Planus**			
6	Uvula	36	75	1	Buccal Mucosa	3	100
7	Tongue	18	24	2	Tongue	0	0
	Total	**48**	**100**	**3**	**Lip**	**0**	**0**

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Leukoplakia					Total	3	100
1	Buccal Mucosa	9	70	**Traumatic Dental Ulcer**			
2	Tongue	3	23	1	Buccal Mucosa	3	60
3	Lip	1	7	2	Tongue	2	40
	Total	**13**	**100**		**Total**	**5**	**100**

Table: 5 Sites of involvement in various oral premalignant lesions

DISCUSSION:

Types of oral premalignant Lesions: The present study showed 48 cases (64%) had oral submucous fibrosis. According to a study by Cox et al, oral submucous fibrosis has now become an Indian epidemic with an estimated 2.5 million people being affected with this disease.[8] Its prevalence has risen from 0.16% in 1967 to 3.2% in 1994.[9] OSMF has the higher incidence in the study also due to the fact that it causes early symptoms for the patients seeks early medical attention unlike in leukoplakia which causes only a painless white plaque in the oral cavity. Table 1 showed 13 cases (17.3%) had leukoplakia in present study. Erythroplakia is a rare lesion diagnosed only in 0.1 to 0.6 of every 100000 persons annually.[6] Six cases (8%) had erythroplakia in present study. Traumatic dental ulcers can be found in 2.1 per 1000 persons and oral lichen planus in 1 per 1000 people.[10]

Age Distribution: The majority of cases in the study (36%) were in the age group of 21-30 years. The youngest being a 15 year old boy and the eldest 70 year old man. Sirsat and Pindborg, found wide range of patients of OSMF, although majority were between 30-50 years age group.[11] Pindborg in a comparative study of Mumbai and Lucknow reported that the youngest patient was 32 and oldest was 72 years of age.[12] Angadi et al did a study in 2011 on oral submucous fibrosis and reported that it was seen in younger age (20-30 years).[13] Leukoplakia occurs in persons over 40 years of age.[10] The mean age at diagnosis in cases of erythroplakia is 38.5 years; the ageing process itself is the greatest risk for premalignancy.[14] Lichen Planus is seen commonly in middle aged adults.[15]

Sex Distribution: Out of the 75 cases, 67 were males (90%) and 8 (10%) were females with a male to female ratio of 9:1. Sharan,[16] and Wahi et al,[17] found the male: female ratio of 2:1 in their study of OSMF. Punnya VA et al,[13] did a study on oral submucous fibrosis in 2011 and reported that it showed a characteristic male preponderance. Pindborg et al,[18] reported female predominance with a ratio of 4.2:1. Earlier there was a female predilection as reported by Pindborg et al due to the widespread female habit of chewing betel nut and conventional betel quid.

Considering the fact that there is availability of processed betel nut and tobacco as gutka in affordable packets and widespread acceptance of its use may be the reason of male predominance now. Other premalignant lesions like leukoplakia and erythroplakia affect predominantly males with a slight decrease in the ratio due to increasing use of tobacco products in females.[19, 20] Out of 3 cases of lichen planus, 2 cases were females with a ratio of 1:2. Lichen planus has a relatively strong female prediction with a M: F ratio of 1:2. This is consistent with the present study.

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The local habits of Addiction: Out of the total 75 cases in the study, 58 cases (77.3%) cases had habit of tobacco chewing, 51 cases (68%) chewed betel nut, 20 cases (26.6%) were smokers and 16 cases (21.3%) were having alcohol. Twelve cases (16%) were not having any addictions. Out of 48 cases of OSMF, 43 cases (89.5%) were having a habit of chewing betel nut. In a case control study done by Sinor et al, conducted in Bhavnagar, Gujarat findings were presented confirming betel nut as the most important etiologic factor in OSMF.[21] Bhonsle RB et al, reported the frequency of habitual chewing of betel nut chewing with betel nut ranged from 35-100%, which is higher in OSMF patients than in the general population thus implicating betel nut chewing with the development of OSMF.[22] A strong association of OSMF with smokeless tobacco use especially areca nut in the form of gutkha, and related to its earlier development, i.e., within a year of the habit.[13]

Most common form of addiction in patients of leukoplakia was tobacco chewing seen in 12 cases (92.3%), followed by smoking 9 cases (69.2%), in the study. According to Banoczy et al and Bouquot et al, leukoplakia is most common in tobacco smokers followed by tobacco chewers in whom malignant transformation is rate is comparatively less.[5, 23] In cases of erythroplakia, smoking and tobacco chewing was found equally in the study. Prout et al reported prevalence rate of 17 per 1000 in US adult tobacco users.[6] In cases of Lichen planus, no addictions were found. Lichen planus is considered to be an autoimmune condition but the exact etiology is unknown.[24] Muwonge et al did a study in 2008 on role of tobacco smoking, chewing and alcohol drinking in the risk of oral cancer. They noted dose-response relationship for the frequency and duration of chewing and alcohol drinking, as well as duration of bidi smoking. They also concluded that, given the relatively poor survival rates of oral cancer patients, cessation of tobacco and moderation of alcohol use remain the key elements in oral cancer prevention and control.[25]

The sites of Involvement: In all the premalignant lesions, buccal mucosa was the most commonly involved site in the study group. Blanching of oral mucosa with areas of fibrosis is diagnostic of OSMF.

According to the study by Buoquot and Gorlin, more than two third of all leukoplakia are found on buccal mucosa, lip and gingiva.[10] According to the Buoquot et al, the most frequent sites of involvement in the decreasing order of frequency are the lips, tongue, buccal mucosa, floor of mouth and soft palate.[26] In lichen planus all the cases had lesions over buccal mucosa. No other site was seen to be involved in the study. The patients presented with irregular bilateral whitish plaques over buccal mucosa with spider web pattern. According to a study at Batsakis JG et al, the great majority of cases of lichen planus have irregular bilateral keratinized plaque over buccal mucosa but any oral surface can be affected.[27] This is consistent with the present study.

CONCLUSION: Premalignant lesions are seen mainly in early adulthood. Males are affected more frequently. OSMF is very common premalignant conditions followed by leukoplakia. In all the premalignant lesions, buccal mucosa is the most commonly involved site. Predisposing factor in OSMF appears to be betel nut chewing which is very widespread as reflected by the high incidence of this condition. Tobacco chewing and smoking appear to be predisposing factors in the causation of premalignant lesions like leukoplakia and erythroplakia. Lichen planus seems to have an idiopathic or autoimmune etiology and is more frequently seen in females.

REFERENCES:

1. Gupta PC, Bhonsle RB, Murti PR, Daftary DK, Mehta FS, Pindborg JJ. An epidemiologic assessment of cancer risk in oral precancerous lesions in India with special reference to nodular leukoplakia. Cancer 1989; 63: 2247-52.
2. Pindborg JJ, Reichart P, Smith CJ et al. World Health Organization: histological typing of cancer and pre-cancer of the oral mucosa, Berlin, 1997, Springer-Verlag.
3. Axéll T, Pindborg JJ, Smith CJ, van der Waal I. Oral white lesions with special reference to precancerous and tobacco related lesions: conclusions of an international symposium held in Uppsala, Sweden, May 18-21 1994. International Collaborative Group on Oral White Lesions. J Oral Pathol Med 1996; 25: 49-54.
4. Neville BW, Day TA. Oral Cancer and Precancerous Lesions. CA Cancer J Clin. 2002;52:195-215.
5. Banoczy J. Oral leukoplakia. Budapest: Akademiai Kiado, The Hague: Martinus Nijhoff, 1982:17-38.
6. Prout MN, Sidari JN, Witzburg RA, Grillone GA, Vaughan CW. Head and neck cancer screening among 4611 tobacco users older than forty years. Otolaryngol Head Neck Surg 1997; 116: 201-8.
7. Vincent SD, Baker KA, Williams TP. Oral lichen planus: the clinical, historical, and therapeutic features of 100 cases. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 1990; 70: 165-71.
8. Cox SC, Walker DM. Oral submucous fibrosis. A review. Australian Dent J, 1996; 41: 294-9.
9. Gupta PC, Sinor PN, Bhonsle RB, Pawar VS, Mehta HC. Oral submucous fibrosis in India: a new epidemic? Natl Med J India 1998;11:113-6.
10. Bouquot JE, Gorlin RJ. Leukoplakia, lichen planus and other oral keratoses in 23, 616 white Americans over 35 years of age. Oral Surg Oral Med Oral Pathol 1986; 61: 373-81.
11. Pindborg JJ, Sirsat SM. Oral submucous fibrosis. Oral Surg Oral Med Oral Pathol. 1966; 22: 764-79.
12. Pindborg JJ, Chawla TN, Mishra RK, Nagpaul RK, Gupta VK. Frequency of oral carcinoma, leukoplakia, leokokeratosis, leukoedema, submocous fibrosis and lichen planus in 10, 000 Indians in Lucknow, Uttar Pradesh, India; preliminary report. J Dent Res 1965; 44: 61.
13. Angadi PV, Rekha KP. Oral submucous fibrosis: a clinicopathologic review of 205 cases in Indians. Oral Maxillofac Surg 2011; 15: 15-9.
14. Lumerman H, Freedman P, Kerpel S. Oral epithelial dysplasia and the development of invasive squamous cell carcinoma. Oral Surg Oral Med Oral Pathol 1995; 79: 321-29.
15. Bouquot JE, Gundlach KKH. A new staging protocol for oral leukoplakia. Presented at the annual meeting of the German Association of Plastic Surgeons in Frankfort, Germany; July, 1992.
16. Sharan J, et al. Histopathological observations on cases of submucous fibrosis of the oral tissue. Indian J Pathol Bact 1959; 2: 150-2.
17. Wahi PN. The epidemiology of oral anc oropharyngeal cancer. A report of the study in Mainpuri district, Uttar Pradesh, India. Bull World Health Organ 1968; 38: 495-21.
18. Pindborg JJ. Oral cancer and precancer. Bristol: John Wright and Sons, Ltd, 1980.
19. Prinz H. Leukoplakia oris -- a clinical study. Dent Cosmos 1928; 70: 663-72.
20. Bouquot JE, Gorlin RJ. Leukoplakia, lichen planus and other oral keratoses in 23, 616 white Americans over the age of 35 years. Oral Surg 1986; 61: 373-81.

DOI: 10.14260/jemds/2015/327

21. Sinor PN, Gupta PC, Murti PR, Bhonsle RB, Daftary DK, Mehta FS, et al. A case control study of oral submucous fibrosis with special reference to the etiology role of areca nut. J Oral Pathol Med 1990; 19: 94-8.
22. Bhonsle RB, Murti PR, Daftary DK, Gupta PC, Mehta FS, Sinor PN, Irani RR, Pindborg JJ. Regional variations in oral submucous fibrosis in India. Community Dent Oral Epidemiol 1987; 15: 225-9.
23. Bouquot JE. Epidemiology. In: Gnepp DG: Pathology of the head and neck. New York: Churchill Livingstone, 1987, pp 263-314.
24. Vincent SD, Fotos PG, Baker KA, Williams TP. Oral lichen planus: The clinical, historical, and therapeutic features of 100 cases. Oral Surg Oral Med Oral Pathol 1990; 70: 165-71.
25. Muwonge R, et al. Role of tobacco smoking, chewing and alcohol drinking in the risk of oral cancer in Trivandrum, India: a nested case-control design using incident cancer cases. Oral Oncol 2008; 44: 446-54.
26. Bouquot JE. Common oral lesions found during a mass screening examination. J Am Dent Assoc 1986; 112: 50-7.
27. Batsakis JG, et al. Lichen planus and lichenoid lesions of the oral cavity. Ann Otol Rhinol Laryngol 1994; 103: 495-7.

AUTHORS:

1. Syed Salman H.
2. S. Nazia Ambreen
3. S. M. Rashinkar
4. M. V. Watve

PARTICULARS OF CONTRIBUTORS:

1. Senior Resident, Department of ENT, Shri B. M. Patil Medical College Hospital, Bijapur.
2. Post Graduate, Department of ENT, Al Ameen Medical College Hospital, Bijapur.
3. Professor, Department of ENT, Al Ameen Medical College Hospital, Bijapur.
4. Professor, Department of ENT, Al Ameen Medical College Hospital, Bijapur.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Syed Salman H,
Department of ENT,
Shri B. M. Patil Medical College Hospital,
Bijapur.
E-mail: dr.syedsalman@gmail.com

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