

RETROSPECTIVE PREVALENCE SURVEY STUDY OF ORAL SUB MUCOUS FIBROSIS DUE TO TOBACCO CHEWING IN NASHIK DISTRICT

Shrihas C. Pagare¹, Suresh L. Khalale², Sachin M. Patil³, Sagar Narode⁴, Amrapali Patil⁵

¹M. D. Scholar; ²Associate Professor; ³Professor; ⁴Associate Professor; ⁵Lecturer; Agadtantra, Shri Saptshrungi Ayurved Mahavidyalay and Hospital (SSAM & H), Nashik, Maharashtra, India

Email: shri.pagare2015@gmail.com

ABSTRACT

Background- Oral sub mucous fibrosis [OSF] is a precancerous condition caused by tobacco chewing. The prevalence of OSF is continuously rising in all over the world. We investigated whether the impression of an increase in the incidence of the disease was real. **Method-** A house to house survey was conducted in Nashik District, Maharashtra state. The habitual tobacco chewers were interview through given questionnaire. The diagnostic criterion for OSF was the presence of palpable fibrous bands. **Result-** total no. of 2010 subject was interview for their tobacco habits. Among all of them the prevalence of oral sub mucous fibrosis was found 7.3% (146 out of 2010) with a male to female ratio of 5.63: 1.

Out of 146 OSMF patient, 67(45.8%) had stage I, 69 (47.2%) had stage II, And 10(6.8%) had stage III disease.

Keywords: Oral Sub Mucous Fibrosis, Tobacco, Frequency

INTRODUCTION

Oral sub mucous fibrosis is a chronic, progressive, debilitating disease that was first reported from India in 1953.⁽¹⁾ Initially the disease was found only amongst people living in the Indian subcontinent or in Indian migrants to other countries. Later, it was reported from many Southeast Asian populations.⁽²⁾⁽³⁾

In this disease the oral mucosa loses its elasticity and fibrosis bands developed. The epithelium is atrophic and there is a marked intolerance to spicy food. The opening of the mouth progressively reduces and in extreme cases it may be difficult for even a straw to pass into the mouth. The disease is precancerous and carries a high relative risk for malignant transformation. Spontaneous regression has not been report-

ed and there is no effective or widely accepted treatment.⁽⁴⁾

Several etiological hypotheses for oral sub mucous fibrosis have been proposed. The most among them was its relation with intake of chilies. This was influenced by the fact that affected individuals showed a high degree of sensitivity to chilies as well as its occurrence mainly among Indians who used chilies liberally in their daily diet. However, this and other hypothesis has not been confirmed.⁽⁵⁾

It has now been demonstrated that the chewing of tobacco is the most important etiological factor for oral sub mucous fibrosis. Some studies showed very high level of relative risk for tobacco chewing was reported.⁽⁶⁾

The practice of tobacco chewing is about four centuries back and currently almost all regular tobacco chewers use it with lime. This necessitates frequent spitting, a scourge for almost all public places in India. This practice appeared to be slowly decreasing with increase in education, urbanization and unacceptance of spitting behavior. But during last two decades, the situation has changed once again and the practice of chewing tobacco has received again in another form of *pan masala and gutakha*.⁽⁷⁾

The present study was undertaken in Nashik dist. Maharashtra to investigate whether there was any increase in the prevalence of oral sub mucous fibrosis and if so, could it be attributed to an increase in the use of tobacco.

Aim-

To correlate the etiological factors to the severity of OSMF along duration, frequency and style of chewing habit of tobacco.

Objective-

- 1) To study tobacco in detail.
- 2) To study oral sub mucous fibrosis in detail.
- 3) To evaluate rate of prevalence of OSMF in tobacco chewing person.

MATERIALS AND METHODS

MATERIALS:

Literary research was carried out from various *Ayurved granthas*, multiple research papers, and articles. Textbooks of Toxicology, Medicine, Physiology, surgery were used to collect information about tobacco and oral sub mucous fibrosis.

METHOD OF ACTUAL CLINICAL STUDY:

An observational survey study was conducted for a period of one year in Nashik district Maharashtra.

Two thousand ten habitual tobacco chewers were selected as a study participant using stratified random sampling method. A person more than 18 years old with a habit of chewing tobacco was selected.

A detail history was taken and meticulous clinical examination was conducted. Evaluation of clinical staging was done in oral sub mucous fibrosis patients found among habitual tobacco chewers.

Techniques for collection of data:

Two thousand ten subjects were selected using stratified random sampling technique. In this, first of all each Taluka of Nashik district was consider as one Strata. In Nashik district there are fifteen Taluka, so we get fifteen strata for this study. As we survey two thousand ten subjects from fifteen Taluka so from each Taluka one thirty four subjects were chosen who were habitual for tobacco chewing.

Each Taluka was visited personally and home to home survey study was done in habitual tobacco chewers. A detail history was taken with respective age, duration, frequency per day, time for chewing, and style of chewing, after obtaining oral consent of participant without considering their gender, religion, caste, and economic condition.

TOOLS FOR DATA COLLECTION:

All two thousand ten study participants were screen for presence of oral sub mucous fibrosis. For that first of all oral consent taken from each participant after that each participant was questioned as per proforma to obtain detail history of duration of the chewing habit, frequency per day, time of chewing, style of chewing habit.

Presence of blanching fibrous bands was noted for each subject. Labial, buccal mucosa retro molar areas & soft palate were palpated for the presence of fibrous bands. A thick, vertical, continuous band like structure felt in the buccal mucosa was considered as a fibrous band.

Severity of OSMF was assessed as per the clinical staging given below.

Stage I (Early OSMF): Mild blanching. No restriction of mouth opening or tongue protrusion and burning sensation only on taking spicy food or hot food.

Stage II (Moderate OSMF): Moderate to severe blanching. Mouth opening reduced by 33% Burning sensation even in the absence of stimuli Presence of palpable fibrous bands.

Stage III (Severe OSMF): severe burning sensation interfering with patient's routine. More than 66%

reduction of mouth opening, tongue may be fixed (impaired tongue movements). Ulcerations on the oral mucosa and the presence of thick palpable fibrous bands.

OBSERVATIONS AND RESULT

In two thousand ten habitual chewers the prevalence of oral sub mucous fibrosis was found 7.3 (146 out of 2010) with a male to female ratio of 5.63: 1.

Out of 146 OSMF patient, 67(45.8%) had stage I, 69(47.2%) had stage II, And 10(6.8%) had stage III disease.

With regard to age among the 146 OSMF patient age group 20-40 had minimum (11) , age group 40-60 had max (105) no of patients. The age criteria according to the clinical staging are summarized in the table No.1

Table 1: Age group in various clinical stages of OSMF patients

| Clinical Stage | Age | | |
|----------------|-------|-------|-----|
| | 20-40 | 40-60 | 60+ |
| I | 11 | 50 | 8 |
| II | | 51 | 18 |
| III | | 4 | 6 |

With regard to duration of tobacco chewing in 146 OSMF Patients, the patients who chew tobacco more than 15 yrs. are maximum. The duration of tobacco chewing according to clinical staging are summarized in the table No. 2

Table 2: Duration of chewing in various clinical stages of OSMF patients

| Clinical Stage | Duration of Tobacco chewing | |
|----------------|-----------------------------|--------|
| | 10-15 yr | 15+ yr |
| I | 11 | 56 |
| II | | 69 |
| III | | 10 |

With regard to frequency of chewing per day in 146 OSMF patients the patients who chew tobacco 5-10 times/day are maximum as this habit is followed by maximum tobacco chewers. But in survey study it is found

that the maximum frequency of chewing causes more OSMF in patients.

The frequency of tobacco chewing per day according to clinical staging is summarized in table no 3.

Table 3: Frequency of chewing per day in various clinical stages of OSMF patient

| Stages | Frequency of chewing per day | | | |
|--------|------------------------------|------|-------|-----|
| | 3-5 | 5-10 | 10-15 | 15+ |
| I | 16 | 27 | 21 | 2 |
| II | 17 | 29 | 18 | 6 |
| III | 3 | 2 | 3 | 2 |

With regard to time of chewing in 146 OSMF patients who chew for 5-10 min are maximum. But overall survey

shows that the more time you keep tobacco in your mouth it shows maximum prevalence of OSMF.

Table 4: Time of chewing tobacco according to clinical staging

| Stages | Time of chewing | | |
|--------|-----------------|----------|---------|
| | 3-5 min | 5-10 min | 10+ min |
| I | 6 | 43 | 18 |
| II | 4 | 40 | 25 |
| III | 1 | 4 | 5 |

With regard to style of tobacco chewing it shows that who keep tobacco maximum time in mouth were suffer more

with OSMF. Also it is observe that the subject who sallow the tobacco have more chances of OSMF.

Table 5: The style of chewing tobacco according to clinical staging

| Stages | Style of tobacco chewing | | | |
|--------|--------------------------|------------|----------------------|-------------------------|
| | Spiting | Swallowing | Keep in mouth & spit | Keep in mouth & swallow |
| I | 5 | 1 | 54 | 7 |
| II | 2 | 1 | 60 | 6 |
| III | | 1 | 5 | 4 |

DISCUSSION

Tobacco:

The world Health organization named tobacco as the world's single greatest preventable cause of death in 2008.⁽⁸⁾

Every year about 6.7 million tons of tobacco produced throughout the world. The top producers of tobacco are China (39.6%), India (8.3%), Brazil (7.0%) & The United States (4.6%)⁽⁹⁾⁽¹⁰⁾⁽¹¹⁾⁽¹²⁾

In India about 0.25% of cultivated land is used for tobacco production. Registration of farmers for tobacco production is mandatory but still more than those non registered farmers cultivate tobacco and sale in black market to save taxes.⁽¹³⁾

Tobacco production requires the use of large amounts of pesticides. These pesticides often harm tobacco farmers because they are unaware of the health effects & proper safety protocol for working with pesticides. These pesticides along with fertilizers end up in the soil, waterways and food chain.⁽¹⁴⁾⁽¹⁵⁾

Tobacco is consumed in many forms like chewing tobacco, *Beedi*, cigars, cigarettes, *Gutkha*, *Hookah* and Snuff etc.⁽¹⁶⁾

Tobacco use is increasing in developing & poor countries. Along with active tobacco smokers it is harmful for non-smokers in the form of secondhand smoke which kills around 46,000 non-smokers every year.⁽¹⁷⁾

All forms of tobacco advertising are banned in many countries including India. The 1st legislation regarding tobacco in India was the cigarettes 1975 by regulation of production, supply and distribution Act

1975 which is extended in 2003 with other tobacco products by prohibition of advertisement and regulation of trade and commerce, production, supply and distribution Act 2003. It came into force on, May 2004. The act extends to the whole India and is applicable to all productions containing tobacco in any form. Prohibition of sale of tobacco product in an area within 100 yards of any educational institutions was brought into force from 1 Dec. 2004.⁽¹⁸⁾⁽¹⁹⁾⁽²⁰⁾

OSMF is a chronic premalignant condition in which oral cavity characterized by progressive fibrosis of the sub mucosal tissues. The condition is linked with oral cancer and is associated with tobacco chewing.⁽²¹⁾

The main symptoms of OSMF are the mucosa feels lethargy with palpable fibrotic bands. In advanced stage oral mucosa losses its elasticity and becomes rigid.⁽²²⁾

The main cause for OSMF is chewing tobacco or *pan masala* or oreanut & also other causes included such as Immunological disease, extreme climatic conditions, prolonged deficiency to iron & vitamin in the diet.⁽²²⁾

In *Ayurveda* we can compare the OSMF with the *Vidari* which is described in *shushruthasamhita* by *shushrutacharya*. The features of *Vidari* in classification of diseases of mouth and throat suit the symptomatology of OSMF.⁽²³⁾

In this study it is found that 7.3% prevalence of oral sub mucous fibrosis among habitual tobacco chewers of the Nashik district. Previous reports from other states in India and neighboring Asian countries revealed about similar prevalence.

In this study stage I (45.8%), stage II (47.2%) and stage III (6.8%) OSMF patients were found while other study from India involving 50 patients, found stage I disease in 9% in stage II 39% and stage III 52%. The difference could be due to the fact that this study is a population screening study which revealed majority of patients in asymptomatic stage where others studied the OSMF patients attending hospital who visit for OSMF treatment.

This study reports a variation in clinical staging between poor economic condition and better economic condition. The patients in poor economic condition had more stage II oral sub mucous fibrosis while others had more stage I oral sub mucous fibrosis predominantly. This may be due to lack of awareness and paucity of adequate professional care. Other social and environmental factors like nutritional deficiency, deprived socio-economic status, poor education. However, in this survey we did not study the effect of these factors in our study population. ⁽⁷⁾

In this study it is found that male female ratio is 5.6:1 while other study shows 6.5: 1 ratio in a series of 239 patients reported by. The higher involvement of males in all studies reflects their easy access to the abusive habits when compared with females.

In this study it is found that oral sub mucous fibrosis was common in 40-60 year of both sexes while other study shows it is common in 20-40 year. This may be due to this study is based only on tobacco chewing while other consider *gutakha*, areca nut, *pan masala* chewing also. It is found that there is marked increase in *gutakha* chewing in Younger over tobacco chewing due to the easy availability of attractive, tiny, multi colored *gutakha* packets.

In this study it is observe that restricted mouth opening in 79 patients. The fibrous band were palpable mostly in buccal mucosa in stage II oral sub mucous fibrosis patients and retromolar area in stage III oral sub mucous fibrosis patient al also reported that fibrosis was more in the buccal vestibule followed by retromolar area and the soft palate. The patterns of blanching or formation of fibrous band depend largely on the style of chewing. Whether it is swallowed

or spited out, duration of addiction and the period of contact of the tobacco with specific site. The tobacco remains in contact for a longer time with buccal mucosa rather than the retro molar area, soft palate, causing localize irritation, thus explaining the findings.

CONCLUSION

This study shows a prevalence of 7.3 % oral sub mucous fibrosis among habitual tobacco chewers in Nashik district. This is continuously rising since last four decades. Public health measures about tobacco use must be strictly imposed.

Also further study can be extended with involving of other oral sub mucous fibrosis causing agents like chewing of *Gutakha*, areca nut, betal quad, malnourishment etc.

REFERENCES

1. Oral fibrosis among teenagers chewing tobacco, areca nut and Panmasala. Babu S., Sesikeran, Bhat R.V. 1997.
2. Heckewelder History, Manners and customs of the Indian Nations who Once Inhabited Pennsylvania.
3. Tobacco: A study of its Consumption in the United States, Jack Jacob Gottsegen, 1940.
4. Kumar, Abhinav; Bagewadi, Anjana; Keluskar, Vaishali; Singh, Mohitpal (2007). "Efficacy of lycopene in the management of oral submucous fibrosis". *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology*.
5. Pindborg, JJ (1989). "Oral submucous fibrosis: a review". *Annals of the Academy of Medicine, Singapore*
6. "WHO Report on the global tobacco epidemic, 2008. World Health Organization, 2008.
7. Habit-associated salivary Ph Changes in oral submucous fibrosis-a Controlled cross-sectional study Donoghue M, Basandi PS, Adarsh H. Madhushankari G S, Selvamani M, Nayak P – J Oral Maxillofac Pthol" www. Jomfp.in.
8. "Oral Health." (2012). World Health Organization. www.who.int.

9. California Natural History Guides: 10 Early Uses of California Plant, By Edward K. Balls University of California Press, 1962 University of California Press.
10. Economic Aspects of Tobacco during the colonial Period 1612-1776. Tobacco. org Retrieved on 2017.
11. Handbook of American Indians North of Mexico.
12. A Counter blast to Tobacco University of Texas.
13. Tobacco Facts – Why is Tobacco So Addictive? Tobaccofacts.org. (2008)
14. Food and Agriculture Organization of the United Nations. “Issues in the Global Tobacco Economy.”
15. “International Tobacco Growers” Association. Tobacco farming: sustainable alternatives? Volume 2.
16. Environment and Health by Adv. Vijay Hiremath.
17. India to declare all places of work as smoke free.” Spiritindia.com 23-July 2007.
18. “Indian Court Stubs Out Ban On Smoking In Bollywood – Asia – World”. Dalje.com. (2009)
19. Home minister warns of a ban on hookah parlours” Hindustan Times 3 April 2012.
20. “Tobacco Control Act” US Food and Drug Administration.
21. WHO: Guide to epidemiology and diagnosis of oral mucosal disease and conditions. 1977.
22. Krishnamoorthy, Bhuvana; Khan, Mubeen (2013). "Management of oral submucous fibrosis by two different drug regimens: A comparative study". *Dental Research Journal*.
23. Acharya Yadav Sharma “Sushrut Samhita” with nibandhsangraha commented by Dalhanacharya and Nyayachandrika commentary by Gayadasacharya, Varanasi Chomkhamba prakashan 2002, 7th edition.

Source of Support: Nil

Conflict Of Interest: None Declared

How to cite this URL: Shrihas C. Pagare et al:
Retrospective Prevalence Survey Study Of Oral Sub
Mucous Fibrosis Due To Tobacco Chewing In Nashik
District. International Ayurvedic Medical Journal {online}
2018 {cited September, 2018} Available from:
http://www.iamj.in/posts/images/upload/2120_2125.pdf