

## Prevalence of Potentially Malignant and Malignant Oral Lesions Among Dental Patients With Oral Habits



### Medical Science

**KEYWORDS :** tobacco, carcinoma, oral cavity

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### ABSTRACT

*It is observed that various forms of tobacco use leads to development of oral mucosal lesions. The aim of the study was to identify the prevalence of the oral premalignant and malignant lesions in patients with a history of oral habits and to identify the relationship between the habit and development of lesion. To achieve the study aims, a prospective study involving 200 patients with oral mucosal lesions were selected. A male predominance with the habits of Gutkha and betel quid chewing predominated among the patient population. Oral carcinoma constituted the maximum number of cases. The buccal mucosa was the most commonly involved site. It can be observed through this study that, oral habits pertaining to tobacco, arecanut chewing contribute significantly to the development of dysplastic changes in the oral mucosa either as an independent habit or as a mixed habit.*

### Introduction

In the Indian population, the incidence of oral carcinoma is higher as compared to the western world. This difference is attributed to the regional variation in the prevalence and pattern of habits<sup>1</sup>.

Tobacco is considered to be the main causative agent in most of the premalignant and malignant lesions of the oral cavity. It being available in both the smoking and smokeless forms, is commonly used by the majority of population in India.

This study aims to identify the prevalence of the oral premalignant and malignant lesions in patients with a history of oral habits and also to identify the relationship between the habit and the development of lesion.

### Material and methods

To achieve the study aims, a prospective study involving 200 patients with oral mucosal lesions were selected for inclusion in the study, based on certain inclusion criteria, which were set as:

Patient with a history of chewing betel quid, arecanut, gutkha or any other form of smokeless tobacco for a minimum of one year  
And/or  
Patient with a history of smoking bidi, cigarette for a minimum of one year.

The study was conducted over a period of one year between the months of February 2015- January 2016.

The clinical diagnosis of the oral mucosal lesion/conditions such as oral carcinoma, leukoplakia, erythroplakia, oral submucous fibrosis(OSMF) were confirmed with histopathological findings.

Lesions which had a less frequency of presentation such as the chowers mucosa and smokers palate were grouped as other lesions.

The data was analyzed using SPSS-16.0 to estimate the prevalence of oral premalignant lesions and carcinoma in patients with oral habits.

### Results

A male predominance was observed in the study with 156 males (78%) and 44 females (22%). The habits of Gutkha and betel quid chewing predominated among the patient population constituting the most commonly used products of smokeless tobacco. (Table 1)

In the present study, potentially malignant lesions such as Leukoplakia was found in 25 patients (12.5%), Erythroplakia in 8 patients (4%), OSMF in 69 patients (34.5%) and other lesions such as chowers mucosa and smokers palate in 10 patients (5%). Oral carcinoma was observed in 88 patients, constituting the maximum number of cases (44%). (Table 2)

Of all the sites in the oral cavity, the buccal mucosa was the most commonly involved (44.5%), followed by the tongue (21.5%), Buccal vestibule (15%) and Retromolar region(14.5%). The involvement of labial mucosa and palatal mucosa was 3% and 1.5% respectively.(Graph 1)

### Discussion

The carcinogenic ability of tobacco and arecanut is well established in literature. In India and Southeast Asia, the chronic use of betel quid (paan) in the mouth has been strongly associated with an increased risk for oral cancer<sup>2-4</sup>

In this study, the most frequently reported habits were the chewing of gutkha (29.48%) and chewing of betel quid with tobacco (25%). Bhowate et al in their study had reported that 66.3% of the population chewed tobacco in the form of betel quid which is in agreement with our study<sup>5</sup>.

It is interesting to know the sex difference in the pattern of habits. While, the predominant habit observed in men included both the smoking and smokeless forms of tobacco, the habits predominant in women were arecanut chewing followed by gutkha chewing. Meher et al reported a similar finding in their study<sup>6</sup>.

The present study showed higher frequency of oral carcinoma (44%) as compared to previous reports<sup>7-8</sup>. The prevalence of carcinoma is slightly higher in males and this may be attributed to

the fact that men resort to mixed habits, that is, the habits of smoking as well as chewing tobacco, which predisposes to the development of malignant changes in the mucosa.

Of the premalignant lesions and conditions observed in the study, the prevalence of OSMF was highest (34.5%).

It is stated that there is a strong correlation between arecanut chewing and OSMF. The release of alkaloids from the arecanut is induced by the slaked lime, which cause dysplastic changes within the submucosa. Betel quid chewing also results in a progressive, scarring precancerous condition of the mouth known as oral submucous fibrosis. In India, one study showed a malignant transformation rate of 7.6 percent for oral submucous fibrosis<sup>9</sup>.

The overall prevalence of leukoplakia(12.5%) in the present study is more than that reported in a number of epidemiologic studies<sup>10-12</sup>. But, this prevalence is in line with the study by Bhowate et al who reported a very high (11.5%) prevalence of oral leukoplakia in rural population of India<sup>7</sup>. The prevalence of erythroplakia was 4% in our study which is relatively higher as compared to the 1.95% observed by Chung et al<sup>13</sup>.

The maximum affected anatomic site for lesion was the buccal mucosa followed by the tongue, buccal vestibule and the retro-molar region ,which is consistent with the study of Jussawala et al<sup>14</sup> and Sankaranarayanan et al<sup>15</sup>.

The placement of betel quid in the buccal or labial vestibule for prolonged periods acts as a contact carcinogen as illustrated by Muir et al<sup>16</sup> and Hirayama<sup>17</sup>, leading to the development of any of the premalignant lesions, conditions or carcinomas.

**Conclusion**

It can be observed through this study that, oral habits pertaining to tobacco, in its smoking or smokeless forms, arecanut chewing all contribute significantly to the development of dysplastic changes in the oral mucosa either as an independent habit or as a mixed habit. It thus becomes the responsibility of every health worker to educate the population on the effects of tobacco and other related products to and to help curb the use of these products.

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**TABLE 1**  
Prevalence of habits among males and females

Habits	Males n(%)	Females n(%)	Total n(%)
Ghutka	46 (29.48%)	13(29.54%)	59(29.5%)
Betel quid with tobacco	39(25.00%)	12(27.27%)	51(25.5%)
Arecanut	28(17.94%)	14(31.81%)	42(21.00%)
Tobacco with lime	23(14.74%)	4(9.09%)	27(13.5%)
Smoking	5(3.20%)	1%(2.27%)	6(3%)
Smoking plus chewing	15(9.61%)	0(0%)	15(7.5%)
Total	156(78%)	44(22%)	200(100%)

**TABLE 2**  
Prevalence of oral lesions among males and females

Lesion	Males n(%)	Females n(%)	Total n(%)
Leukoplakia	17 (10.89%)	8(18.18%)	25(12.5%)
Erythroplakia	6(3.84%)	2(4.54%)	8(4%)
OSMF	57(36.53%)	12(27.27%)	69(34.5%)
Oral Carcinoma	69(44.23%)	19%(43.18%)	88(44%)
Other Lesions	07(4.48%)	3(6.81%)	10(5%)
Total	156(78%)	44(22%)	200(100%)

**GRAPH 1**  
Site predilection observed among patient

