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Prevalence and treatment of Oral Submucous Fibrosis in a known population

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Abstract

Background: This study was conducted to assess the prevalence and treatment of Oral Submucous Fibrosis in a known population.

Material and methods: This study comprised of 100 subjects in a known population. The subjects had been informed about the procedure and had been asked for consent. The subjects who were willing to participate in the study and who were ready to give consent had been included in the study while those who were not willing to participate had been excluded. The subjects underwent intraoral examination. The findings were noted. Statistical analysis had been conducted using SPSS software.

Results: In this study there were 100 subjects out of which 40 were females and 60 were males. OSMF was present in 17 subjects and was absent in 83 subjects. The prevalence of the condition was 17%.

Conclusion: The prevalence of OSMF in this study was 17% and the treatment included dexamethasone and hyaluronidase enzyme which were injected submucosally into the fibrotic bands weekly for 6-8 weeks. Also, antioxidants like alpha lipoic acid and lycopene were commonly used as first line of treatment. Also, zinc acetate tablets for 4 months, 50 mg three times daily, and vitamin A 25,000 IU, once daily were prescribed with regular follow-up at an interval of 1 month.

Keywords: OSMF, prevalence, treatment

Introduction

In ancient medicine, Shushrutha described a condition, “vidari” under mouth and throat diseases. He noted progressive narrowing of mouth, depigmentation of oral mucosa, and pain on taking food. These features precisely fit in with the symptomatology of oral submucous fibrosis.¹ Schwartz (1952) for the first time reported a case of “atrophica idiopathica tropica mucosae oris” occurring in Indians in East Africa. Lal and Joshi (1953) first described this condition in India. Joshi coined the term “oral submucous fibrosis (OSMF).”² Pindborg and Sirsat (1966) described histologically, the four consecutive stages of the OSMF.³ 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 after cessation of the habit could not occur.⁴

The magnitude of the situation can be gauged by facts stated in a 2004 review that India ranks the highest among all the registries in the world for incidence of oral cancer with 75,000--80,000 cases reported each year. For many years, this condition had been confined to countries like India, Pakistan, Bangladesh, etc., but now due to higher rates of immigration this condition is being reported from Western countries as well.⁵⁻⁷

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Material and methods

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Results

Table 1: Gender-wise distribution of subjects

Gender	Number of subjects	Percentage
Males	60	60%
Females	40	40%
Total	100	100%

In this study there were 100 subjects out of which 40 were females and 60 were males.

Table 2: Prevalence of OSMF

Prevalence	Number of subjects	Percentage
Absent	83	83%
Present	17	17%
Total	100	100%

OSMF was present in 17 subjects and was absent in 83 subjects. The prevalence of the condition was 17%.

The main treatment of this condition was dexamethasone and hyaluronidase enzyme which were injected submucosally into the fibrotic bands weekly for 6-8 weeks. Also, antioxidants like alpha lipoic acid and lycopene were commonly used as first line of treatment. Also, zinc acetate tablets for 4 months, 50 mg three times daily, and vitamin A 25,000 IU, once daily were prescribed with regular follow-up at an interval of 1 month.

Discussion

Blanching and stiffness of the oral mucosa is the most common clinical characteristic of oral submucous fibrosis. Histologically, the oral connective tissue becomes hyalinized and the overlying epithelium markedly atrophic.⁸ Various studies have reported areca nut/betel quid

to be the most important etiological factor for the causation of OSMF. Various epidemiological, observational, case control, experimental and interventional studies have strongly shown the association between OSMF and areca nut.⁹⁻¹⁴ Collagen synthesis and proliferation of fibroblasts stimulated by the alkaloids and flavonoids (arecoline, arecaidine, tannins and catechins) can act both as a chemical and physical irritant to oral mucosa.

The most common initial symptoms are burning sensation due to dry mouth, blanched oral mucosa and frequent ulceration. Increased fibrosis in this condition results in blanching of mucosa and marble like appearance.

In the later stages, fibrous bands are formed which causes trismus, difficulty in mastication, speech, swallowing and maintaining oral hygiene. Long-term follow-up studies over a period of 17 years shows a rate of malignant transformation of OSMF in the range of 7–13%.^{15,16}

Medical management is the treatment of choice in early stages of this chronic precancerous condition. A patient has to undergo dietary habit counselling and stop intaking arecanut, tobacco and spicy food. Patient's diet should include proteins, vitamin D, E and B complex and micronutrients.

Intralesional steroids such as dexamethasone are the main treatment modality. These are injected submucosally into the fibrotic bands weekly for 6 to 8 weeks with regular monitoring of mouth opening. They are commonly used with hyaluronidase, a proteolytic enzyme.

Antioxidants like alpha lipoic acid and lycopene are also commonly used as first line of treatment. Lycopene is anti-proliferative, anti-inflammatory and anti-oxidant. Antioxidants restrict the damage caused by reactive free radicals to cells and cellular components.^{17,18}

Novel therapies include zinc acetate tablets for 4 months, 50 mg three times daily, and vitamin A 25,000 IU, once daily, with regular follow-up at an interval of 1 month.¹⁹ Also, Salvianolic acid B, an antifibrotic, which is used with triamcinolone acetonide represents the promising newest mode of management. Salvianolic acid B has antifibrosis, anticoagulation, antitumor activities.²⁰ Turmeric, immunomodulatory drug levamisole, vasodilator pentoxifylline, placental extract, interferon gamma, spirulina, colchicine, herbal antioxidants oxitard and Aloe vera are also promising in the management of this chronic disease.²¹⁻²³

Antioxidant property of spirulina is attributed to high amount of beta carotene and superoxide dismutase. Colchicine has antifibrotic and anti-inflammatory properties.²³

This study was conducted to assess the prevalence and treatment of Oral Submucous Fibrosis in a known population.

In this study there were 100 subjects of which 40 were females and 60 were males. OSMF was present in 17 subjects and was absent in 83 subjects. The prevalence of the condition was 17%. The main treatment of this condition was dexamethasone and hyaluronidase enzyme which were injected submucosally into the fibrotic bands weekly for 6-8 weeks. Also, antioxidants like alpha lipoic acid and lycopene were commonly used as first line of treatment. Also, zinc acetate tablets for 4 months, 50 mg three times daily, and vitamin A 25,000 IU, once daily were prescribed with regular follow-up at an interval of 1 month.

Srivastava R et al (2019)²⁴ evaluated the prevalence of OSMF among betel nut chewers in different age groups in patients visiting Dental College and Hospital Kanpur city, India. A total of 860 patients of OSMF visiting the dental outpatient clinic of the Department of Oral Medicine and Radiology Rama Dental College Hospital and research center, Kanpur over a period of 24 months (1 January 2016 to 31 December 2018) 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. The high prevalence of OSMF requires significant awareness and management of these lesions among general population. Primary healthcare professionals and dentists should be knowledgeable and familiar with the etiopathogenesis, clinical presentation, diagnosis, and management of these lesions.

Conclusion

The prevalence of OSMF in this study was 17% and the treatment included dexamethasone and hyaluronidase enzyme which were injected submucosally into the fibrotic bands weekly for 6-8 weeks. Also, antioxidants like alpha lipoic acid and lycopene were commonly used as first line of treatment. Also, zinc acetate tablets for 4 months, 50 mg three times daily, and vitamin A 25,000 IU, once daily were prescribed with regular follow-up at an interval of 1 month.

References

1. Gupta SC, Yadav YC. "MISI" an etiologic factor in oral submucous fibrosis. *Indian J Otolaryngol.* 1978;30:5–6.
2. Murti PR, Bhonsle RB, Gupta PC, Daftary DK, Pidborg JJ, Mehta FS. Etiology of oral submucous fibrosis with special reference to the role of arecanut chewing. *J Oral Pathol Med.* 1995;24:145–52.
3. Pindborg JJ, Sirsat SM. Oral submucous fibrosis. *Oral Surg Med Oral Pathol.* 1966;22:764–79.
4. 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.
5. 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.
6. 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.
7. 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.
8. Pindborg JJ, Sirsat Satyavati M. Oral submucous fibrosis. *Oral Surg Oral Med Oral Pathol.* 1966;22:764–9.
9. Seedat HA, Van Wyk CW. Betel nut chewing and oral submucous fibrosis in Durban. *S Afr Med J.* 1988;74:572–5.
10. Pindborg JJ, Murti PR, Bhonsle RB, Gupta PC, Daftary DK, Metha FS. Oral submucous fibrosis as a precancerous condition. *Scand J Dent Res.* 1984;92:224–9.
11. Sinor PN, Gupta PC, Murti PR, Bhonsle RB, Daftary DK, Mehta FS, et al. A case-control study of oral submucous fibrosis with special reference to the aetiologic role of areca nut. *J Oral Pathol Med.* 1990;19:94–8.
12. Maher R, Lee AJ, Warnakulasuriya KA, Lewis JA, Johnson NW. Role of areca nut in the causation of oral submucous fibrosis: A case control study in Pakistan. *J Oral Pathol Med.* 1994;23:65–9.
13. Shah N, Sharma PP. Role of chewing and smoking habits in the aetiology of oral submucous fibrosis (OSF): A case control study. *J Oral Pathol Med.* 1998;27:475–9.

14. Ajit A, Rosin MP, Zhang L, Sumanth KN. Oral submucous fibrosis, a clinically benign but potentially malignant disease: Report of 3 cases and review of the literature. *J Can Dent Assoc.* 2008;74:735–40.
15. Ahher V, Ali FM, Bhushan P, Mudhol A, Prasant MC, Suryavanshi H. Oral submucous fibrosis: Comparing clinical grading with duration and frequency of habit among areca nut and its products chewers. *J Cancer Res Ther.* 2013;9:471–6.
16. Rao RN, Villa A, More BC, Jayasinghe RD, Kerr AR, Johnson NW. Oral submucous fibrosis: A contemporary narrative review with a proposed inter-professional approach for an early diagnosis and clinical management. *J Otolaryngol Head Neck Surg.* 2020;49:3.
17. Arakeri G, Brennan PA. Oral submucous fibrosis: An overview of the aetiology, pathogenesis, classification, and principles of management. *Br J Oral Maxillofac Surg.* 2013;51:587–93.
18. Yoithapprabhunath TR, Maheswaran T, Dineshshankar J, Anusushanth A, Sindhuja P, Sitra G. Pathogenesis and therapeutic intervention of oral submucous fibrosis. *J Pharm Bioall Sci.* 2013;5(Suppl 1):S85–8.
19. Dhariwal R, Mukherjee S, Mohanty SP, Chakraborty A, Ray GJ, Chaudhuri K. Zinc and vitamin A can minimise the severity of oral submucous fibrosis. *BMJ Case Rep.* 2010.
20. Jiang WX, Zhang Y, Yang KS, Zhang H, Lu K, Sun LG. Efficacy of salvianolic acid B combined with triamcinolone acetonide in the treatment of oral submucous fibrosis. *Oral Surg Oral Med Oral Pathol Oral Radiol.* 2013;115:339–44.
21. Mulk BS, Deshpande P, Velpula N, Chappidi V, Chintamaneni RL, Goyal S. Spirulina and pentoxifylline - a novel approach for treatment of oral submucous fibrosis. *J Clin Diagn Res.* 2013;7:3048–50.
22. Krishnamoorthy B, Khan M. Management of oral submucous fibrosis by two different drug regimens: A comparative study. *Dent Res J (Isfahan)* 2013;10:527–32.
23. Patil S, Halgatti V, Maheshwari S, Santosh BS. Comparative study of the efficacy of herbal antioxidants oxitard and aloe vera in the treatment of oral submucous fibrosis. *J Clin Exp Dent.* 2014;6:e265–70.
24. 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 Aug 28;8(8):2612-2617.