

Incidental Finding of Oral White Lesions Due to Tobacco Chewing - A Case Report

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Abstract

The diagnosis of oral white lesions might be quite challenging. White lesions are only 5% of all oral pathologies. Smokeless tobacco (ST), also known as tobacco chewing, spit tobacco, dip, plug, or chew, is one of the well-documented agents that causes white lesions. The use of ST is associated with a variety of oral cavity lesions, including tooth decay, periodontal disease, tooth loss, leukoplakia, keratosis, oral cancers such as carcinoma-*in situ*, verrucous carcinoma, and invasive squamous cell carcinoma. The prevalence and severity of lesions are dose related. Therefore, it can be best predicted by the amount, frequency, and duration of ST used. This case report highlights an unusual presentation of an adolescent child presenting in the orthodontic retention phase that was originally misdiagnosed as gingival recession due to treatment. A clinical examination of the oral cavity and careful history taken should be routinely performed in every patient presenting at a dental office.

Keywords: Oral pathology, periodontology, white lesions

INTRODUCTION

The diagnosis of oral white lesions may be challenging to many oral health providers (OHPs). Although white lesions represent 5% of all oral pathologies, a number of these lesions carry a substantial risk of malignant transformation. Their malignant potential varies from 0.5% to 100% depending on the course of literature.^[1,2] As a result, white lesions mandate an appropriate, and systematic approach to detection and OHPs play an important role in educating patients, diagnosing oral lesions, and preventing malignancies from developing.

The types of white lesions of the oral cavity vary significantly. Oral leukoplakia (white patch in the oral mucosa) is commonly found in 40%–50% of people who use smokeless tobacco (ST).^[3] In ST, the tobacco is usually positioned against the mucosa of the mouth while the user “sucks” on the tobacco juices allowing the nicotine to be absorbed into the bloodstream without being swallowed and also cause DNA damage to the surrounding tissues.^[4,5] This mode of use allows the most dangerous carcinogen chemicals, tobacco-specific nitrosamines present in tobacco, to enter into the human body.^[6] In 2001, the American Dental Association mentioned that all forms of consuming tobacco were responsible for >75% of deaths due to oral and pharyngeal cancers. According to the Committee

on Energy and Commerce House of Representatives in 2010, millions of people in the United States use ST.^[7,8]

CASE REPORT

A 13-year-old male patient presented for an orthodontic consultation at the Department of Orthodontics, University of Alabama at Birmingham [Figure 1]. He was previously treated successfully and uneventfully with braces for 15 months and moved into retention [Figure 2]. The patient was educated about wearing his retainer and re-called annually for follow-up appointments.

During that 2-year follow-up visit, the patient revealed he did not use his retainer. The intraoral examination showed some Orthodontic relapse to the lower anterior teeth, and localized gingival recession was evident on his right lower free gingival

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Figure 1: Initial photos. (a-c) Before orthodontic treatment



Figure 2: (a-c) Posttreatment photos



Figure 3: Follow-up visit. (a and b) Free gingival margin of the young patient showing localized white lesions and gingival recession on the mandibular right side; (c) healthy soft tissue in left side



Figure 4: Anterior crowding relapse. Localized gingival recession and leukoplakia

margin extending from the distal surface of the right mandibular canine to the mandibular right central incisor [Figure 3a and b]. There seemed to be some slightly demarcated white lesions present as compared with normal tissues. In addition, his left vestibule appeared normal [Figure 3c]. From an Orthodontic perspective, there was concern that the previous treatment rendered had resulted in buccal alveolar bone loss and gingival recession due to the non-extraction treatment plan [Figure 4]. Impressions and clinical pictures were taken for a new retainer and careful consultation made with an oral surgeon. On the patient's return, a careful social history was obtained, and it was revealed that the patient was chewing ST just like his parent was. This occurred during his baseball games and some of the games lasted over 4 h.

DISCUSSION

The majority of commercially available tobacco is derived from the species *Nicotiana tabacum* and *Nicotiana rustica*. Nicotine is a volatile alkaloid ingredient from those plants and is one of the most addictive drugs available commercially. ST usage is related to bad breath and a variety of oral cavity lesions, including tooth decay, tooth loss, leukoplakia, periodontal disease, keratosis, oral cancers such as carcinoma *in situ*, verrucous carcinoma and invasive squamous cell carcinoma.

The term “leukoplakia” is used as a provisional or definite diagnosis to classify a white patch in the oral mucosa that cannot be removed by rubbing it. Since 1984, it was decreed to avoid this term as an etiology, except in cases where tobacco was believed to be the cause. Leukoplakia describes “a whitish patch or plaque that cannot be characterized clinically or pathologically as any other disease and it is not associated with any physical or chemical causative agent except the use of tobacco.”^[2]

Unlike smokers, who experience widespread periodontal destruction, the most prevalent effects of ST are localized to the site of placement, in the form of gingival recession and white mucosal lesions. In fact, epidemiological studies conducted in 940 individuals demonstrated that lesions are strongly associated with frequency and 85% of them reported to place the tobacco on the mandibular labial or buccal vestibule. These lesions may present in patients who are undergoing orthodontic treatment.^[9,10]

In this case report, the patient presented exactly with a white lesion. However, the age of the patient and the clinical

setting (Orthodontic clinic for adolescents) did not preclude the diagnosis of such a lesion. Only after careful examination of the pictures and social history was the diagnosis possible. From the literature described, these lesions often improve with cessation of the habit. As such, a careful social history, clinical records (photographs), and observation were all that was required. In addition to the orthodontic retreatment, patient education and counseling on tobacco use were prescribed.

Research has shown that, when lesions are diagnosed early, the lesion heals and the dysplastic tissue improves and returns to normal. The periodontal disease seen in this report can be stopped, and the involved oral mucosa ultimately reverts to healthy upon cessation of chewing tobacco. However, ST lesions presented in adolescents may be an early indicator of high risk for oral cancer if the patient moves on to tobacco smoking or other forms of smoke inhalation. OHPs should educate patients on the initial stages of an oral lesion, ask specific questions about tobacco use, and encourage them to quit smoking.^[11]

CONCLUSIONS

Prompt oral diagnosis of white lesions can lead to early intervention leading to successful remission and recovery. OHPs should make a proactive effort to think beyond their specialty to identify white oral lesions and subsequently conduct counseling on the harmful chemicals of this habit ultimately preventing oral cancers.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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