ORIGINAL ARTICLE

ORAL SUBMUCOUS FIBROSIS — A STUDY

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ABSTRACT

Oral submucous fibrosis (OSMF) is a debilitating precancerous condition of oral mucosa characterized by the fibrosis of oral mucosa, burning sensation in mouth, intolerance to spicy food and progression of the disease leading to limitation of mouth opening. Habit of chewing areca nut in various commercially available forms is the main etiological factor for oral submucous fibrosis.

The aim of the study was to determine the prevalence of oral submucous fibrosis (OSMF) in patients who came for their dental check-up in Altamash Institute of Dental Medicine, Karachi. A descriptive cross sectional survey was conducted on 300 patients from 25th April till 25th march 2015.A simple data collection form was used. Patients presented with the sign and symptoms of oral submucous fibrosis were included in the study.Out of 300 patients 22 were identified with the condition of OSMF and among them habit of chewing areca nut in the form of gutka was found most common.

Key Words: *Oral submucous fibrosis, precancerous, areca nut.*

INTRODUCTION

Oral submucous fibrosis (OSMF) is a chronic, progressive, scarring, high risk precancerous condition of oral mucosa seen primarily in Indian subcontinent, southeast Asia, Taiwan, southeast China and Papua New Guinea.[1] It was first described by Schwartz (1952) as he found this condition of oral mucosa including palate and pillars of oropharynx first in five Kenyan women named this as "Atrophia Idiopathica Tropica Mucosae Oris". Later it was termed as Oral submucous fibrosis.[2] Initially this condition was limited to subcontinent but because of increase in number of migrants OSMF is being reported from western countries as well.[3]

The main etiological factor is found to be habit of chewing areca nut as data from many studies proved this.[4] Areca nut is available in many forms like commercially dried freeze product including Gutka, Pan masala, Mawa along with conventional form which include betel quid or paan. Quid typically consist of areca nut, slaked lime, tobacco, cloves and sometime sweeteners. In recent days conveniently packaged portable sachets are becoming popular and this appears to cause oral submucous fibrosis more rapidly than conventionally prepared betel quid as they contain large amount of areca nut.[5]

Appearance of palpable bands of fibrous tissues in oral cavity including buccal mucosa, soft palate, mucosa of lower lip and tongue in progressed condition is characteristics of Oral submucous fibrosis which may or may not preceded by burning sensation of oral mucosa, ulceration, loss of pigmentation, leathery mucosa, progressive reduction of mouth opening and sunken cheeks.[6] The mechanism likely to cause these banding includes fibroblast proliferation because of alkaloid from areca nut, increased collagen production, downregulation of collagenase production, up regulation of cytokines and growth factor, genetic polymorphism and role of collagen related genes.[7] For clinical and functional staging of OSMF numerous classifications have been described. Recently More et al. in 2012 proposed a classification with clinical and functional staging.[8]

Clinical staging

- Stage 1: (S1) – Stomatitis and/or blanching of the oral mucosa
- Stage 2: (S2) – Presence of palpable fibrous bands in buccal mucosa and/or oropharynx, with/without stomatitis

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- Stage 3: (S3) – Presence of palpable fibrous bands in buccal mucosa and/or oropharynx and in any other parts of oral cavity, with/without stomatitis
- Stage 4: (S4) – (A) Any one of the above stage, along with other potentially malignant disorders, e.g. oral leukoplakia, oral erythroplakia, etc.

  – (B) Any one of the above stage along with oral carcinoma.

Functional staging

- M1: Inter-incisal mouth opening up to or >35 mm
- M2: Inter-incisal mouth opening between 25 mm and 35 mm
- M3: Inter-incisal mouth opening between 15 mm and 25 mm
- M4: Inter-incisal mouth opening <15 mm

METHODOLOGY

A descriptive cross sectional survey was conducted on patients who came in for their dental check up at Oral Diagnosis Department and Department of General Surgery in Altamash Institute of Dental Medicine, Karachi. Patients below the age of 15 years were excluded. After taking verbal consent from the patient a simple data collection form were used containing demographic details, questions about habit, duration and frequency of chewing areca nut in any form. Oral examination for the sign and symptoms of oral submucous fibrosis which are burning sensation of oral mucosa, ulceration, depigmented or leathery appearance of mucosa, presence of palpable fibrous band with reduction of mouth opening was done and recorded on the form, maximal interincisal distance between upper and lower incisor measured by using simple measuring scale. Clinical and functional staging was done by using classification proposed by More.8The data were analyzed by using statistical package for the social sciences (spss) version 17.

RESULTS

Out of 300 patients 22 were observed who had signs and symptoms of oral submucous fibrosis. Habit of chewing areca nut in form of gutka was found most common. Male were 76.1% in this study identified with OSMF. Majority of them were in third and fourth decade of life. Younger patients had more frequency of chewing areca nut alone. Two patients were identified with clinical stage S4B had squamous cell carcinoma.

DISCUSSION

With the increase in availability and low cost of various forms of areca nut containing products including (gutka, mawa, chalia and pan masala, local names) prevalence of OSMF in younger patients is increasing as these products contain higher content of areca nut. Prevalence of OSMF in Indian varies between 0.03% and 3.2% according to various studies.[10]

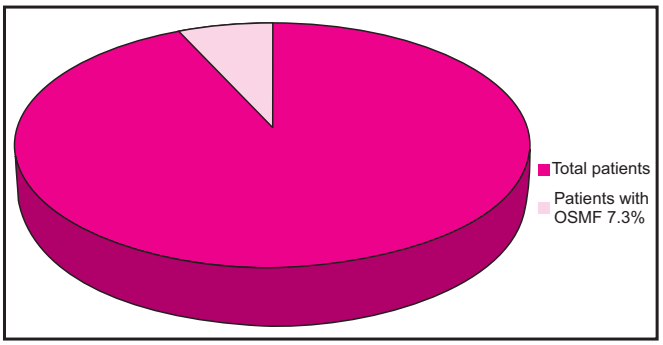

Fig 1: Percentage of OSMF patients

Fig 2: Patient with clinical stage S3

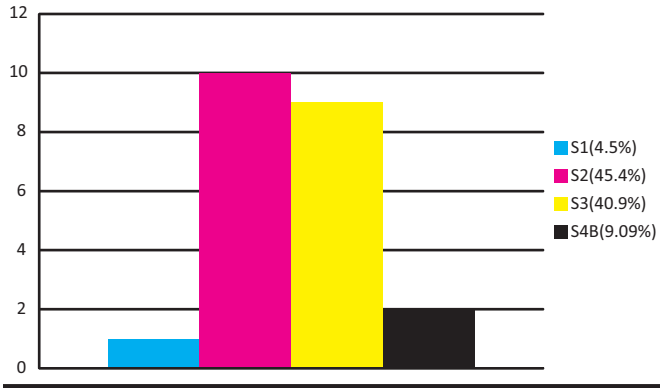

Fig 3: Clinical staging

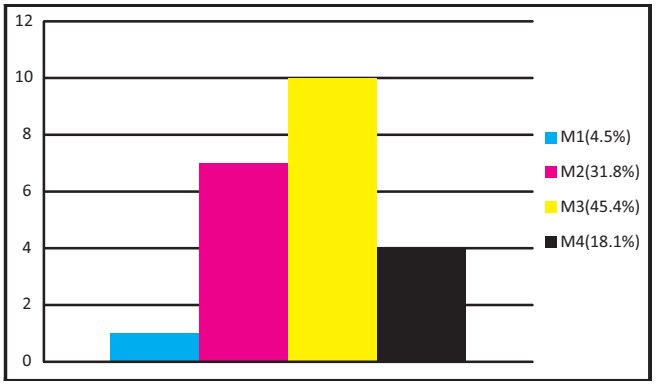

Fig 4: Functional staging

TABLE 1: PATIENTS DISTRIBUTION ACCORDING TO GENDER

Age (years)	Male	Female
15-25	1	1
25-35	3	3
35-45	7	2
45-55	4	—
55+	1	—
Total	16(76.1%)	6(28.5%)

TABLE 2: FREQUENCY AND PERCENTAGE OF PATIENTS IN RELATION TO THE FORM OF ARECA NUT PRODUCT USING

Form of areca nut	Frequency	Percent
Chalia	1	1
Gutka*	3	3
Gutka +Paan	7	2
Mawa	4	—
Paan*	5	—

* Gutka is basically a dry preparation of crushed areca nut (also called betel nut), tobacco, catechu, paraffin, slaked lime and sweet or savory flavorings.[9]
* Mawa is similar to gutka except the form of areca nut as it contains shavings of areca nut.
* Betel Quid or Paan: pieces of areca nut, tobacco. Slaked lime, clove wrapped in betel leaf.

Although many studies proved that main causative agent is areca nut.[7,11] But some other studies also indicate that there is probably a genetic predisposition for OSMF. Risk of development of oral carcinoma in patient with oral submucous fibrosis has been estimated to be as high as 10% over 10 to 15 years.[12]

Unlike some other oral mucosal condition oral submucous fibrosis does not regress with habit cessation.[13] But if identified in early stages its progression can be stopped by different treatment modalities including behavioral therapy for cessation of habit, physiotherapy includes blowing, heat therapy and forceful mouth opening exercises, local corticosteroids injection along with hyaluronidase, collagenase, interferon gamma, antioxidants includes phytochemical lycopene, combined therapy of peripheral vasodilators, vitamin B complex, placental extracts, local and systemic steroids and physiotherapy. Surgical management includes surgical splitting or excision of fibrous bands which may improve mouth opening and mobility in later stages of disease.[14]

For reduction in number of cases in future there is strong need of awareness, patient education, cessation of habit and measures taken by higher authorities for banning of these commercially available products.

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3 **Syeda Maria Fakhar:** Helped in data collection and result compilation.