

Oral Submucous Fibrosis: A Case Report

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Abstract

Oral Submucous Fibrosis (OSMF) is a chronic, progressive condition of the oral cavity characterized by fibrosis of the submucosal tissues, leading to restricted mouth opening and an increased risk of malignant transformation. This article provides a comprehensive overview of OSMF, including its etiology, pathogenesis, clinical features, diagnosis, and management. The condition is strongly associated with the consumption of areca nut, tobacco, and other irritants, which trigger inflammatory and fibrotic processes. Advances in diagnostic approaches, including histopathology and imaging, are discussed, alongside current therapeutic strategies, such as pharmacological interventions, surgical management, and lifestyle modifications. The review also highlights the need for public awareness and preventive measures to address the burden of OSMF, particularly in regions with high areca nut consumption. This article aims to underscore the clinical challenges and opportunities in managing OSMF while emphasizing the importance of early detection and multidisciplinary care.

Introduction

Oral Submucous Fibrosis (OSMF) is a debilitating, chronic disorder affecting the oral cavity and oropharynx. It is characterized by the progressive fibrosis of the submucosal tissues, leading to rigidity, reduced mouth opening, and severe discomfort, significantly impairing quality of life. First described in 1952 by S.G. Joshi, OSMF has since been recognized as a premalignant condition with a high potential for transformation into oral squamous cell carcinoma, making it a critical area of concern in oral health⁽¹⁾.

The etiology of OSMF is multifactorial, with areca nut consumption identified as the primary causative factor. Other contributors include genetic predisposition, nutritional deficiencies, and exposure to irritants such as tobacco. The pathogenesis involves complex interactions between genetic, environmental, and immune-mediated mechanisms, leading to inflammation, fibroblast activation, and excessive collagen deposition in the oral tissues.

OSMF is predominantly observed in South and Southeast Asian populations, where the cultural practice of chewing areca nut is widespread. However, globalization and migration have contributed to its increasing prevalence in other regions. Early diagnosis is crucial for effective management, as the condition is irreversible and tends to progress without intervention⁽²⁾.

This article aims to provide an in-depth exploration of OSMF, focusing on its etiology, clinical features, diagnostic criteria,

and management strategies. By addressing the gaps in knowledge and public awareness, this study emphasizes the need for targeted prevention, early detection, and a multidisciplinary approach to reduce the burden of OSMF and its associated complications⁽³⁾.

Case Report

- A 27 years old male patient came to the Department of Oral Pathology and Microbiology complains of difficulty in mouth opening and burning sensation since 5 months. Patient was apparently well 5 months back when he noticed a slight reduction in the mouth opening, which gradually increased in severity to the present state. Patient had difficulty in eating and speaking also. H/O burning sensation since last 5 months which aggravates while eating spicy food. There is no history of any oral ulceration. Tobacco habits : He had a habit of chewing tobacco (Rajdarbar) 8-10 packets a day since 5 years. He quit habit 1 month back. There was no documentation of prior biopsy, histopathological examination or treatment to verify the diagnosis. Extraoral examination showed no significant change in the facial form or profile but only sunken face (Figure 1). An intraoral examination revealed a white blanching on both sides of the buccal mucosa extending from lip commissure to retro molar area and also on floor of mouth & soft palate. Shortening of uvula is seen. Fibrous bands are palpable on both sides of the buccal mucosa runs in a vertical direction. Surface is leathery in texture. (Figure 2).



Figure 1: Extra oral examination.



Figure 2: Intraoral examination.

Based on clinical and radiographic examination, a provisional diagnosis was made as Oral Submucous Fibrosis, and an excisional biopsy was performed under local anaesthesia after which the tissue specimen was sent for histopathological examination.

Histopathological examination

• All the bits of soft tissue specimen obtained from the patient were grossed. The specimen was creamish-brown in colour, measuring 0.5 X 0.7 X 0.5cm in size. Irregular in shape. Soft in consistency. (Figure 3).



Figure 3: Grossing

- Microscopically, the section showed Overlying epithelium is hyperorthokeratinized stratified squamous epithelium. Connective tissue exhibits fibrosis with dense bundles of collagen fibers. (Figure 4)

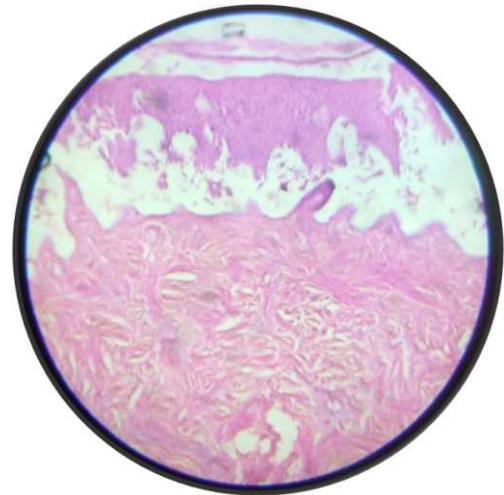


Figure 4: hyperorthokeratinized stratified squamous epithelium. Connective tissue exhibits fibrosis with dense bundles of collagen fibers. (10x view)

Discussions

Oral Submucous Fibrosis (OSMF) is a complex disorder with significant implications for oral health, quality of life, and public health. This discussion explores the multifaceted aspects of OSMF, including its etiology, pathogenesis, clinical challenges, and therapeutic advancements, while emphasizing the gaps in current understanding and areas for future research.

Etiology and Risk Factors

The strong association of OSMF with areca nut chewing underscores the need for targeted prevention strategies. Areca nut contains alkaloids and flavonoids that induce collagen synthesis, leading to fibrosis. Despite public health campaigns, the cultural acceptance and addictive nature of areca nut have limited the success of prevention efforts in endemic regions. Other risk factors, such as tobacco use, nutritional deficiencies, and genetic predisposition, further complicate the disease's prevention and management.

Pathogenesis

The underlying mechanisms of OSMF involve inflammation, oxidative stress, and altered collagen metabolism. Pro-inflammatory cytokines and reactive oxygen species drive fibroblast activation and excessive collagen deposition. Recent advances in molecular

biology have identified biomarkers, such as transforming growth factor-beta (TGF- β), as key players in disease progression. These findings offer potential therapeutic targets but require further validation through clinical studies⁽⁴⁾.

Clinical Challenges

OSMF is challenging to diagnose in its early stages due to nonspecific symptoms. Late-stage presentations, characterized by severe trismus and dysphagia, significantly affect patients' nutritional status, psychological well-being, and social interactions. The condition's premalignant nature adds to the complexity, necessitating regular monitoring for malignant transformation. Standardized staging systems and diagnostic protocols are needed to improve consistency in clinical practice.

Therapeutic Approaches

Management of OSMF remains a significant challenge due to the irreversible nature of fibrosis. Current treatments, including corticosteroids, hyaluronidase, and antioxidants, aim to reduce inflammation and improve mouth opening but offer limited long-term benefits. Surgical interventions, such as fibrotomy or grafting, are often required for advanced cases but carry risks of morbidity. Emerging therapies, such as stem cell-based approaches and molecular inhibitors, hold promise but are still in experimental stages⁽⁵⁾.

Conclusion

OSMF remains a pressing oral health issue with significant challenges in prevention, diagnosis, and management. A multidisciplinary approach, combining clinical expertise, public health initiatives, and research innovations, is essential to address the burden of this condition. By fostering

awareness, advancing therapeutic strategies, and prioritizing early detection, we can mitigate the impact of OSMF on affected populations worldwide.

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