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CLINICAL PROFILE OF ORAL SUB MUCOUS FIBROSIS

Objectives:

Oral submucous fibrosis (OSMF) is an insidious precancerous disease mostly seen in the Southeast Asia. This paper aims to study on clinical profile of patients with OSMF

Material and Methods:

This cross sectional study was done in department of ENT and HNS, Nepalgunj Medical College and Teaching Hospital. In outpatient department patients with OSMF were asked to fill up a questionnaire that included identification of patient, occupation, their symptoms and habit of taking betel quid or paan, gutkha, etc. Oral cavity was examined and lesion along with its extent and severity was noted. Intralesional steroid and antioxidant and physiotherapy were main stay of treatment.

Results:

There were total 136 patients (98 male and 38 female) from 15th Dec 2013 to 15th Jan 2015. Age of patient ranged from 16 years to 53 years and average being 25.6 years. Most common preparation taken was gutkha 131 (96.3%) followed by betel nut, betel quid etc. Only 24 (17.6%) were taking these preparations for less than 1 year. Common presenting complaints were difficulty in opening mouth followed by burning sensation and dryness of mouth. Clinically, the extent of fibrous band was found to be more commonly involving soft palate, pillars and buccal mucosa. Isolated involvement of different region of oropharynx or oral cavity was less common. Correlation of grade of trismus and average duration of taking these different preparations was highly significant. (p=0.008)

Conclusions:

Oral submucous fibrosis is commonly associated with intake of gutkha having dose dependent relationship with trismus. Further studies are required why only a small fraction of those using betel quid develop the disease.

Keywords: Gutkha, Oral submucous fibrosis, Trismus

INTRODUCTION:

Oral submucous fibrosis (OSMF) is an insidious precancerous disease affecting the oral cavity, pharynx and upper digestive tract. OSMF is a debilitating but preventable oral disease. In 1952, Schwartz coined the term atrophica idiopathica mucosa oris to describe an oral fibrosing disease which he discovered in five Indian women from Kenya.¹ Joshi subsequently coined the term oral submucous fibrosis (OSMF).² From the end of last century, papers are being published and researches are being conducted and its pathogenetic significance especially as a precancerous lesion is being highly discussed. The transformation rate is as high as 7.6% making OSMF one of the most important precancerous conditions of the oral region.³ Oral submucous fibrosis is a disease due to a chronic, insidious change in fibro elasticity, characterized by burning sensation in the oral cavity, blanching, and stiffening of the oral mucosa and oropharynx leading to trismus and inability to open the mouth. The symptoms and signs depend on the progression of the lesions and number of affected sites.^{4,5}

Oral submucous fibrosis (OSMF) is mostly seen in the Southeast Asia. Although nutritional deficiencies⁶ and immunological processes may play a part in the pathogenesis, the available epidemiological evidence indicates that chewing betel quid (containing areca nut, tobacco, slaked lime or other species) is an important risk factor for OSMF.^{4,7,9} Gutkha is widely used which is the preparation of crushed areca nut, tobacco, catechu, paraffin, slaked lime and sweet or savory flavorings. The severity of trismus can be classified into three grades, depending on the maximal mouth opening (MMO) between upper and lower incisor teeth edges distance. Grade 1 is MMO between 40 and 25 mm; Grade 2 is MMO between 25 and 10 mm; and Grade 3 is MMO less than 10 mm.¹⁰ A wide range of treatment consisting of drug management, surgical therapy, and physiotherapy have been attempted till date; with varying degrees of benefit, but none of them have proved to be a cure. This field remains open for clinical trials and research.⁴ The drugs used to treat OSMF were categorized into steroids, enzymes, cardiovascular drugs, antioxidants, vitamins and microelements. There are few high-quality studies available and the present drug treatments are in general empirical and treat only symptoms.⁴ Together with a cessation of the betel quid chewing habit before and after therapy, these treatment regimens combined with daily mouth opening exercises were found to be necessary to manage OSMF cases in early and advanced stages of progression.¹¹ This paper aims to provide an overview on clinical profile of patients with OSMF and its association with different local preparations taken orally.

MATERIALS AND METHODS:

A cross-sectional study was conducted at department of ENT, Nepalgunj Medical College from 15th Dec 2013 to 15th Jan 2015. Patients visiting ENT outpatient department (OPD) and diagnosed clinically as OSMF during the study period were enrolled. Disease simulating OSMF like systemic sclerosis, rhinoscleroma, rheumatoid arthritis, chemical burns were ruled out clinically and with appropriate investigations. In OPD they were asked to fill up a questionnaire that includes identification of patient, occupation, their symptoms and habit of taking paan, gutka, etc. Oral cavity was examined and lesion along with its extent and severity was noted. Their maximal mouth opening (MMO) between upper and lower incisor edges was measured and recorded. Location of fibrous bands in the mouth was also noted. All patients were injected triamcinolone acetate 40 mg and hyaluronidase 1500IU locally. They were called after 2 weeks for next injection. Injections were given till there was no symptom and mouth opening was >40mm. Active physiotherapy was taught and asked patient to do regularly during treatment period. Patients were prescribed vitamin B complex and antioxidants. Data analysis was done by SPSS 11.5. Test of mean difference of duration of OSMF with grades of trismus was done by ANOVA. The p-value of less than or equal to 0.05 was taken as significant.

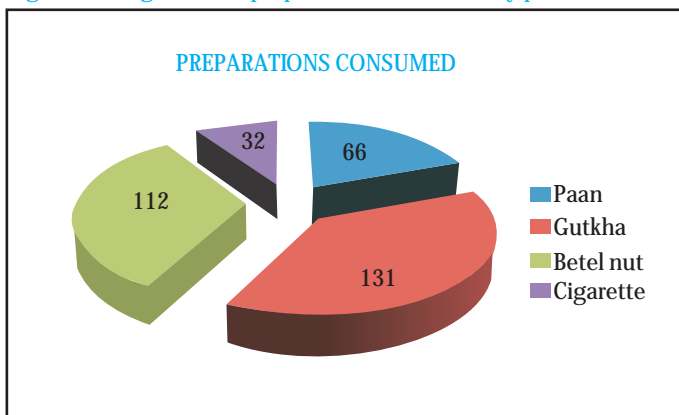
RESULTS:

There were total 136 patients diagnosed as case of OSMF. There were 98 male patients and 38 female patients. Age of patient ranged from 16 years to 53 years and average being 25.6 years. All the patients had history of taking preparations like paan, gutkha, betel nut or cigarette.

Table I: Showing occupations of patients

Occupation	Number	Percentage
Employed in office	41	30.1
Teacher	27	19.8
Farmer	18	13.2
Student	15	11.0
Unemployed	15	11.0
Housewife	8	5.8
Business	8	5.8
Driver	4	2.9

Fig. I: Showing different preparations consumed by patients



Most common preparation taken was gutkha 131(96.3%) and most of them were taking more than one preparation. (Figure I) It was seen in different occupational groups. (Table I) Most of the patients were consuming these preparations for more than 5 years (Figure II) Common presenting complaint was trismus in 102(75%) patients followed by burning sensation 68(50%) and dryness of mouth in 55(40.4%) patients (Table II). Clinically the extent of fibrous band was found to be more commonly involving soft palate, pillars and buccal mucosa. Isolated involvement of different region of oropharynx or oral cavity was less common (Table III). Trismus was found in only 116 patients with majority in grade 2. Test of mean difference of duration of OSMF with grades of trismus was done by ANOVA. The p- value of ANOVA came to 0.008 which is highly significant.

DISCUSSION:

Oral submucous fibrosis is a common lesion of oral cavity that can turn into malignant variety in long run. Early detection of it is important for which clear concept in etiopathogenesis is required. For better understanding of the disease a good randomized control study is required.¹² Though this disease is common in Nepal but there are only few studies dealing with OSMF. Our attempt was to have basic idea of clinical profile of Nepalese population. Nepalgunj, a habitat of people with diverse ethnicity is famous for consumption of paan, gutkha and betel nuts. The location of study is helpful to get maximum number of cases with different ethnic groups.

The proportion of this disease is more in male in our study which is in correlation with studies done in neighbouring countries^{6, 13-16} with similar life style and culture. This difference is probably due to more outdoor activities in male and more accessibility of preparations. However in another study done in south India it was more found in female.¹⁷ Average age at presentation was 25.6 years which is similar to study done in neighbouring country India.¹⁵ Occupation doesn't matter much; it can be seen in all different types of job holders and unemployed. Gutkha was the commonest preparation unlike in study by Pandya¹⁵ where it was in less than 1/4th patients. This may be preference of preparation in that locality. Quid is a mixture of substances that is placed in the mouth or actively

Fig II: Showing duration of consumption of different preparations

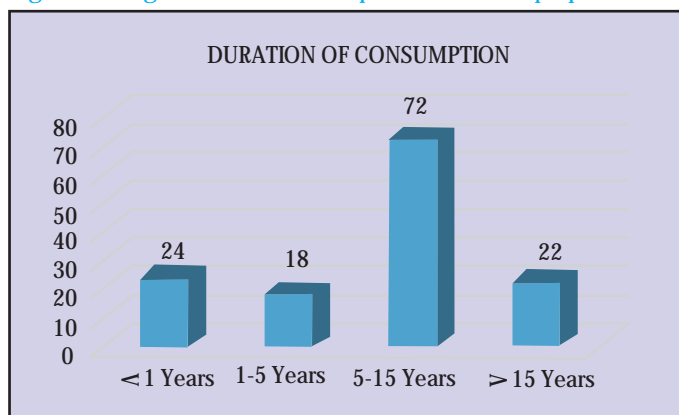


Table II: Showing presenting complaints of different patients

Complaints	Number	Percentage
Trismus	102	75.0
Burning sensation	68	50.0
Dryness of mouth	55	40.4
Oral ulceration	52	38.2
Sore throat	16	11.7
Difficulty to protrude tongue	8	5.8

Table III: Showing location of fibrous band

Site of fibrous band	Number	Percentage
Soft Palate only	4	2.9
Soft palate + Ant Pillars + Retro molar trigone	40	29.4
Soft palate + Ant Pillars + Retro molar trigone + Buccal mucosa	92	67.6

For illustration ANOVA

Mean duration of consumption (months)

Grade of Trismus	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	41	12.71	5.984	.935	10.82	14.60	6	28
2	56	18.41	11.481	1.534	15.34	21.49	6	60
3	19	23.84	24.789	5.687	11.89	35.79	6	120
Total	116	17.28	13.670	1.269	14.77	19.80	6	120

Mean duration of consumption (months)

	Sum of Squares	df	Mean Squares	F	Sig.
Between Groups	1747.044	2	873.522	5.000	.008
Within Groups	19742.568	113	174.713		
Total	21489.612	115			

chewed over an extended period, thus remaining in contact with the mucosa. It usually contains one or both of 2 basic ingredients, tobacco and areca nut. Betel quid or paan is a mixture of areca nut and slaked lime, to which tobacco can be added, all wrapped in a betel leaf. The specific components of this product vary between communities and individuals. The quid habit has a major social and cultural role in communities throughout the Indian subcontinent, Southeast Asia and locations in the western Pacific.¹⁸ It's a fad; it's a fashion and a status symbol. Advertising, peer pressure and imitation of parents are all factors. Some adults use gutkha to cope with irregular meals, to stay awake during shift work. Others use gutkha to quit smoking, but may have difficulty giving up gutkha. The exact data of how many people consume these preparations is not available for Nepal but a study from India showed that over 10% of urban males and 8% of rural males use gutkha or paan with tobacco.¹⁹

In our study gutkha is the predominating preparations taken by such patients. Betel nut is taken by more than 80% of such patients which is similar to Pandya S study in 2009.¹⁵ Gutkha consumption is more common in India and Nepal where prevalence of OSMF is high; hence it may be more responsible for causing OSMF. All forms of areca nut products were associated with OSMF but chewing of paan was associated with early presentation of OSMF as compared to chewing of the betel nut.¹⁴ Commercially freeze dried products such as paan and gutkha have high concentrates of areca nut per chew and appear to cause OSMF more rapidly than by self prepared conventional betel quid that contain smaller amounts of areca nut. It is logical to hypothesize that the increased collagen synthesis or reduced collagen degradation as possible mechanisms in the development of the

disease. There are numerous biological pathways involved in the above processes and, it is likely that the normal regulatory mechanisms are either down regulated or up regulated at different stages of the disease.²⁰⁻²² Though consumption of areca nut preparation is common in Nepalgunj but OSMF is not seen in all consumers of these preparations in our clinical experience. A good case control study is required to establish it. However a common experience is though some people are taking it for a many years won't develop disease and other unlucky fellows develop in few months of consumption. In our study most of the patients were taking these preparations for more than 5 years. Only 24 (17.6%) were taking for less than 1 year. Genetically determined susceptibility could explain why only a small fraction of those using betel quid develop the disease. Further studies are required to ascertain the role of cellular immune mechanism and genetic parameters to explain the etiopathogenesis of this complex clinical entity.²³

Three fourth of patients complained of difficulty in opening mouth which is higher than the proportion found in Pandya (2009)¹⁵ study. Majority of these patients had grade II trismus. The initial symptom of burning sensation in mouth and dryness was found in less number of patients as compared with difficulty in opening mouth which is supposed to be a late presentation. This shows that patients are not bothersome when they had initial symptom and seek doctor when trismus starts to supervene.

Most of the patients presented in Grade II trismus. Grade of trismus is directly proportional with duration of intake of these preparations. This shows that with continuous exposure chance of severity increases, i.e dose dependent phenomenon.

The buccal mucosa was found to be the most commonly involved site.¹⁵ This area is also involved in almost all case but solitary involvement of this area is least common. This may be because of advanced presentation. This is in accordance to Haider SM²⁴ which states that bands are common at the back of the mouth in mild cases of oral submucous fibrosis and, as the disease increases in severity, are more likely to be found anteriorly as well. The reason for unidirectional alignment of clinical fibrous bands could be due to chronic stimulation of oral mucosa by the irritants leading to change in the orientation of collagen fiber bundles, which might result in scar formation similar to that of wound healing, where the collagen fibers are oriented parallel to the epidermis.^{5, 25}

Intra lesional steroid and antioxidant and physiotherapy were main stay of treatment. The numbers of injections depend on severity of disease at presentation and improvement on subsequent visit. Like in other study,²⁶ we also obtained improvement in symptoms of patients but treatment outcome was not measured as follow up rate was very poor. There is little evidence that current interventions can benefit patients with OSMF.²⁷ It is common practice to do surgery in severe disease.¹¹ There is a need for high-quality RCT in this area, especially studies involving combined and sequential therapy.^{28, 29}

CONCLUSION:

Oral submucous fibrosis is common among gutkha users. Mean difference of grade of trismus among the OSMF patients is statistically significant showing higher exposure leading to OSMF with higher grade of symptoms. Further studies are required why only a small fraction of those using betel quid develop the disease.

Limitation of study

It is a descriptive study but it forms a platform for future study with better study design. Sampling was purposive and of smaller duration. Comparison in treatment modalities would have been better.

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