ISSN No:-2456-2165

Oral Submucous Fibrosis with Angular Cheilitis – A Case Scenario with Present Concepts on Aetiology and Management

Dr. N. Santana M.D.S
Professor and Head
Department Of Oral Medicine and Radiology,
Ragas Dental College and Hospital, Chennai-119

Dr. B. Elamparithi
3rd Year Post Graduate
Oral Medicine and Radiology
Ragas Dental College and Hospital, Chennai-119

Dr. J. Sathish Kumar
3rd Year Post Graduate
Oral Medicine and Radiology
Ragas Dental College and Hospital, Chennai-119

Dr. B. Pavana
3rd Year Post Graduate
Oral Medicine and Radiology
Ragas Dental College and Hospital, Chennai-119

Abstract:- Oral submucous fibrosis (OSMF) is a increased risk of precancerous condition characterized by alterations in the connective tissue fibers of the lamina propria and deeper parts leading to stiffness of the mucosa and restricted mouth opening. OSMF is a chronic progressive disease that affects the oral mucosa as well as the pharynx and the upper two-thirds of the esophagus. The causative factors of OSMF are areca nut chewing, ingestion of chilies, genetic factors, immunologic processes, nutritional deficiencies, and others. This study aims to discuss about the unique, case of OSMF with angular cheilitis.

I. INTRODUCTION

OSMF (Oral Submucosal Fibrosis) is a potentially malignant disease that causes progressive epithelial fibrosis of oral soft tissues, mainly affects the population of Indian subcontinent. It is a chronic, insidious, and incapacitating disease of the oral mucosa and oropharynx ,which occasionally occurs in the larynx. OSMF, results in a gradual deprivation of organizational activity, significant stiffness, and, eventually, the inability to open the mouth[1].

The World Health Organization's (WHO) definition of oral precancerous lesions, "the systemic pathological condition of the oral mucosa associated with a significant increase in cancer risk," is very consistent with the features of OSMF[3]. It is characterized by inflammation, increased submucosal collagen deposition, and the formation of fibrotic bands in the oral and para oral tissues[2].

Continuous irreversible fibrosis of the submucosa causes closed jaws, unable to eat the general spicy foods that people in the population who are accustomed to, and has increased risk of malicious transformation[3]. Schwartz coined the term in 1952 after describing it as an oral fibrosis condition. "Atrophica idiopathica tropica muticae oris" is a type of atrophica idiopathica tropica muticae oris[2].

Angular cheilitis (AC) or perleche is an inflammatory reaction at the corners of the mouth that is clinically characterized by cracks, erythematous inflammation with moist maceration, and ulceration on the commissures of the lip[4].

Angular cheilitis is a wet environment for microbial growth at the commissures of the lip licking ,such as habitual lip licking, thumb sucking or biting the corners of the lip, and drooping of tissues at the angles of the mouth for long periods of time has been play a role in development of AC[4]

This condition is often associated with pain, irritation, and occasionally bleeding, and it can impair mastication and speaking[5]. Both the oral submucous fibrosis and the angular cheilitis in this case have a 5-year duration.

II. CASE REPORT

A 55 year old male patient came to the department of oral medicine with a chief complaint of missing tooth in his upper front tooth region for the past 5 years. On general examination pallor of conjunctiva with history of peptic ulcer under medication for past 5 years, also have history of burning sensation while consuming hot and spicy foods .On intra oral examination of right buccal mucosa appears pale and blanched with inflamed hyperkeratotic patch was present, which was extending from retromolar pad region to commissure of lip, measuring about 4x1cm in size and also white slough surrounded by erythematous zone in relation to 48 and examination of left buccal mucosa appears pale and blanched with inflamed hyperkeratotic patch was present ,which was extending from retromolar pad region to commissure of lip, approximately size measuring about 4x2cm and also a white slough surrounded by erythematous zone in relation to 38.

ISSN No:-2456-2165

On palpation of both right and left buccal mucosa show the presence of fibrotic vertical bands extending from retromolar pad to commissure of lip region at the level of occlusal plane, which is firm ,leathery in consistency and with no other secondary changes.

On examination of tongue mucosa show smooth ,glossy erythematous ,de-papillated appearance in anterior 2/3rd and posterior 1/3rd region with hyperpigmentation and blanching. All protrusive, retrusive, upward, right and left lateral movements are normal. And palpation show the presence of horizontal fibrotic bands present in lateral border of tongue, which is firm, leathery in consistency. There is no tenderness on palpation with no secondary changes present.

Examination of lip mucosa reveal presence of ulcerative fissures in right and left corner of the lip, there is tenderness on palpation with no secondary changes present .Upper and lower labial frenum, uvula, and floor of the mouth also appears normal.

Based on the clinical features and according to WHO classification (Passi D et al 2017) our case is classified as ORAL SUBMUCOUS FIBROSIS GRADE- II[23].

III. DIFFERENTIAL DIAGNOSIS

Regarding the clinical findings of the disease such as difficulty in mouth opening, the diagnosis that can be thought of are localized scleroderma, OSMF and erythroplakia. But after deliberating the history of having habit of chronic alcoholism and looking at the clinical signs and symptoms, OSMF was confirmed as provisional diagnosis[20]. patient was advised for blood investigations and also for biopsy.

Blood investigation show increased iron binding capacity which indicates iron deficiency anemia and other blood parameters are normal. Peripheral smear show hemoglobin level of 8.2mg/dl. Patient recalled after blood investigations for biopsy. Incisional biopsy was performed in the region of right buccal mucosa at the occlusal level under local anesthesia and sutures were placed. The biopsy tissue was sent to the histopathological examination.

The given soft tissue section shows an atrophic Para keratinized stratified squamous surface epithelium in association with a fibro vascular connective tissue exhibiting a dense diffuse mixed inflammatory cell infiltrate and mast cells. The connective tissue also exhibits focal aggregation of inflammatory cells and muscle fibers in the deeper part of the tissue section. The focal areas of surface epithelium exhibits basilar hyperplasia, hyperchromatism, cellular vacuolation, basal cell degeneration and effacement of connective tissue interface. So we came to the histopathological diagnosis of epithelial dysplasia with mild grading. Hence with **final diagnosis of oral submucous fibrosis with angular cheilitis**.

Patient was under conservative management for 1 month and patient is prescribed with TAB.ZINCOVIT and TAB.SMFIBRO once daily for 30 days and triamcinolone 1 % and DOLO gel CT 10 gm for topical application. Pt reviewed after 4 months and Healing was satisfactory for both oral submucous fibrosis and angular cheilitis , mouth opening was improved and also burning sensation was reduced .

IV. DISCUSSION

Oral submucous fibrosis was first reported in India as 2 cases in 1953 and also first coined the term by joshi[6] Oral submucous fibrosis (OSF) is a high risk precancerous condition characterized by changes in the connective tissue fibers of the lamina propria and deeper parts leading to stiffness of the mucosa and restricted mouth opening[7.]The most common initial symptoms of OSF are ulceration, xerostomia, a burning sensation, and limited ability to open the mouth. These symptoms interfere with the daily life basis to the patient and may leads to complications[8&9]

The pathogenesis of oral submucous fibrosis is not well elucidated, but it is believed to be a disease of multifactorial origin. Factors include areca nut chewing, ingestion of chilies, genetic factors, immunologic processes, nutritional deficiencies, and others. These are observed among patients that chewing of areca nut in the form of pan masala or gutka for a long period of time and it causes trauma to the oral mucosa, which leads to primary inflammatory reaction (mucositis).

As numerous studies have shown, inflammatory cytokines are the initial process in oral submucous fibrosis, this is most likely the trigger mechanism in the early stages of the disease[10]. OSMF have a characteristic histological appearance with complete lack of rete ridges and severely atrophied epithelium. There may be varying degrees of epithelial atypia. The underlying lamina propria is severely hyalinized, with collagen homogeneity. It's possible that cellular elements and blood vessels will be diminished[11.] By seeing the clinical feature angular Cheilitis we further diagnosed and confirmed that the patient has iron deficiency anemia.

Angular cheilitis is an inflammatory disorder in which one or both angles of the mouth are erosively inflamed. Erythema, scaling, fissuring, and ulceration are common symptoms. Cheilitis can be caused by a number of things, including nutritional deficits, local and systemic causes, and pharmacological adverse effects.[12&13]

Nutritional deficiencies such as iron insufficiency and deficits of the B vitamins riboflavin (B2), niacin (B3), pyridoxine (B6), and cyanocobalamin (B12), account for 25% of all instances of angular cheilitis (B12)[14]. Isotretinoin, sorafenib (antineoplastic kinase inhibitor), and ointments or creams like neomycin sulfate–polymyxin B sulphate, bacitracin, idoxuridine, and steroids can all cause angular cheilitis[15].

Lycopene is a type of antioxidant found mostly in tomatoes. It's an acyclic -carotene isomer. Its inhibitory effect on the abnormal proliferation of human abnormal fibroblasts, as well as an elevation of lymphocyte stress tolerance, have made it useful in OSMF. Because of its high amount of conjugated dienes, lycopene is one of the most powerful antioxidants. It has a stronger ability to quench singlet oxygen than -carotene and -tocopherol.[16]

Epithelial atrophy results from juxta-epithelial inflammation, increased fibrosis, and weakened vasculature, resulting in a burning sensation in the oral mucosa. Lycopene aids epithelium regeneration by reducing the inflammatory and fibrotic processes[17]. Lycopene is safe and has no side effects when consumed in a dietary dose[18], and our research found that 8 mg/day in two divided doses is a safe dose of lycopene with no side effects. As a result, lycopene is regarded as a successful, safe, and dependable drug in OSMF.

Short-acting (hydrocortisone), intermediate-acting (triamcinolone), and long-acting (betamethasone and dexamethasone) glucocorticoids are used to treat OSMF. Inhibition of inflammatory factor and increased apoptosis of inflammatory cells, resulting in partial relief of early stage OSMF symptoms. Also, twice weekly submucosal injections of chymotrypsin (5000 IU), hyaluronidase (1500 IU), and dexamethasone (4 mg) for 10 weeks. The current notion is to employ mouth opening exercises followed by intralesional injections into the fibrotic band every two weeks for 6 to 8 weeks[25].

IFN is used to decrease fibroblast proliferation and collagen synthesis while increasing collagenase production and antifibrotic cytokines[25]. When intralesional IFN was given to OSMF patients, it resulted in improved mouth opening, mucosal suppleness, and a reduction in burning sensation[25]. As an additional therapy for OSMF, pentoxifylline 400mg was used three times daily for 7 months. Pentoxifylline is a methylxanthine derivative with vasodilating characteristics, which promotes mucosal vascularity. It suppresses leukocyte activity, changes fibroblast physiology, and stimulates fibronylysis[25].

Ferrous iron supplements in the form of ferrous fumarate, ferrous sulphate, and ferrous gluconate can be used to treat angular cheilitis[24]. Because oral iron supplements are safe, inexpensive, and effective in restoring iron balance in the average chronic gastrointestinal bleeding patient[24], they are considered first-line therapy.

Due to the grading of our case we suggest conservative treatment over the surgery.

After persuading and counselling the patient to quit the habit, a combination of medical therapy was recommended, which included vitamin B complex capsules, antioxidants, and iron supplements, as well as oral physiotherapy, which assisted in tissue remodeling to enhance mouth opening[20].

V. OUTCOME AND FOLLOW-UP

After a four-month follow-up, the patient's mouth opening had increased by 10 mm, owing to tissue remodeling achieved with a combination of medical therapy and oral physiotherapy, which included vitamin B complex capsules, antioxidants, and iron supplements. There was also a reduction in the burning sensation when eating, and there were no clinical changes in the state of the diffuse leukoplakic lesion on both the right and left buccal mucosa. The patient was scheduled for three more follow-up visits at three-month intervals, and he was told to stick to the same treatment plan until he recovered[20]

VI. CONCLUSION

Asians have a betel nut chewing habit, which contributes to OSMF. OSF disrupts collagen homeostasis, increasing collagen production while decreasing collagen clearance and causing structural and compositional abnormalities[19]

The main problem in treating OSMF is that the patient is unaware of the areca nut and tobacco's side effects and carcinogenic potential[20]. Many protocols for treating OSMF symptoms have been proposed, and treatment regimens are still being developed[21]. Angular cheilitis, which typically affects the lower lip with sparing of the corners of the mouth, as well as dryness and cracking of the lips due to nutritional deficiencies. Our patient's main clinical manifestation of iron deficiency anemia was angular cheilitis, emphasizing the importance of looking for iron deficiency in patients who do not have a more obvious cause[14] A 2 weeks follow up of Angular cheilitis patients with is recommended. This enables the health care provider to analyze the success/effectiveness of the treatment given[22].

➢ *Pre Operative Pictures*

Figure 1:- Presence of bands in the left buccal mucosa

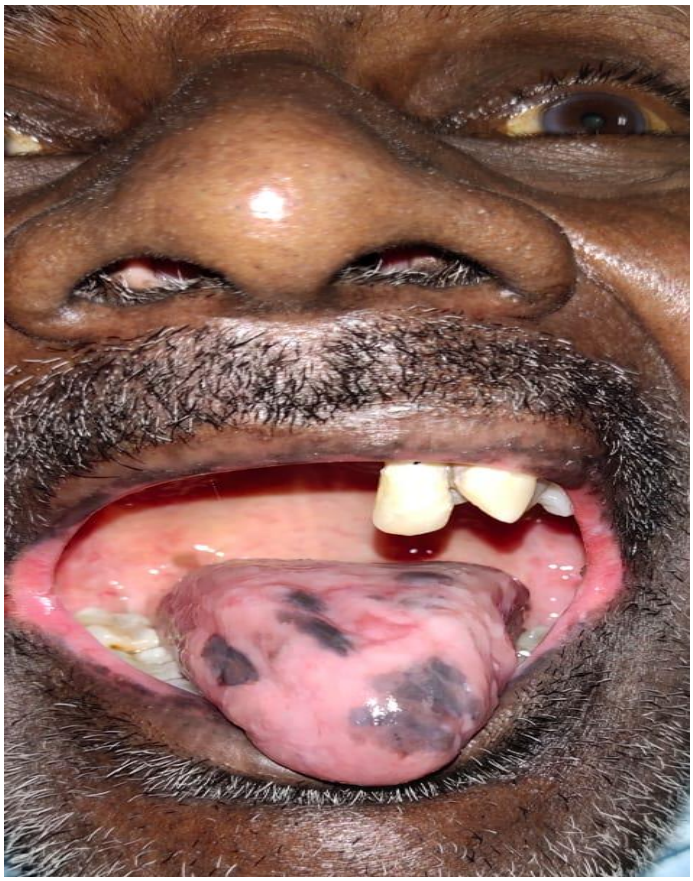
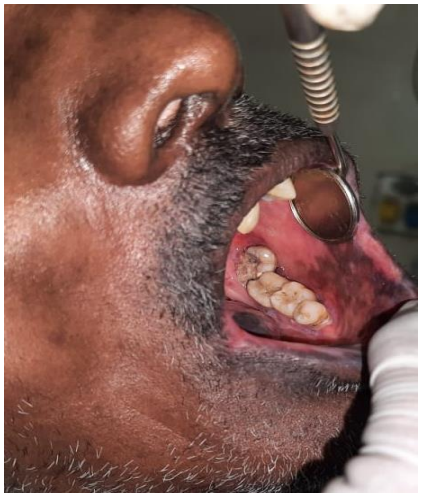


Figure 2:- Presence of angular chielitis

➢ *Biopsy Site*

Figure 3:- Satisfactory healing in post operative pictures



REFERENCES

[1]. Chole RH, Patil R. Drug treatment of oral sub mucous fibrosis–a review. Int J Contemp Med Res. 2016;3(4):996-8.

[2]. Oral submucous fibrosis: a contemporary narrative review with a proposed interprofessional approach for an early diagnosis and clinical management Naman R. Rao1* , Alessandro Villa2,3, Chandramani B. More4 , Ruwan D. Jayasinghe5 , Alexander Ross Kerr6 and Newell W. Johnsonan doi.org/10.1186/s40463-020-0399-7

[3]. Arakeri G, Brennan PA. Oral submucous fibrosis: an overview of the aetiology, pathogenesis, classification, and principles of management. British Journal of Oral and Maxillofacial Surgery. 2013 Oct 1;51(7):587-93.

[4]. Angular Cheilitis - An Updated Overview of the Etiology, Diagnosis, and ManagementInternational Journal of Dentistry and Oral Science (IJDOS) ISSN: 2377-8075Anitha Krishnan Pandarathodiyil 1* , Sukumaran Anil 2 , Srinivas Prasad Vijayan 3

[5]. Diet nutrition management for treatment of angularcheilitis deseases in children I Gusti Ayu Ari Agung 1 , Dewa Made Wedagama 2 , G AA Hartini 3

[6]. Haider SM, Merchant AT, Fikree FF, Rahbar MH. Clinical and func- tional staging of oral submucous fibrosis. Br J Oral Maxillofac Surg. 2000;38(1):12-15.

[7]. Hazarey VK, Erlewad DM, Mundhe KA, Ughade SN.Oral submucous fibrosis: study of 1000 cases from central India. Journal of oral pathology & medicine. 2007 Jan;36(1):127.

[8]. Fang, C.Y.; Hsia, S.M.; Hsieh, P.L.; Liao, Y.W.; Peng, C.Y.; Wu, C.Z.; Lin, K.C.; Tsai, L.L.; Yu, C.C. Slug mediates myofibroblastic differentiation to promote fibrogenesis in buccal mucosa. J. Cell. Physiol. 2019, 234, 6721–6730

[9]. Angadi, P.V.; Rekha, K.P. Oral submucous fibrosis: A clinicopathologic review of 205 cases in Indians. Oral Maxillofac. Surg. 2011, 15, 15–19

[10]. Ray JG, Chatterjee R, Chaudhuri K. Oral submucous fibrosis: a global challenge. Rising incidence, risk factors, management, and research priorities. Periodontology 2000. 2019 Jun;80(1):200-12.

[11]. Kariya P, Khobragade V, Sura S, Singh S. No age predilection for a disease like OSMF. A case report of 5-year-old child. Journal of oral biology and craniofacial research. 2020 Apr 1;10(2):153-7.

[12]. Park KK, Brodell RT, Helms SE. Angular cheilitis, part 2: nutritional, systemic, and drug-related causes and treatment. Cutis 2011; 88(1):27–32. pmid:21877503

[13]. Park KK, Brodell RT, Helms SE. Angular cheilitis, part 1: local etiologies. Cutis 2011; 87(6):289–295. pmid:21838086

[14]. Ayesh MH. Angular cheilitis induced by iron deficiency anemia. Cleve Clin J Med. 2018 Aug 1;85(8):581-2.

[15]. Yang CH, Lin WC, Chuang CK, et al. Hand-foot skin reaction in patients treated with sorafenib: a clinicopathological study of cutaneous manifestations due to multitargeted kinase inhibitor therapy. Br J Dermatol 2008; 158(3):592–596

[16]. Arakeri, G., Patil, S., Maddur, N., Rao US, V., Subash, A., Patil, S., … Brennan, P. A. (2020). *Long-term effectiveness of lycopene in the management of oral submucous fibrosis (OSMF): A 3 year follow-up study. Journal of Oral Pathology & Medicine*Sunderraj S, Sharma R, Agarwal V, Narang P, Reddy YG, Sharma AK. An i

[17]. S, Sharma R, Agarwal V, Narang P, Reddy YG, Sharma AK. An in-vivo study to determine the efficacy of Lycopene as compared to multivitamin preparation on OMFS. J Indian Aca Oral Med Radiol. 2012;24:190-193.

[18]. Sanadi RM, Doshi M, Ambulgekar JR, Khambatta X. Lycopene: it's role in health and disease. Int J Pharm Sci Res. 2012;3(12):4578-4582.

[19]. Yin-Hwa Shih 1,y, Tong-Hong Wang 2,3,4,5,y, Tzong-Ming Shieh 6,* and Yu-Hsin Tseng 7,* Review Oral Submucous Fibrosis: A Review of Etiopathogenesis, Diagnosis, and Therapy.

[20]. Oral submucous fibrosis: a premalignant condition in a 14-year-old Indian girl Anshula Deshpande, Shital Kiran, Steffi Dhillon, Rachappa Mallikarjuna doi:10.1136/bcr-2013-20078.

[21]. Current protocols in the management of oral submucous fibrosis: An update Gururaj Arakeri1 | Kirthi Kumar Rai2 | George Boraks3 | Shekar Gowda Patil4 | Abdulsalam S. Aljabab5 | M.A.W. Merkx6 | Marco Carrozzo7 | Peter A. Brennan8.

[22]. Angular Cheilitis - An Updated Overview of the Etiology, Diagnosis, and Management Anitha Krishnan Pandarathodiyil1*, Sukumaran Anil2, Srinivas Prasad Vijayan3International Journal of Dentistry and Oral Science (IJDOS) ISSN: 2377-8075.

[23]. Clinical Staging of Oral Submucous Fibrosis: A ReviewShivakumar.G.C.,웋and Sahana.S.웎 Departments of 웋Oral Medicine and Radiology, and 웎Public Health Dentistry, People's Dental Academy, People's Group, Bhanpur, Bhopal－462037 (M .P), India.

[24]. Diagnosis and management of iron deficiency anemia in the 21st century Terri D. Johnson-Wimbley and David Y. Graham DOI: 10.1177/ 1756283X11398736.

[25]. Oral Submucous Fibrosis: Current Concepts on Aetiology and Management – A Review Sadiya Khan, Abhishek Sinha, Shiva Kumar1 , Haider Iqbal