

Analysis of Different Patterns of Quid Usage among patients with Chewer's Mucosa- a cross-sectional study.

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Abstract

Aim: Betel chewer's mucosa, is generally not considered as a potentially malignant lesion, but it has been suggested to be a precursor of leukoplakia and oral submucous fibrosis (OSMF). Thus a study was undertaken to assess various quid chewing patterns in patients with chewer's mucosa and to evaluate possible association between chewer's mucosa and a particular quid usage pattern.

Materials and methods: The study was done on 300 subjects clinically diagnosed of having chewer's mucosa lesion. After complete oral examination, a detailed habit history was taken through preformed questionnaire. The data obtained was analyzed using Chi-square test.

Results: Among the 300 subjects males to female ratio was 7:3. Majority of the subjects were within the age group of 20 to 30 years and chewed a combination of betel leaf, arecanut, tobacco, lime. Majority of the subjects of chewer's mucosa used the quid for duration of 1 to 5 years, a frequency of three to five quid per day.

Conclusion: In the present study, chewer's mucosa was seen in majority of the subjects who used the quid for duration of 1 to 5 years, a frequency of three to five quid per day and chewed the quid containing betel leaf, arecanut, tobacco, and lime as its constituents.

Keywords: Quid, Chewer's mucosa, Arecanut.

I. Introduction

Tobacco was introduced in India by Portuguese traders about 400 years ago. Although tobacco was initially smoked, it later became popular in a smokeless form. Of the 400 million individuals aged 15 years and above in India, 47% use tobacco in smoke form, while 16% use it in a smokeless form. About 250 million kilograms of tobacco is consumed each year.[1] Chewing is one of the oldest ways of consuming tobacco leaves. Native Americans in both North and South America chewed the leaves of the plant, frequently mixed with lime and betel. The tradition of chewing betel leaf or pan is age old and deeply rooted in India and has developed into a major cultural and social norm. Predominantly in then Asian-Pacific region, smokeless tobacco and areca nut were used, either singly or in various combinations of 'betel quid' or 'pan'. [2]

Betel chewer's mucosa was first described in 1971 by Mehta et al. This lesion was observed in betel quid chewers and so called betel chewer's mucosa. The most conspicuous clinical finding is a brownish red discoloration of the affected mucosa which may vary considerably depending on the number of betel quids chewed per day and the composition of the chew. The brownish material is not easily removed or scrapped off and the underlying surface is irregular, macerated rough and some epithelial tags may be seen. Some lesions may show areas of desquamation with total or partial loss of the epithelium or in some cases oral mucosa may show a dried out appearance. It is thought to be caused by constant chewing of the betel quid which may cause the traumatization of the oral mucosa. As such the etiology of betel chewer's mucosa can be traumatic, mechanical or chemical. However, as per the present knowledge betel chewer's mucosa does not seem to be a precancerous lesion. It has been suggested, however, that it can be a precursor lesion of oral submucous fibrosis.[3]

Therefore, a need for the study arose to assess the various quid chewing patterns in patients with chewer's mucosa and to evaluate possible association between chewer's mucosa and a particular quid usage pattern.

II. Materials And Methods

The present cross-sectional study was carried out in Department of Oral Medicine and Radiology, over a period of 1 year on subjects reporting to the Dental College OPD or the rural dental camps. The study group comprised of 300 chewer's mucosa subjects of either sex, satisfying the clinical features of chewer's mucosa as per the criteria set by Mehta et al.[3] The patients were subjected to complete oral examination including buccal mucosa, labial mucosa, tongue, floor of the mouth and palate to look for chewer's mucosa lesion. Following diagnosis the patients were subjected to a preformed questionnaire regarding the chewing habits and the product used and the data obtained was analyzed using Chi-square test.

III. Results

In the present study, males were seen to be affected more than females with M:F ratio of 7:3. Maximum number of the subjects of chewer's mucosa 46% (138) were within age group of 20 to 30 years and the minimum number of subjects, 2% (6) were in the age group of more than 70 years. Among 300 subjects, 6.6% (20) subjects were chewing category I (betel leaf + arecanut), 10% (30) were chewing category II (betel leaf + arecanut + lime), 33.3% (100) were chewing category III (betel leaf + arecanut + lime + tobacco), 21.3% (64) were chewing category IV (tobacco + lime), 4% (12) were chewing category V (processed arecanut), 24.6% (74) were chewing category VI (processed areca nut+ processed tobacco) (Table 1).

Table 1: Type of quid usage

Type of quid	Frequency	Percentage
Category I (betel leaf + arecanut)	20	6.6
Category II (betel leaf + arecanut + lime)	30	10
Category III (betel leaf + arecanut + lime + tobacco)	100	33.3
Category IV (tobacco + lime)	64	21.3
Category V (processed arecanut)	12	4
Category VI (processed areca nut+ processed tobacco)	74	24.6
TOTAL	300	100

Analyzing the duration of quid usage in the study it was found that among 300 subjects majority of the subject, 49.3% (148) chewed quid for duration of 1 to 5 years whereas minimum number of subjects, 11.3% (34) chewed quid for a duration of 0 to 12 months. This could be due to the early occurrence of the lesion and progression to oral submucous fibrosis (OSMF) on chewing for a longer duration of time.

Among those subjects who chewed the quid for 1 to 5 years it was observed that majority of them, 33.7% (50) chewed category VI quid (tobacco + lime) and minimum number of subjects, 4.5% (6) chewed category I (betel leaf + arecanut) and category V (processed arecanut).

Analyzing the frequency of quid usage in our study it was found that, among 300 subjects of chewer's mucosa majority of the subjects, 54% (162) chewed quid for three to five times a day, whereas minimum number of subjects, 2.6% (8) chewed quid for more than 10 times a day. This may be due to the fact that on chewing more than three to five times a day, the chewer's mucosa lesion would progress to OSMF.

In this study maximum number of subjects who had chewer's mucosa lesion and were chewing the quid for minimum duration (0-12 months) and minimum frequency (1-2 times) were found to be using category III quid (betel leaf + arecanut + lime + tobacco). Thus, the quid containing betel leaf + arecanut + lime + tobacco as its constituents results in chewer's mucosa lesion in a shorter period of time. This association was found to be significant ($p = 0.049$).

IV. Discussion

Analyzing the results of this study, among 300 subjects chewer's mucosa with one or other quid chewing habit, males were seen to be affected more than females. This was in contradiction to the studies by Reichart et al[3] and Saraswathi et al[4] where prevalence of chewer's mucosa was found more in females. This could be due to the social pattern of our study area. Also men get easy access to commercially available products more readily than females. While analyzing the age distribution in the present study maximum number subjects with quid chewing habit were in age range of 20 to 30 years whereas minimum number of subjects was in age range of more than 70 years. This may be due to the fact that chewer's mucosa is a lesion seen in initial phases of quid usage when the quid chewing habit is initiated by an individual. The packaging revolution has

made tobacco products portable, cheap and convenient, with the added advantage of a long shelf-life, which could have made these individuals get attracted to these ready to use packets in a younger age.

This result was coinciding with the study of Kumar et al[5] who reported that gutkha consumption was significantly higher in youngsters (<25 years) whereas in traditional tobacco users it starts over 30 years. In a similar study conducted by Shah and Sharma et al[6] it was observed that subjects below the age of 30 years preferred to chew commercial pan masala.

In the present study, majority of subjects were chewing category III quid (betel leaf, arecanut, lime, tobacco) followed by category VI quid (processed arecanut + processed tobacco). The above observations were similar to those reported by Reichart et al[7] in which betel quid was the causative factor for occurrence of chewer's mucosa. In the present study majority of the subjects with chewer's mucosa used to chew the quid for a duration of 1 to 5 years and this was statistically highly significant ($p = 0.002$), whereas maximum subjects used to chew the quid with a frequency of three to five quids per day and this association was not statistically significant. This finding was consistent with the study by Ranganathan et al[8] in which the duration of the habit was more significant than the frequency of the chewing habit. This also correlated with the finding of Reichart et al[7] who stated that the presence of chewer's mucosa lesion was significantly associated with the duration of the habit ($p < 0.01$) and the number of betel quids per day ($p < 0.001$).

The present study also revealed that the maximum number of subjects chewed the quid containing betel leaf, arecanut, lime, tobacco as its constituents. This association was statistically significant ($p = 0.049$). However, this is inconsistent with the finding of Sinor et al[9] who reported that chewing of tobacco with arecanut, betel leaves and lime results in later onset of the disease. This may be due to the fact that chewer's mucosa lesion is known to be caused more due to the traumatic effect of the betel nut chewing as compared to the leeching of the chemical constituents of the quid into the mucosa. The results of our study were correlating with the observations made by Gupta and Ray as stated by Ahmad et al[10] that arecanut with smokeless tobacco causes earlier onset of the disease as compared to arecanut only.

V. Conclusion

This present study revealed that majority of the subjects was chewing the quid containing betel leaf, arecanut, lime, tobacco as its constituents. Majority of the subjects with chewer's mucosa used to chew the quid for duration of 1 to 5 years, with a frequency of 3 to 5 quids per day. Patients having chewer's mucosa may develop more severe mucosal conditions such as leukoplakia and OSMF on continued usage of the quid. Thus, this study emphasizes on screening and counseling the patients with such initial stages of mucosal alterations so as to prevent their progression into other severe lesions associated with quid usage.

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