Original Article   Oral Premalignant Lesions

A Clinical Study of Incidence and Risk Factors Associated with Oral Premalignant Lesions

Nazar Muhammad Afridi[1], Rana Tauqir Ullah Khan[2], Zar Khan[3] and Muhammad Usman Anjum[4]

ABSTRACT

Objective: To the determine prevalence of oral premalignant lesions as well as to identify the risk factors associated with these lesions,

Study Design: Descriptive study,

Place and duration of study: This study was conducted at the Frontier Medical and Dental College, Abbottabad from January 2016 to June 2017,

Materials and Methods: All those patients who were more than 20 years of age and whowere diagnosed cases of oral premalignant lesions were included while those patients who were already diagnosed with oral cancers were excluded from the study. Detailed history was taken specifically about risk factors such as history of smoking, use of betel quid, consumption of snuff (naswar) and alcohol, clinical examination was performed and details were recorded in a pre-structured proforma. All oral lesions were diagnosed by an experienced clinician and confirmed on histopathological examination of the biopsy samples taken from these lesions. Data was entered and analyzed using SPSS, version 21.

Results: Mean age of study participants was 40±8.4 years with 60% of them were males and 40% were females. Most of the patients, 52.5%, were between the ages of 20-40 years showing higher predilection for this age group. The most common site of involvement was buccal mucosa, 58 cases, followed by tongue, 40 cases, floor of mouth, 12 cases, and palate, 10 cases. Regarding types of oral premalignant lesions, the most common lesion diagnosed was leukoplakia, 90 cases, followed by erythroplakia, 15 cases, and oral submucous fibrosis, 12 cases. Lichen planus was quite infrequent as it was observed in only 3 cases. The most common risk factor observed was cigarette smoking, 45%, followed by betel quid, 15% and snuff (naswar), 7.5%. None of the study participants admitted to being using alcohol.

Conclusion: Oral premalignant lesions especially leukoplakia and erythroplakia are quite common. Tobacco smoking and betel quid use are strong risk factors for development of these lesions. Mass education programs should be initiated to increase awareness among masses about the risk factors associated with these diseases so as to decrease their incidence. Similarly, all oral lesions should be diagnosed early and mass lesions should be biopsied to make an accurate diagnosis as early diagnosis and treatment can prevent their progression to cancers.

Key Words: Premalignant, Oral Cavity

INTRODUCTION

Oral cancers constitute a series and emerging problem globally and oropharyngeal cancers are ranked sixth amongst the most common cancers worldwide.[1]
Globally the prevalence of oral cancers is estimated to be 2-4%. However, in certain areas like south Asia prevalence rates are quite high, about 45% in India and 10% in Pakistan.[2] Oral cancers are generally preceded by lesions, which are called potentially malignant disorders, which are benign in the beginning but have a potential to transform to cancers later on if not diagnosed and treated early. Therefore, such lesions are called premalignant. Most common among these oral premalignant lesions are oral leukoplakia, oral erythroplakia and oral submucous fibrosis.[3, 4]

Various different risk factors are associated with the development of oral premalignant lesions. These risk factors comprise of tobacco smoking and chewing, betel quid chewing and alcoholism with tobacco smoking being the most important of these risk factors.[3,5] Several other factors like diabetes mellitus, obesity and low fiber intake also play asignificant role in the development of such lesions.[6]

These lesions severely impair quality of life of the individual and society but also put an enormous burden on health care system. The incidence of these lesions can be reduced by primary prevention through public awareness and modification of the risk factors. Early and accurate diagnosis of these lesions markedly

[1.] Department of ENT / Community Medicine[2] / Surgery[3] / Pathology[4], Frontier Medical & Dental College, Abbottabad.

Correspondence: Dr. Nazar Muhammad Afridi, Professor of ENT, Frontier Medical & Dental College, Abbottabad.
Contact No: 0312-5776119
Email: Nazarafridi67@gmail.com

improves their outcome. Therefore, we have conducted this study to determine prevalence of oral premalignant lesions and to identify the common risk factors associated with these lesions.

MATERIALS AND METHODS

This study was conducted in Frontier Medical and Dental College, Abbottabad, from January 2016 to June 2017. All those patients who were more than 20 years of age and who were diagnosed cases of oral premalignant lesions were included in study. On the other hand, those patients who were younger than 20 years of age or who were already diagnosed cases of oral cancers were excluded from this study. After taking informed consent, detailed history was taken specifically about risk factors such as history of smoking, use of betel quid, consumption of snuff (naswar) and alcohol, clinical examination was performed and details were recorded in a pre-structured proforma. All oral lesions were diagnosed by an experienced clinician and confirmed on histopathological examination of the biopsy samples taken from these lesions. Data was entered and analyzed using SPSS, version 21.

RESULTS

There were one hundred and twenty patients in this study. Mean age of study participants was 40±8.4 years. Males constituted 60% of the study sample while females accounted for 40% with male to female ratio of 1.5:1, as shown in Figure 1.
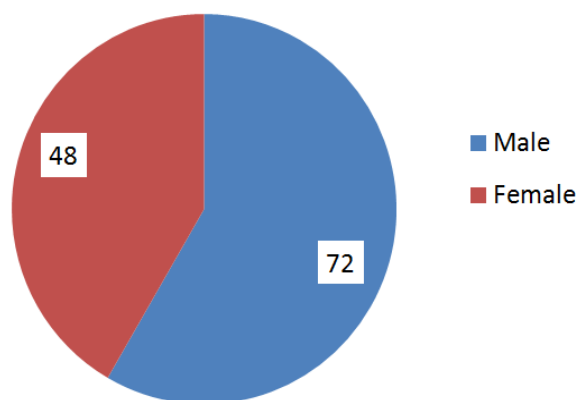
**Figure No.1: Gender distribution of patients, (n=120)**

Majority of the patients, 52.5%, were between the ages of 20-40 years showing higher predilection for this age group years while 43.33% belonged to 41-60 years of age, Table 1.

Table No.1: Age-wise distribution of study population, (n=120)

Age	Number	Percentage
20-40	63	52.5%
41-60	52	43.33%
61-75	05	4.17%

Total	120	100%

The most common site of involvement was buccal mucosa, 58 cases, followed by tongue, 40 cases, floor of mouth, 12 cases, and palate,10 cases, Figure 2.
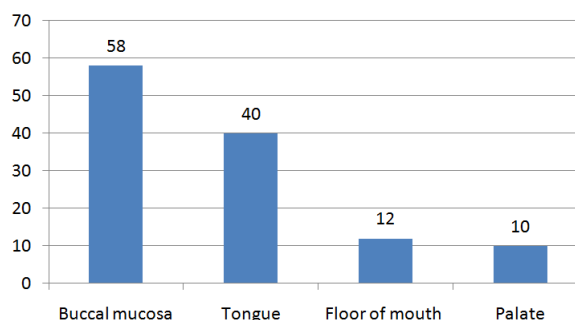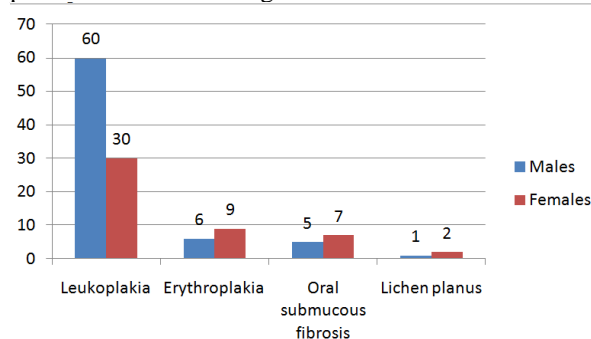

Figure No.2. Site of oral premalignant lesions, (n=120)

Regarding types of oral premalignant lesions, the most common lesion diagnosed was leukoplakia, 90 cases, followed by erythroplakia, 15 cases, and oral submucous fibrosis, 12 cases, Table 2. Lichen planus was quite infrequent as it was observed in only 3 cases.

Table No.2. Types of oral premalignant lesions, (n=120)

Type of Lesion	Number	Percentage
Leukoplakia	90	75%
Erythroplakia	15	12.5%
Oral submucous fibrosis	12	10%
Lichen planus	03	2.5%
Total	120	100%

Gender wise stratification of oral premalignant lesions is given in Figure 3. Overall, oral premalignant lesions were more common in males, 72 cases, than females, 48 cases. As per type of oral lesions, leukoplakia was considerably more common in males while rest of the lesions were common among females showing higher predilection for female gender.

Figure No. 3.Gender-wise distribution of oral premalignant lesions, (n=120)

Table 4 delineates the commonest risk factors associated with the development of oral premalignant lesions. Only 81 patients admitted that they were using any of the substances, which constitutes risk factors for the development of these lesions, like cigarette

smoking, betel quid or naswar. The most common risk factor observed was cigarette smoking, 45%, followed by betel quid, 15% and snuff (naswar), 7.5%. None of the study participants admitted to being using alcohol.

Table No.4: Risk factors associated with oral lesions, (n=81)

Variable	Number	Percentage
Tobacco smokers	54	45%
Betel quid	18	15%
Snuff (Naswar)	09	7.5%
Alcohol	-	-
Total	81	67.5%

Table 5 shows that mostly men indulged in the habit of using these substances. Among males, cigarette smoking was the most common substance used followed by betel quid and naswar. As compared to males, females preferred betel quid and smoking as compared to any other type of addiction.

Table No.5. Stratification of risk factors based on gender, (n=81)

Gender	Male		Female		Total	
Risk factor	Number	%age	Number	%age	Numbe	%age
Tobacco smoking	50	41.67%	04	3.33%	54	45%
Betel quid	11	9.17%	07	5.83%	18	15%
Snuff (Naswar)	09	7.5%	-	-	09	7.5%
Alcohol	-	-	-	-	-	-

DISCUSSION

Premalignant lesions of oral cavity are named so because they carry significant risk of transformation into malignancy. Early detection and prompt treatment of these lesions is very important so as to avoid malignant transformation which later leads to high morbidity and mortality.[7]

Overall, oral premalignant lesions were more common in males than females in our study. This finding is substantiated by other studies. Kumar et al and Agrawal et al, both reported that the prevalence of oral premalignant lesions was significantly higher among male Indian subjects.[3, 8] Similarly, Chung et al have found that these lesions were more common among male gender in Taiwan.[9] It is believed that the reason for males being more affected by these lesions is that they are more prone to tobacco consumption and hence, at a higher risk of developing these lesions. We have found that majority of these lesions were present in patients who were between the ages of 20-40 years. Likewise, Agrawal et al have also reported that the peak incidence of benign oral lesions was between the ages of 30-39 years in their study.[8] Similarly, Pudasaini and Baral have conducted a study on the prevalence of oral cavity lesions in Nepal. Most of their study population, 47.6%, was also between the ages of 20-40 years.[10]

In our study, the most common sites of oral premalignant lesions were buccal mucosa and tongue. Similarly, according to Modi et al, the commonest site of oral lesions was buccal mucosa and then tongue.[11] According to Pudasaini and Baral, lips followed by buccal cavity was the chief site affected by oral lesions among their Nepalese patients.[10] This varying pattern of site involvement could be attributed to the different geographical areas as well as varying pattern and modes of usage of substances e.g. tobacco, alcohol, etc. which constitute risk factors of developing these diseases.

Regarding types of oral premalignant lesions, the most common lesion diagnosed was leukoplakia followed by erythroplakia and submucous fibrosis. Lichen planus was least common. Kumar et al have also reported that leukoplakia followed by oral submucous fibrosis were the most common oral premalignant lesions among Indian factory workers.[12] In another study which was conducted in India by Kumar et al, they have found that the commonest oral premalignant lesion among their study subjects was oral submucous fibrosis followed by leukoplakia while eryhtroplakia was least common.[3] Likewise, Gupta et al have reported that the most frequent oral premalignant lesions in their study were oral submucous fibrosis and leukoplakia while least common lesion was lichen planus.[13] This variation in the prevalence of different oral premalignant lesions would be attributed to the fact that these studies were performed in different geographical areas which have different rates of tobacco and alcohol consumption as well as varying environmental, cultural, dietary and religious factors.

The commonest risk factor observed was cigarette smoking followed by betel quid and snuff (naswar). Male patients preferred cigarette smoking followed by betel quid and snuff while female patients preferred betel quid and tobacco smoking. As per Gupta et al, majority of their study subjects, 49.5%, used tobacco followed by pan masala ingestion.[13] Similarly, Kavarodi et al have reported that their subjects used tobacco followed by betel quid.[14] None of our study participants admitted to being using alcohol. Consuming alcohol is religiously prohibited in our society as well as it's a social taboo. Even if people consume it, they will not admit it.

CONCLUSION

Oral premalignant lesions especially leukoplakia and erythroplakia are quite common. Tobacco smoking and betel quid use are strong risk factors for development of these lesions. Mass education programs should be initiated to increase awareness among masses about the risk factors associated with these diseases so as to decrease their incidence. Similarly, all oral lesions should be diagnosed early and mass lesions should be biopsied to make an accurate diagnosis as early diagnosis and treatment can prevent their progression to cancers.

Author's Contribution:

Concept & Design of Study:	Nazar Muhammad Afridi
Drafting:	Rana Tauqir Ullah Khan
Data Analysis:	Zar Khan, Muhammad Usman Anjum
Revisiting Critically:	Nazar Muhammad Afridi, Rana Tauqir Ullah Khan
Final Approval of version:	Nazar Muhammad Afridi

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Warnakulasuriya S. Global epidemiology of oral and oropharyngeal cancer. Oral Oncol 2009;45 (4-5):309-16.
2. Orakzai GS. Oral white lesions - histomorhological assessment and associated risk factors. Journal of Ayub Medical College, Abbottabad 2015;27(4): 865-8.
3. Kumar S, Debnath N, Ismail MB, Kumar A, Kumar A, Badiyani BK, et al. Prevalence and risk factors for oral potentially malignant disorders in Indian population. Advances in Preventive Med 2015;2015:7.
4. Yardimci G, Kutlubay Z, Engin B, Tuzun Y. Precancerous lesions of oral mucosa. World J Clin Cases 2014;2(12):866-72.
5. Thomas G, Hashibe M, Jacob BJ, Ramadas K, Mathew B, Sankaranarayanan R, et al. Risk factors for multiple oral premalignant lesions. Int J Cancer 2003;107(2):285-91.
6. Hashibe M, Jacob BJ, Thomas G, Ramadas K, Mathew B, Sankaranarayanan R, et al. Socioeconomic status, lifestyle factors and oral premalignant lesions. Oral Oncol 2003;39(7): 664-71.
7. Starzyńska A, Pawłowska A, Renkielska D, Michajłowski I, Sobjanek M, Błażewicz I. Oral premalignant lesions: epidemiological and clinical analysis in the northern Polish population. Advances in Dermatology and Allergology. 2014;31(6):341-50.
8. Agrawal R, Chauhan A, Kumar P. Spectrum of oral lesions in a tertiary care hospital. J Clin Diagnostic Res 2015;9(6):11-3.
9. Chung CH, Yang YH, Wang TY, Shieh TY, Warnakulasuriya S. Oral precancerous disorders associated with areca quid chewing, smoking, and alcohol drinking in southern Taiwan. J Oral Pathol Med 2005;34(8):460-6.
10. Pudasaini S, Baral R. Oral cavity lesions: A study of 21 cases. J Pathol Nepal 2011;1(1):49-51.
11. Modi D, Laishram RS, Sharma LD, Debnath K. Pattern of oral cavity lesions in a tertiary care hospital in Manipur, Ind J Med Soc 2013; 27(3):199-202.
12. Kumar YS, Acharya S, Pentapati KC. Prevalence of oral potentially malignant disorders in workers of Udupi taluk. South Asian J Cancer 2015; 4(3):130-3.
13. Gupta S, Singh R, Gupta OP, Tripathi A. Prevalence of oral cancer and pre-cancerous lesions and the association with numerous risk factors in North India: A hospital based study. National J Maxillofacial Surg 2014;5(2):142-8.
14. Kavarodi AM, Thomas M, Kannampilly J. Prevalence of pre-malignant lesions and risk factors in an Indian low income migrant group in Qatar. Asian Pacific J Cancer Prevention 2014; 15(10):4325-9.