

Prevalence Of OSMF In Patients With Different Types Of Pan Chewing Habits - A Dental Hospital Based Retrospective Study

Research Article

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Abstract

Oral submucous fibrosis (OSMF), a premalignant and crippling condition of the oral mucous membrane. Relationship between chewing habits and oral submucous fibrosis have been identified. It was found that chewing areca nut/quid or pan masala was directly related to OSMF. Smoking tobacco with various other chewing habits are also the risk factors for OSMF. The aim of this study is to determine the prevalence of oral submucous fibrosis among patients with chewing habits. The study was done in an institutional setting. The present study is a retrospective study in which the case records of 1042 patients with chewing habits were reviewed and details such as gender, age, presence or absence of OSMF, patients with chewing habit and type of chewing habit were collected. Details were tabulated in excel and results were obtained using SPSS. Chi square analysis was performed to find out the association between different variables. 1042 patients had chewing habits. The prevalence of OSMF among patients having chewing habits was 14.78%. Highest number of male patients were seen at 31-40 years of age. Highest number of female patients were seen in 41-50 years of age. 61.5% of patients use pan. Patient awareness about OSMF and its potential to transform into malignancy is still needed in many rural areas. The progressive and irreversible nature of the disease makes it one of the dangerous potentially malignant disorders. Till date no promising treatment is available for OSMF which makes prevention of this disease paramount.

Keywords: Chewing Habit; OSMF; Prevalence.

Introduction

Oral potentially malignant disorders (OPMD) are oral mucosal diseases which have a high tendency to turn into a malignancy [1, 2] which is often due to various habits such as smoking tobacco, chewing tobacco or stress [3] Malignancy is characterized by anaplasia, invasiveness and metastasis.[4] Oral submucous fibrosis is a premalignant and crippling condition of the oral mucosa. The characteristic features of the disorder include submucosal fibrosis leading to secondary atrophic changes in the epithelium. The mucosa appears pale and blanched, mottled or opaque and feels hard and board-like. Fibrous bands can be felt running in a vertical direction in the buccal segment and in a circular direction in the

labial region, restricting mouth opening. The atrophic epithelium becomes sensitive to spicy and hot foods and also becomes vulnerable to carcinomatous changes [5]. Restricted mouth opening is also a clinical feature of patients with pericoronitis which is often associated with impacted third molars [6-8] Patients with OSMF do not often present with pain. Pain is described as an unpleasant subjective feeling having implications on both physical and mental realm [9] or it can be defined as an unpleasant sensory or emotional experience associated with actual or potential tissue damage or described in terms of such damage [10].

The exact aetiology of OSMF is not well understood. There are various factors which were studied such as genetics [11], autoim-

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mune [12-14], nutritional [15] and environment agents [16, 17]. It was also found that chewing habit is another factor which is associated with oral submucous fibrosis (OSMF) [5]. Smokeless tobacco (SLT) use has many adverse oral effects such as oral cancer, leukoplakia and erythroplakia, oral submucous fibrosis, loss of periodontal support and staining of teeth and composite restoration [18]. Amongst the various habits, areca nut chewing is found to be the most common and persistent finding [19, 20]. Pan masala is available in India for a long time and it is a combination of areca nut, lime, catechu and certain sweetening and flavouring agents as well as potential carcinogens such as saccharine [5, 21].

Many patients with OSMF will most often give a history of chewing habits. There have been many studies which show the association of chewing habit and oral submucous fibrosis (OSMF). The etiopathogenesis of OSMF is well understood and commences with consumption of areca nut which contains alkaloids such as arecoline, arecaidine along with tannin and copper. The arecoline and arecaidine causes an increase in the fibroelastic proliferation and collagen synthesis. This is followed by increased cross linking of collagen and decreased breakdown which is catalysed by tannin and the copper present as a constituent in the enzyme lysyl oxidase. Finally due to these mechanisms the fibroblasts are phenotypically altered resulting in the cessation of degradation of collagen. Chewing habits have a significant impact on one's oral health [22]. Dentists play a major role in providing knowledge to the patients and in bringing awareness about OSMF and other oral diseases [23, 24]. The treatment of OSMF ranges from vitamins and other nutritional supplements to microwave diathermy and surgical excision of the fibrous bands. Vitamin supplements are given to patients to reduce the risk of malignant transformation and as an adjuvant medication [25, 26]. These nutritional supplements are effective only in mild cases of the disease. Many epidemiological studies are available for OSMF but studies focussing more on the habit and OSMF are sparse, Previously our team has a rich experience in working on various research projects across multiple disciplines [27-41]. hence the aim of our study is to determine the prevalence of OSMF among patients with chewing habits.

Materials and Methods

Study design

This is a retrospective study conducted in a private dental institution. The patient case records were reviewed for the necessary information by a trained examiner. The advantage of conducting the study in an institutional set up provides a population with similar ethnicity. Among patients who have visited the dental clinic of the institution, the case records of 1042 patients were reviewed. A wide age range is selected for the study. The institutional ethical committee provided approval for the study (SDC/SIHEC/2020/DIASDATA/0619-0320).

Inclusion criteria

1. Patients who have been diagnosed with OSMF
2. Patients having different types of pan chewing habits
3. Patients from < 20 years to 70 years of age

Exclusion criteria

1. Incomplete patient data
2. Duplicate patient data
3. Patients having OSMF coexisting with other mucosal lesions

Sampling

A total of 1042 case records of patients with chewing habits were reviewed to find out the prevalence of OSMF. Convenient sampling method was used to select the patients for the study. The data obtained from the case records were cross verified with photographs.

Data collection

All the data after thorough checking for duplicates, incomplete entries and cross verification with photographs were entered in Microsoft excel spreadsheet in order to organise the data. The variables obtained from the data included age, gender, different types of pan chewing habits and the presence of OSMF. Here the age, gender and types of pan chewing habits were the independent variables and the OSMF was the dependent variable.

Statistics

The statistical analysis of the obtained data was performed by the SPSS software version 23.0. The data from the excel spreadsheet was transferred to SPSS software for analysis. Chi square tests were employed in order to find the association between different variables. The final results are presented in the form of graphs for further interpretation and discussion.

Results and Discussion

Association of patients with OSMF based on gender and different age groups was performed. The highest number of patients with OSMF was seen in 41-50 years (29.23%) with 24.68% males and 4.55% females. Majority of male patients (25.32%) was seen in 31-40 years. Females were not seen in <20 years, 21-30 years and 61-70 years [figure 2]. The association between patients with OSMF with gender and different age groups were found to be not statistically significant (Chi square test - 8.010; p value - 0.156; p value > 0.05). This is in accordance with a study done by Shah et al [5] who also found that the association of age and sex with OSMF was not statistically significant (p>0.05). In the age group 21 - 30, the males were mostly affected however this is in contrast to the present study and it could be due to the ethnic differences of the population. Zhang X et al found [42] that the people most commonly affected with OSMF are between the ages 30- 39 years and 40-49 years which is similar to our study. Gupta PC [43] found that in both males and females (about 85%) were in the age groups less than 35 years. Sample size could be the reason behind this variation.

The present study has some limitations such as small sample size and the dependability of the findings and analysis present for the case records; this is on the grounds that the diagnosis are subject to the abilities of the oral diagnostician who made the initial clinical assessment and conclusion. This is due to the retrospective na-

Figure 1. Denotes the association between gender with presence (orange) and absence (pink) of OSMF among patients with chewing habits. X axis represents gender and Y axis represents the number of patients with chewing habits Chi square test shows no statistical significance for the association between the gender and presence of OSMF. (Chi square test – 0.528; p value- 0.468; p value > 0.05) yet it was found that the majority of patients with chewing habits were males (91.48%) compared to females (8.25%). Out of all the males with chewing habits 13.34% had OSMF whereas in females only 1.44% had OSMF. A male predilection was seen for OSMF.

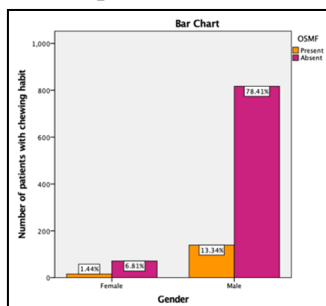


Figure 2. Denotes the association between patients with OSMF based on gender and different age groups. X axis represents age groups and Y axis represents the number of patients with OSMF. Males (green) were found to be more compared to females (blue) in all age groups. Chi square test shows no statistical significance for the association between OSMF patients with gender and different age groups (Chi square test- 8.010; p value- 0.156; p value > 0.05) yet the highest number of patients with OSMF was seen in 41-50 years (29.23%) with 24.68% males and 4.55% females. Majority of male patients (25.32%) was seen in 31-40 years. Female patients were not seen in <20 years, 21-30 years and 61-70 years.

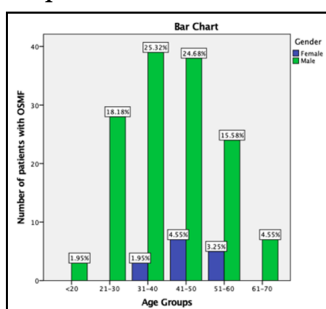
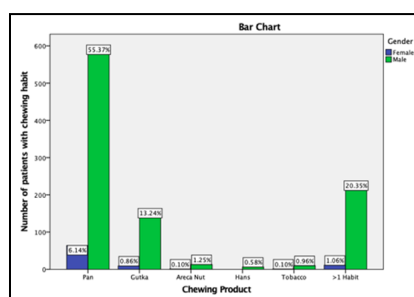


Figure 3. Denotes the association between various chewing products and gender. X axis represents the chewing products and Y axis represents the number of patients based on gender. Males (green) were found to be highest among all the chewing products compared to females (blue). Pan was found to be the most common chewing product in both males (55.37%) and females (6.14%). >1 chewing product was the second most common in both males (20.35%) and females (1.06%). Thirdly, gutka was also common in both males (13.24%) and females (0.86%) . Tobacco, Areca Nut and Hans were the least chewing habits in both males and females. The association between the different chewing products and the gender was not found to be statistically significant (Chi square test- 7.238; p value - 0.204; p value > 0.05).



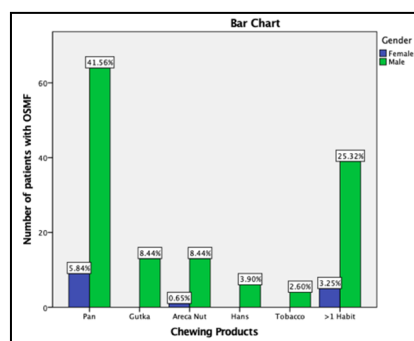
ture of the study. The future scope can include a prospective and multicentric study design with larger sample size and the treatment aspects of the disease can also be assessed. Our institution is passionate about high quality evidence based research and has excelled in various fields [44-54].

Conclusion

In the present study the prevalence of oral submucous fibrosis was found to be higher in patients with chewing habits and when compared with other studies. Men were more affected than women and among all chewing products, pan masala was found to

be present more in patients with OSMF even though it was not statistically significant. Oral submucous fibrosis is a progressive disease and is an irreversible potentially malignant oral disorder and this makes oral health awareness about oral submucous fibrosis and the deleterious effects of pan masala paramount and must be promoted especially in the rural areas. Addiction to the habit is an important reason to acquire the disease hence de-addiction programmes and the use of rehabilitation centres might be useful in prevention of the disease. Finally, more research must be carried out to find a more promising and effective treatment strategy for oral submucous fibrosis.

Figure 4. Denotes the association between various chewing habits in patients with OSMF with gender. X axis represents the chewing products and Y axis represents the number of patients based on gender. Pan was found to be the most common chewing habit in both males (41.56%) and females (5.84%). >1 chewing habit was the second most common in both males (25.32%) and females (3.25%). Thirdly, Areca Nut was also common in both males (8.44%) and females (0.65%). Tobacco, gutka and hans were not seen in females however it was the least common chewing habit in males. Thus Pan was found to be the most common chewing habit yet chi square test shows no statistical significance between various chewing habits and gender in patients with OSMF (Chi square test- 3.278; p value- 0.657).



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