

Original Article

Risk Factors for Precancerous Lesions of Oral Mucosa

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Objective: To evaluate the association between different lifestyle/social habits and oral premalignant conditions/lesions.

Study design: Descriptive Study

Place and Duration: This study was carried out at the department of Oral and Maxillofacial Surgery, Pakistan Institute of Medical Sciences (PIMS), Islamabad in the last three years.

Materials and Methods: A total of 100 patients visiting the outpatient clinic of Oral and Maxillofacial Surgery department with different lifestyle oral habits were included in this study. Initial assessment and diagnosis was made by history and clinical examination which was subsequently confirmed histopathologically. The sociodemographic profile of the patients, type of habit and nature of lesion were all recorded. The collected data were then evaluated for its statistical significance.

Results: Out of 100 patients, 60% (n=59) were female while 40% (n=41) were males. The mean age was 40.1 years and 47% of the patients were in the 21-40 year age group. Ingestion of spicy food was the most prevalent lifestyle habit (84%) followed by sopari (63%) and pan (41%). Oral submucous fibrosis was the most frequent lesion to be observed (45%) followed by oral lichen planus (39%).

Conclusion: The habit of pan chewing showed a statistically significant association to the development of oral precancerous lesions and conditions.

Key Words: Oral precancerous lesions, Lifestyle habits, pan, sopari.

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Introduction

Oral lesion constitute major public problem in Pakistan and South Asian countries. Public of these areas are habitual of taking spicy food, pan (Quid: defined as substance or group of substances remaining in contact with the oral mucosa containing one or both of the two basic ingredients i.e. tobacco and areca nut), sopari (areca nut), smoking and naswar (snuff). These are the common social habits in this region. Research has found that these habits are risk factors for producing oral lesion.¹ A change in colour of the normal reddish oral mucosa to white constitutes one of the most frequently encountered oral abnormalities.² A variety of malignant and pre malignant lesion of oral cavity appear white, like leukoplakia, oral submucous fibrosis, oral lichen planus, erythroplakia, chronic hyperplastic candidiasis, sub-lingual-keratosis, tobacco-induced keratosis, syphilitic keratosis and carcinoma in situ.³

The initiation of these precancerous conditions may depend upon extrinsic local factors. The more frequently blamed factor is tobacco used in different ways i.e. smoking and chewing that causes local

irritation.⁴ Pindborg and Renstrup (1963)⁵ found that, smoking, chewing tobacco alone or included in pan are the causative factors for leukoplakia. They further reported that habit of keeping naswar (snuff) in the vestibule of mouth produces oral precancerous lesions.⁵

Canniff (1986) reported that there is general agreement in the literature that the areca nut chewing is another significant causative factor for oral lesions.⁶ Tilakaratne (2006) pointed out in his study that eating spicy food and chewing areca nut are the causative factors of oral lesions.⁷

In our study we have examined the patients having oral mucosal lesions with chewing habits of pan sopari, smoking tobacco, taking spicy food and using naswar and evaluated the association of these risk factors in causing oral precancerous lesions.

Materials and Methods

The study was carried out on 100 patients of precancerous lesions (i.e. leukoplakia, oral sub mucous fibrosis, Lichen planus, chronic hyperplastic candidiasis, sub-lingual keratosis, carcinoma in situ and syphilitic

keratosis) of oral mucosa, at the department of Oral and Maxillofacial Surgery, Pakistan Institute of Medical Sciences (PIMS), Islamabad in the last three years. The criteria of oral examination included the colour of oral mucosa and site of occurrence. The patients were asked about habits of taking pan, sopari, spicy food, smoking and naswar and all findings noted in a specially designed proforma. The diagnosis of lesions was made clinically which was later confirmed by histopathological examination.

Patients were categorized according to the lesion and habits of using pan sopari, spicy food, smoking, and naswar. All collected data were entered and processed by using the SPSS (Statistical Package for Social Sciences) version 12. The results were tested for risk factors and statistical significance was evaluated by applying chi-square test.

Results

The study involved 100 patients with suspected precancerous lesions out of which 41 were male and 59 were female. The youngest patient seen in this study was 14 years old and the oldest one was 76 years old. The mean age of study subjects being 40.1 years. The mean age for male patients was 39.2 years and female mean age was 40.66 years (Table.I).

The lesions were provisionally labeled by clinical examination and histologically confirmed. Out of 100 Patients, 12 were diagnosed clinically as leukoplakia out of these, seven were confirmed as leukoplakia one as lichen planus, two were oral submucous fibrosis, one carcinoma in situ and one was squamous cell carcinoma histologically.

Thirty eight patients were diagnosed clinically as lichen planus out of these 36 were confirmed histologically as lichen planus, one showed features of oral submucous fibrosis and one as dysplasia histologically.

Forty four patients were clinically diagnosed as oral submucous fibrosis out of these 42 were confirmed histologically as oral sub mucous fibrosis, one showed the histological picture of lichen planus and one

of squamous cell carcinoma. Three cases were clinically diagnosed as chronic hyperplastic candidiasis. Out of these 3 cases one was confirmed histologically as such but the remaining two showed the features of leukoplakia .

One case was labeled clinically as sublingual keratosis but histologically this subject showed characteristics of leukoplakia. Two cases appeared clinically as erythroplakia out of these one was histologically confirmed as lichen planus and one as leukoplakia .

All of these 100 patients were asked about oral habits or substance abuse like pan, sopari (areca nut), spicy food, smoking and naswar. It was seen that most of the subjects were having spicy food 84%, sopari 63%, pan 41%, smoking 24% and naswar 8%. Some of the patients were in the habit of using more than one of the risk substances hence the total number was increased. These predisposing factors were statistically analyzed and results showed that pan with tobacco was a statistically significant risk factor (chi-square 8.333, P-Value 0.05, df-3) where as the association of other factors to pre malignant lesions or conditions was not significant (Table No. II).

TABLE: I Distribution of study subjects According to age and sex (n=100)

Age Group (years)	Male	Female	Total
1-20	5	3	8
21-40	17	30	47
41-60	15	19	34
61-80	4	7	11
Total	41	59	100
Mean ages	39.28	40.66	40.1

Discussion

A variety of precancerous oral lesions have been identified to exist in conjunction with oral habits or substance abuse. In our study all the patients were habitual of taking pan (41%), sopari (63%), spicy food

Table no. II Distribution Of Precancerous Lesions In Relation To Predisposing Factors

	Pan	Sopari	Spicy Food	Smoking	Naswar	Total
Leukoplakia	06	09	09	04	02	30
Lichen Planus	13	16	35	10	02	76
Oral Submucous Fibrosis	22	37	37	08	02	106
Ch:Hyperplastic Candidiasis	--	01	01	01	--	03
Sub-Lingual Keratosis	--	--	01	01	01	03
Carcinoma in Situ	--	--	01	--	01	02
Syphilitic Keratosis	--	--	--	--	--	--
Total	41	63	84	24	08	220

(84%), smoking (24%) or naswar (8%) in different forms and frequencies. Pan was statistically found significant (Table No. II). Interpretation of data from a single institution has clear limitations. The data reflects the specific patient population reporting to this hospital and not the community as a whole. In different studies, smoking, pan, areca nut, spicy food, naswar etc were found positively associated with oral pre-cancerous lesions.^{8, 9, 15-17}

In the study of Gupta et al (1995),⁴ leukoplakia was seen more frequently in smokers than non smokers and reducing tobacco consumption regressed the lesion while in the study of Silverman and Griffith M (1972)¹⁴ disappearance of oral leukoplakia had occasionally been reported in patients who continued to smoke. In same study the pan-chewers lesion consisted of a thick brownish black encrustation on the buccal mucosa at the site of placement of areca/betel quid, their study shows that the pan-chewers lesion does not deserve the designation of leukoplakia.¹⁴

The chewing of betel quid is practiced in several different ways in various countries, while the major components are comparatively consistent. In Pakistan and Southeast Asia, tobacco is usually used as an ingredient for areca nut products especially in pan therefore it is difficult to know the individual risk effect of tobacco or areca/betel quid. A higher relative risk of oral cancer for areca/betel quid chewing with tobacco was notably higher than that for betel quid chewing without tobacco, and the evidence for leukoplakia as well as oral submucous fibrosis was also in the same direction (Gupta et al, 1982). In our study it was found that pan consumers were on a significant risk for the development of oral cancer (Table No. II).

In the study of Yang et al (2002)¹⁰ many oral lesions still did not have significant statistical power to clarify the effect of areca/betel quid from tobacco.¹⁰

In the study of Shah and Sharma (1998)¹¹ 2.6% were quid chewers, 20.8% of quid chewers had tobacco as an ingredient, 13.1% used pan masala with tobacco. For OSF lesions in this study the ratio of pan users with tobacco was high which was comparable to our study. According to Mahar et al 1994¹² in a case control study with ex-chewers as the reference group had found an OR of 64 (95% CI=15, 274) for quid chewers with tobacco and OR of 32 (95% CI=b, 177; seven in the OSF case group and nine in control group) for quid chewer without tobacco. In our study the pan chewers were found more significant as compared with Mahars study.

Y-H Yang et al (2005)⁸ showed in their study that areca nut quid chewing was a significant risk factor for developing OSF.⁸

Pan was found significant in our study and in the study of Sarawathi TR et al (2006)¹ that found the chewing and smoking of Tabacco and areca/betel quid

usage were positively associated for producing oral mucosal lesions. In the study of Hashibeal (2000)¹³ these factors were significant in producing leukoplakia.

This study demonstrated a positive association between oral precancerous disorders and life style habits especially pan. As pan is a mixture of different substances i.e. betel leaf, areca nut, tobacco, slacked lime and different other seasonings therefore the individual roles of each of these ingredients in causing oral precancerous lesions need further investigation. The public should be aware of the high risk of oral malignancy in oral precancerous lesions induced by different life style/social habits.

Conclusion

The habit of pan chewing showed a statistically significant association to the development of oral precancerous lesions and conditions.

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