Journal of Advanced Medical and Dental Sciences Research

@Society of Scientific Research and Studies ***NLM ID:*** *101716117*

Journal home page: www.jamdsr.com doi: 10.21276/jamdsr Index Copernicus value = 91.86

(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805

Original Research

Assessment of cases of Oral submucous fibrosis

Nitika Trehan

Consultant at Yash Hospital, Dehradun, Uttarakhand, India

ABSTRACT:

Background: Oral submucous fibrosis (OSMF) is a chronic, progressive, scarring precancerous condition of the oral cavity seen predominantly in the Indian subcontinent and South East Asia. The present study was conducted to assess cases of OSMF. **Materials & Methods:** 48 patients of OSMF of both genders were included. A thorough oral examination was carried out. History of tobacco chewing, betel nut, pan, mawa etc. was recorded. Staging of OSMF was done. **Results:** Out of 48 patients, males were 26 and females were 22. Age group 11-20 years had 4, 21-30 years had 8, 31-40 years had 10, 41-50 years had 11 and 51-60 years had 15 patients. habit of betel nut chewing was present in 64%, mawa in 20% and pan masala in 16%. stage 1 was present in 27%, stage 2 in 45% and stage 3 in 28%. **Conclusion:** Maximum cases were seen in age group 31-40 years, having habit of betel nut chewing and stage 2.

Key words: betel nut, Oral submucous fibrosis, Mawa

Received: 19 August, 2021 Accepted: 22 September, 2021

Corresponding author: Nitika Trehan, Consultant at Yash Hospital, Dehradun, Uttarakhand, India

This article may be cited as: Trehan N. Assessment of cases of Oral submucous fibrosis. J Adv Med Dent Scie Res 2021;9(10):142-145.

INTRODUCTION

Oral submucous fibrosis (OSMF) is a chronic, progressive, scarring precancerous condition of the oral cavity seen predominantly in the Indian subcontinent and South East Asia. In India, the prevalence increased over the past four decades from 0.03% to 6.42%. Data published earlier reported an estimate of 5 million OSMF patients in India.4 OSMF is seen commonly in males between 20- 40 years age. The common sites involved are buccal mucosa, labial mucosa, retromolar pads, soft palate and floor of the mouth. Rarely fibrotic changes of the pharynx, esophagus and paratubal muscles of eustachian tubes have also been observed.[1]

Although the etiopathogenesis of this disease is multifactorial, areca nut-chewing in any formulation is taken into account as the most causative agent.[2] Contributory risk factors suggested include chewing of smokeless tobacco, high intake of chilies, toxic levels of copper in foodstuffs and masticatories, vitamin deficiencies, and malnutrition leading to low levels of serum proteins, anemia and genetic predisposition. The chewing of betel quid which contains betel nut, tobacco and calcium hydroxide, has been identified as the foremost important risk factors for OSMF. Areca nuts consist of alkaloids, flavonoids and trace elements. Four alkaloids are identified in areca nuts: arecoline, arecaidine, guvacine and guvacoline of which arecoline is the most potent agent.[3]

The World Health Organization predicts that tobacco deaths in India may exceed 1.5 million annually by 2020. Oral cancer progress through the transformation of tobacco exposed normal oral mucosa to potentially malignant lesions which ultimately changes to carcinoma. OSMF is now globally accepted as an Indian disease. It has one of the highest rates of malignant transformation among potentially malignant oral lesion.[4] The present study was conducted to assess cases of OSMF.

MATERIALS & METHODS

The present study comprised of 48 patients of OSMF of both genders. All were informed regarding the study and their written consent was obtained.

Data such as name, age, gender etc. was recorded. A thorough oral examination was carried out. History of tobacco chewing, betel nut, pan, mawa etc. was recorded. Staging of OSMF was done. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 48		
Gender	**Male**	**Female**
Number	26	22

Table I shows that out of 48 patients, males were 26 and females were 22.

Table II Age wise distribution of cases

Age group (years)	Number	P value
11-20	4	0.05
21-30	8	
31-40	10	
41-50	11	
51-60	15	

Table II, graph I shows that age group 11-20 years had 4, 21-30 years had 8, 31-40 years had 10, 41-50 years had 11 and 51-60 years had 15 patients. The difference was significant (P< 0.05).

Graph I Age wise distribution of cases

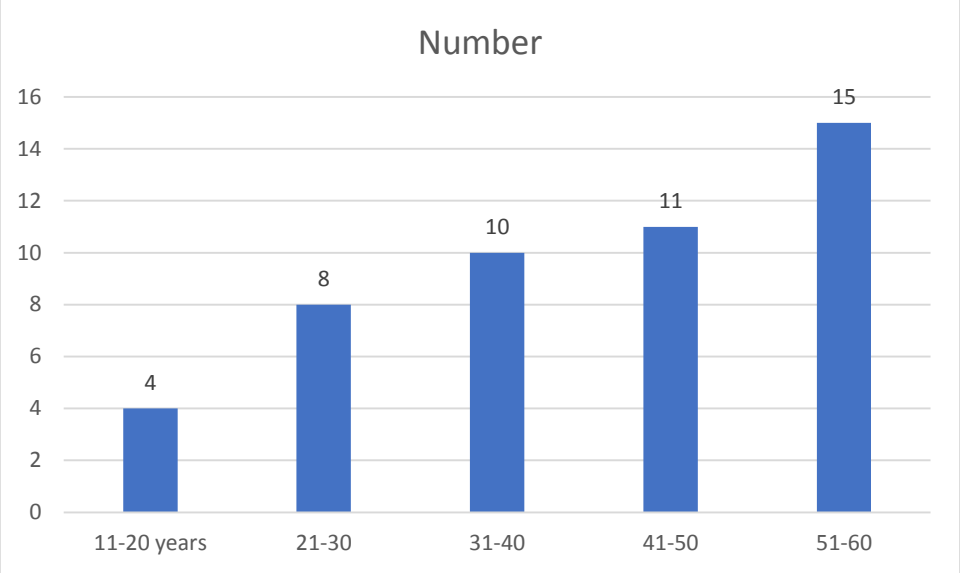

Table III Assessment of habits

Habits	Percentage	P value
Betel nut	64%	0.01
Mawa	20%	
Pan masala	16%	

Table III shows that habit of betel nut chewing was present in 64%, mawa in 20% and pan masala in 16%. The difference was significant (P< 0.05).

Table IV Staging of OSMF

Staging	Percentage	P value
Stage 1	27%	0.05
Stage 2	45%	
Stage 3	28%	

Table IV shows that stage 1 was present in 27%, stage 2 in 45% and stage 3 in 28%. The difference was significant (P< 0.05).

DISCUSSION

Flavonoid components of areca nuts like tannins and catechins directly affect collagen metabolism. The copper content of betel nut is high and therefore the possible role of copper as a mediator of fibrosis is supported by the demonstration of the up regulation of lysyl oxidase in OSMF biopsies.[5] Globally, 600 million people are estimated to be betel nut chewers. Though, only 1-2% of betel nut users may ensue the disease. This shows a clear genetic susceptibility. The

progression of OSMF even with the absence of intraoral factors suggests the role of other factors including genetic predisposition and an increased frequency of human leukocyte antigens (HLA).[6] It would thus be logical to hypothesize that the increased collagen synthesis or reduced collagen degradation is the possible mechanism for the development of the disease. There are numerous biological pathways involved in the above processes and it is likely that the conventional regulatory mechanisms are either upregulated or downregulated at different stages of the disease.[7] Ultimately, the subsequent cell types are affected through these pathways, namely, fibroblasts, endothelial cells and epithelial cells. ROS activation, damage to cellular targets like DNA, protein, lipid after metabolic activation of the betel nut components by phase 1 enzymes (e.g., cytochrome P450s), the cytotoxic effects of betel nut constituents, keratinocyte inflammation and oncogene activation are considered to be the promoting factors.[8] The present study was conducted to assess cases of OSMF.

In present study, we found that out of 48 patients, males were 26 and females were 22. Akshaya et al[9] assessed the prevalence of Oral submucous fibrosis in patients reporting to private university hospital setting. It was observed that OSMF has male predilection (91.7%), with the most commonly involved age group between 2nd to 6th decade of life and the frequency of both the arches involved were equally higher. The most common habit associated with the patients of oral submucous fibrosis was pan chewing (36.9%) followed by usage of Areca nuts (30.2%).

We found that age group 11-20 years had 4, 21-30 years had 8, 31-40 years had 10, 41-50 years had 11 and 51-60 years had 15 patients. Nigam et al[10] determined the prevalence and severity of oral submucous fibrosis (OSMF) among habitual gutkha, areca nut and pan chewers of Moradabad, India. One thousand habitual chewers were selected as study participants, using a stratified random sampling technique, between the ages of 11-40 years, with a habit of chewing gutkha, areca nut, pan for over a year. A detailed history was recorded and meticulous clinical examination was conducted. Evaluation of taste sensation, hearing, interincisal distance, clinical staging was done in the OSMF patients found amongst habitual chewers. The prevalence of OSMF was 6.3% (63/1000) and gutkha chewing was the most common abusive habit (42/63) amongst OSMF patients. Stage 1, Stage 2, Stage 3 OSMF was seen in 28, 19 and 16 patients respectively. Restricted mouth opening, altered taste perception and defective hearing was observed in 37/63 (58.7%), 24/63 (38.09%) and 14/63 (22.22%) respectively

We observed that habit of betel nut chewing was present in 64%, mawa in 20% and pan masala in 16%. Stage 1 was present in 27%, stage 2 in 45% and stage 3 in 28%. Srivastava et al[11] in their study a total of 860 patients of OSMF visiting the dental outpatient clinic of the Department of Oral Medicine and Radiology over a period of 24 months were selected for the study. A detailed case history and clinical examination was carried out under visible light. The diagnosis of OSMF was based on difficulty in opening the mouth and associated blanched oral mucosa, with palpable fibrous bands. Other diagnostic features included burning sensation, salivation, tongue protrusion, habits, and associated malignant changes. Study was done on the basis of age group, habit duration, frequency of habit, and type of habit. Simple correlation analysis was performed. Of the 860 cases of OSF studied, 390 (46.42%) cases were stage II, 290 (34.52%) were stage III, 90 (10.73%) stage I, and 70 (8.33%) stage IV. Based upon age group, group III (30-40 years) showed more prevalence than the others. Areca nut (gutkha) was a significant etiological factor (55.8%) as compared with other etiological factors.

CONCLUSION

Authors found that maximum cases were seen in age group 31-40 years, having habit of betel nut chewing and stage 2.

REFERENCES

1. Seedat HA, Van Wyk CW. Submucous fibrosis (SF) in exbetel nut chewers: A report of 14 cases. J Oral Pathol Med 1988;17:226-9.
2. Nair U, Bartsch H, Nair J. Alert for an epidemic of oral cancer due to use of the betel quid substitutes gutkha and pan masala: A review of agents and causative mechanisms. Mutagenesis 2004;19:251-62.
3. Pickwell SM, Schimelpfening S, Palinkas LA. 'Betelmania'. Betel quid chewing by Cambodian women in the United States and its potential health effects. West J Med 1994;160:326-30.
4. Van der Waal I. Potentially malignant disorders of the oral and oropharyngeal mucosa; terminology, classification and present concepts of management. Oral Oncol 2009;45:317-23.
5. Hazarey VK, Erlewad DM, Mundhe KA, Ughade SN. Oral submucous fibrosis: Study of 1000 cases from central India. J Oral Pathol Med 2007;36:12-7.
6. Gupta PC, Ray CS. Smokeless tobacco and health in India and South Asia. Respirology 2003;8:419-31.
7. Tilakaratne WM, Klinikowski MF, Saku T, Peters TJ, Warnakulasuriya S. Oral submucous fibrosis: Review on aetiology and pathogenesis. Oral Oncol 2006;42:561-8.
8. Pai SA. Gutkha banned in Indian states. Lancet Oncol 2002;3:521.
9. Akshaya. K, Senthil Murugan. P. Assessment of Incidence Of Oral Submucous Fibrosis Patients - An Institutional Study. Int J Dentistry Oral Sci. 2021;08(03):1939-1945.
10. Nigam NK, Aravinda K, Dhillon M, Gupta S, Reddy S, Raju MS. Prevalence of oral submucous fibrosis among habitual gutkha and areca nut chewers in Moradabad district. Journal of oral biology and craniofacial research. 2014 Jan 1;4(1):8-13.
11. Srivastava R, Jyoti B, Pradhan D, Siddiqui Z. Prevalence of oral submucous fibrosis in patients

visiting dental OPD of a dental college in Kanpur: A demographic study. J Family Med Prim Care 2019;8:2612-7.