

Prevalence of Dental Attrition in People With Habitual Tobacco Chewing.

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Abstract:

Tobacco chewing poses a major threat to general and oro-dental health. It is a risk factor for many oral lesions, attrition of teeth being one of them. The study was conducted with an objective to determine the prevalence of attrition of teeth among the patients with habitual tobacco chewing, attending OPD at department of oral medicine and radiology, Awadh dental college and hospital, Jamshedpur. **Materials and method:** A total of 500 patients aged 18 - 60 years were examined and were grouped based on their tobacco chewing habit. The status of their teeth was then recorded based on the presence of attrition. **Result:** Total of 500 patients attending the OPD were evaluated. The percentage of people with tobacco chewing habit having attrition was found to be 89.0% and percentage of people without the habit of chewing tobacco chewing, with attrition was 67.0%. A chi-square test was done to evaluate the relation between habitual tobacco chewing and attrition of teeth which showed a significant relation between tobacco chewing and attrition. **Conclusion:** Tobacco chewing is a major cause of regressive tooth wear in the form of attrition. Patient education is very important to increase awareness and prevent such regressive dental conditions due to tobacco chewing addiction.

Keywords: Attrition, addiction, habit, tobacco chewing,

Introduction:

Attrition is a condition of regressive alteration of teeth characterised by the physiologic wearing away of a tooth surface as a result of occlusal contact.^[1] It usually associated with aging process but aggravates significantly in patients with the para-functional habit of teeth grinding called bruxism and adverse habit like tobacco chewing as it involves continuous chewing action. Continuous chewing action leads to the friction with the abrasive particles in the tobacco products which ultimately lead to wearing a way of tooth structure. Loss of tooth structure lay lead to hypersensitivity due to exposure of dentin. The further wearing of the dentition due to attrition alters the aesthetic appearance, also results in an loss of functional occlusion. Thus, leading to the development of temporomandibular joint disorders.^[2]

Materials and methods

A cross-sectional study was conducted by the department of oral medicine and radiology, Awadh dental college and hospital. Patients attending the OPD, aged between 18 and 60 years were included in the study. A total of 500 individuals were included during the period of study. A detailed general medical history, dental history, habit history i.e. Tobacco associated habit like tobacco or paan chewing, smoking and alcohol consumption along with their duration was recorded. Intra-oral examination was done thoroughly to record changes in all aspects of teeth

using mouth mirror and explorer. Informed oral consent of the patients was obtained before examination. Patients attending the OPD from the age group of 18 to 60 years with habit of tobacco chewing for more than 1 year were included in the study. Controls group were the patients who did not have the habit of chewing tobacco. The patients excluded were, patients above the age of 60 years. The individuals with a habit of tobacco chewing for less than 1 year were excluded. Patients who had a history of para-functional habit such as bruxism or other medical conditions like gerd causing loss of teeth structure were also excluded.

Results:

The data obtained was analysed using SPSS version 28. A chi-square test was used to test the significance in the prevalence of attrition in tobacco chewers compared to the non-chewers. A ‘p value ≤ 0.05 ’ was seen which was considered statistically significant. A total 500 patients, aged between 18 and 60 years were included in the study. The individuals were divided into two groups: patients with tobacco chewing habit (40.0%) and those without tobacco chewing habit (60.0%).

Attrition percentages among the study patients in the two groups were as follows: People with tobacco chewing habit were found to have 89.0% prevalence of attrition and people without tobacco chewing habit had 67.0% prevalence of attrition. In this study a significant statistical difference was found between the patient group with tobacco chewing habit and attrition and the group without tobacco chewing habit with attrition. This is determined by the chi square test; which had a value of 48.54 which is much higher than the value 14.52 for the significance level of 0.05. This shows, there is a significant co-relation between habitual tobacco chewing and attrition. [Table 1]

	People with attrition	People without attrition	Total
Tobacco chewers	178	22	200
Tobacco non-chewers	201	99	300
Total	379	121	500

Table 1: Prevalence of attrition among tobacco chewers and non-chewers

Discussion:

Regressive alterations of the tooth surface can take various forms, such as attrition, erosion, abrasion, and abfraction. This study focuses on evaluating tooth surface wear known as attrition. Attrition occurs on the occlusal and incisal surfaces of the teeth due to friction during chewing. It is a physiological form of tooth structure wear.^[3] Patients with dental attrition often experience high sensitivity and sometimes pain. The increased sensitivity to cold foodstuffs can be attributed to the excessive masticatory load caused by tobacco chewing, which leads to dentinal or pulpal exposure and, consequently, increased pain or sensitivity in these patients. Over time, prolonged attrition can result in a loss of facial height, leading to apertognathia, also known as an open bite.^[4] Different areas of the dental arch experience tooth wear at varying rates. Incisors suffer the greatest wear (97%), followed by molars (85%), canines (74%), and premolars, which are the least worn teeth in the oral cavity (60–68%).^[5] Attrition is an irreversible dental condition that often requires repeated, more complex, and expensive restorative treatments.^[6] Therefore, early diagnosis and the implementation of preventive measures are critical. This process begins with patient education and awareness to minimize the loss of dental hard tissue. Although there have been few studies relating to the extrinsic and intrinsic factors of dental attrition, this study specifically evaluates tobacco chewing as a factor associated with attrition.^[7] India is the second-largest consumer of tobacco in the world, with a prevalence of tobacco use among males at 48% and females at 20%, according to national surveys.^[8] Tobacco consumption poses a significant public health hazard due to its high prevalence and harmful effects on health. Excessive use of tobacco products has been associated with various lesions in the oral cavity, affecting both hard and soft tissues. Chronic tobacco chewing leads to tooth attrition due to the frequent chewing action and the abrasive components of tobacco. Cracked and chipped tooth surfaces are common in individuals with moderate to severe attrition because of the excessive pressure required to chew hard and abrasive tobacco particles.^[9] According to the present study, 89.0% of tobacco chewers exhibit varying degrees of attrition. This finding aligns with several other studies. For instance, Hegde et al. demonstrated a significant association between tooth attrition and tobacco chewing in their 2016 study conducted in Mangalore, where 37.1% of the 290 participants with a history of tobacco chewing had attrition, compared to 26.4% among the 760 participants with no history of tobacco chewing.^[10] Similar results were found in two other studies conducted by Nagarajappa et al. on chronic tobacco chewers in the rural population of Davangere, Karnataka. Attrition among tobacco chewers was observed as follows: tobacco with pan (14.3% and 11% in males and females, respectively), plain tobacco (12.4% and 10.3%), pan masala with tobacco (15.9% and 11.6%), and control (6.2% and 4.3%).^[11]

Conclusion:

Study concludes that tobacco chewing has significant effect on teeth wearing. There are many factors associated which cause dental attrition and the findings of this study indicate that tobacco chewing habit is an significant contributor to the occurrence of dental attrition. Further efforts should be made by the oral physicians to increase the awareness about tobacco and its harmful effects on teeth. Since dental attrition is an irreversible phenomenon, therefore by establishing an early diagnosis, and undertaking preventive measures, can certainly help in preventing further loss of the tooth structure.

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