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Prevalence of Oral Sub-mucous Fibrosis among Gutkha and Betalnut chewers

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Abstract

Background: The aim of the study was to determine the prevalence of oral submucous fibrosis (OSMF) among gutkha and betel nut chewers.

Methods: This study was conducted among adult patients diagnosed with OSMF aged over 10 years who visited the Department of Dentistry, Govt. Medical College Doda (J&K). All the guthka and Betalnut chewers were subjected to a thorough oral examination, and proforma regarding there oral habits were filled.

Results: Our study revealed that the prevalence of OSMF was 1.56%. All the 268 cases (100%) were associated with betel nut habits. Among the chewers, majority have Grade II Oral submucous fibrosis.

Conclusion: The relative risk of OSMF increased with duration and frequency of betel nut consumption especially from an early age of onset and educating the population about the harmful effects of the practice of deleterious habits in the oral cavity.

Keywords: Oral Cavity, Paratubal, Xerostomia

Introduction

Oral submucous fibrosis is a chronic oral mucosal disease characterized by epithelial atrophy and progressive accumulation of collagen fibers in the lamina propria and the submucosa of oral mucosa[1]. In India, the prevalence increased over the past four decades from 0.03% to 6.42%.[2]The common sites involved are buccal mucosa, labial mucosa, retromolar pads, soft palate and floor of the mouth[3]. In rare cases the fibrotic changes of the pharynx, esophagus and paratubal muscles of eustachian tubes have also been observed. Early features of OSMF include burning sensation, hypersalivation/xerostomia and mucosal blanching with marble like appearance.[4]

In 1956, Paymaster first described its malignant transformation[5]. Arakeri and Brennan estimated the rate of malignant transformation to be 7% to 30% while other studies have reported between 3% to 19%[6]. The increase incidence is due to the sudden spurt in the number of industries involved in the convenient and inexpensive packaging and vigorous advertising of products like gutkha and pan masala which was commercially started in 1980 in India. Major steps in curbing this serious health issue by the Government are missing mainly due to the fear of affecting the livelihood of farmers and others involved in this industry.[7]

It is a restrictive condition of oral cavity with multifactorial causes with betalnut chewing being the most common cause. The etiological factors implicated are excessive chilly consumption, areca nut chewing, vitamin B complex & iron deficiency, autoimmunity, genetic and environmental factors.[8] However, the most consistent factor identified through epidemiological studies is betal nut consumption.[9]Prevalence of this deleterious habit in India is on rise so this disease has become very common, hence the awareness of the clinical features, diagnosis, and management is much needed.[10]

Betal nut is consumed either alone or in combination with other constituents. Paanor betel quid contains areca nut and slaked lime wrapped in a betel leaf (Piper betel).[11]Gutkha is a mixture of powdered areca nut and tobacco, marketed in pre packagedpouches.[12]Seedat and Van Wyk (1988) have reported about irreversible nature of the disease, that is, once OSMF induced by the habit of chewing betel nut, the reversal of the disease aftercessation of the habit could not occur.[13]

Gutkha and Betal nut chewing are the most common deleterious habit in India, very few studies were conducted among this population.[14,15] The present study was conducted to determine the prevalenceof Oral submucous fibrosis Guthka and Betal nut Chewers.

Methodology

The present descriptive cross-sectional study was carried out to assess the prevalence of Oral Submucous Fibrosis in Gutkha chewers and Betelnut chewers over a period of 1 year i.e. Feb. 2022- Feb. 2023. The study was carried out in Outpatient Department of Dentistry, Govt. Medical College Doda (J&K). All the patients who visited the department over a period of 1 year and meet the inclusion criteria were included in the study. A specially designed proforma was constructed for interviewing the patient and informed consent was obtained for the patient participation in the study. All the patients who were betelnut and guthka chewers were included while patient with systemic diseases, tobacco users and patients with alcohol consumption were excluded.

Proforma include general characteristics of the patients including clinical details included age, gender, clinical grading of OSMF, associated habits of eating plain or packaged betal nut alone as well as its derivatives in the form of betel quid (paan) and guthka etc. The consumption of betal nut in frequency per day; years of chewing as well as the duration were recorded.

All oral examinations were done by specialist examiners who were familiar with oral mucosal lesions in the local population. A sterile mouth mirror was used for retraction of tissues, and examination of oral cavity was done using examination gloves. The selected patients were divided into four groups according to their clinical stage:

Stage I: Interincisal mouth opening up to or greater than 35 mm, stomatitis, and blanching of oral mucosa.

Stage II: Interincisal mouth opening between 25 and 35 mm, presence of palpable fibrous band in buccal mucosa and/or oroparynx, with/without stomatitis.

Stage III: Interincisal mouth opening between 15 and 25 mm; presence of palpable fibrous bands in buccal mucosa and/or or pharynx, and in any other parts of the oral cavity.

Stage IV: Interincisal mouth opening less than 15 mm.

The data collected was entered into MS Office Excel Sheet 2010 and subjected to statistical analysis using the Statistical Software SPSS version 22.0. Descriptive statistics in terms of frequency and percentage were used to summarize the results.

Results

Out of total patients visited in the outpatient department, total of 268 over the age range of 11–60 years were diagnosed. Among them, 228were males and 40 were females. It was observed that the prevalence of OSMF among males was 2.1% and among females was 1.01%. The combined prevalence for both males and females was 1.56%.. Table1 showing prevalence of various grades of OSMF.Maximum number of patient were of Grade 2 OSMF and minimum number of patient were of Grade 4 OSMF.

Table 2 shows the prevalence of OSMF on the basis of age distribution. Group 1 consisted of people with age group of 11-20 years, Group 2 consisted of age group 21-30 years while Group 3, 4 and 5 belonged to age group of 31-40 years, 41-50 years and 51-60 years respectively. Maximum number of patient were seen in 20-30 year age range and minimum number of patient were seen in 50- 60 years of life.

The prevalence of OSMF on the basis of duration of habit were recorded. Group A consisted of people with a habit duration of 2–5 years. Group B consisted of people with a habit duration of 5–10 years, and Group C consisted of people with habit duration of more than 10 years. High prevalence was found in Group C (44.48%) in comparison to Group B (39.74%) and Group A (15.78%).

Among all the patients, a maximum number of male and female patients were seen in Grade 2 OSMF patients that 127 male and 15 female patients. Figure 3showing prevalence in male and female population in various grades of OSMF.

Discussion

In present study, male predominance can be due to easy accessibility for males to use areca nut and its products more frequently than females. Men had a significantly higher OSMF prevalence than women. Sinor*et al*.[16] in India found male predominance in OSMF cases. In this study, where males dominated it was noted that they used gutka and similar products more because of easy availability whereas females being more conscious about their health and esthetics, possibly were more reluctant to purchase them. This could be one of the reasons responsible for a high male to female ratio.[17,18]

Other study from India involving 50 patients, found Grade I disease in 9%, 39% in Grade II and 52% in Grade III OSMF.[19] The difference could be due to the fact that ours is a population screening study which revealed majority of patients in asymptomatic stage where as Raina et al studied the OSMF patients attending hospital. There is increased prevalence noted in United States recently due to increase in number of immigrant population from India/Africa.[20]Similarly, in a population-based case control study in rural and urban Lucknow, it was found that patients who use pan masala were at higher risk of developing OSMF[17].

Nigam *et al*. determined the prevalence and severity of OSMF among habitual gutkha, arecanut, and pan chewers of Moradabad, India. The prevalence of OSMF

was 6.3% and gutkha chewing was the most common abusive habit among OSMF patients in the study.[2] The conversion of premalignant to malignant condition varies from 3% to 19%. A recent study from India has reported that 25.77% OSF cases converted to oral squamous cell carcinoma (OSCC) which indicates the alarming malignant potential of OSMF.[22]

It is well-documented that as the severity of OSMF increases there is a progressive inability to open the mouth associated with varying degrees of restriction in tongue movements. This is in accordance with the findings of Kiran Kumar et al.[23] and might be due to the fact that the majority of our patients were reported for treatment only after the onset of restricted mouth opening.

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Legends Figures and Tables

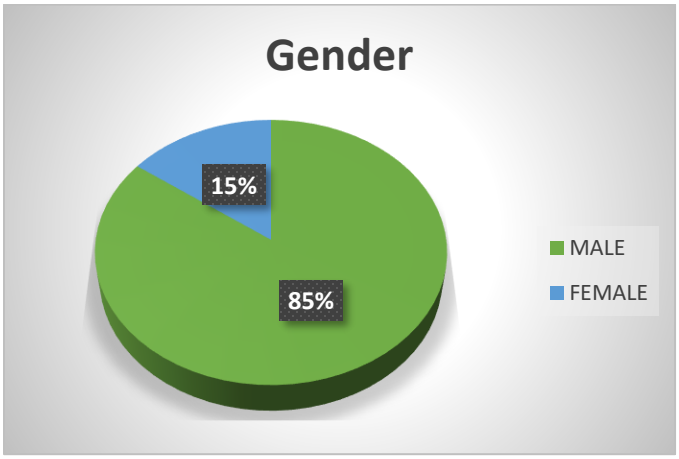

Figure 1: Showing Gender prevalence among Oral mucous Fibrosis Patients

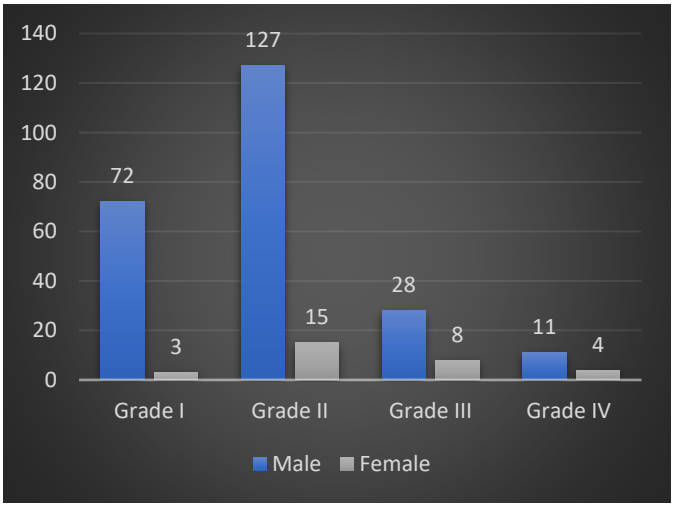

Fig 2: Showing gender-wise prevalence of various grading of OSMF

Table 1: Descriptive statistics showing prevalence of various grades of OSMF.

Grading	Frequency	Percentage
Grade I	75	27.98
Grade II	142	52.98
Grade III	36	13.43
Grade IV	15	5.59

Table 2: Descriptive statistics showing prevalence according to age group

Age distribution	Frequency	Percentage
Group 1- 11-20 years	28	10.44
Group 2- 21-30 years	142	52.98
Group 3- 31-40 years	65	24.25
Group 4- 41-50 years	21	7.83
Group 5- 51-60 years	12	4.47