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## Cinnamon Chewing Gum Induced Oral Allergic Contact Stomatitis.

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### ABSTRACT

Intraoral allergic contact stomatitis is a rare entity whose frequency is considerably lower than the frequency of contact dermatitis. We report a case of 39-year-old female which presented with bilateral buccal lichenoid lesions after cinnamon chewing gum intake. Punch biopsy specimen for histopathological analysis of buccal mucosa showed chronic inflammation. Otherwise, the patient was healthy, only suffering from hay fever and was taking iron and vitamin C and zinc supplements. List of differential diagnosis is given. She was prescribed solution made of saline together with corticosteroids (0,1 mg/ml dexamethasone) to be used as a mouthwash three times a day and after application of corticosteroid unguent in orabase (betamethasone) on the both buccal lesions. After three days lesions subsided. The patient was advised not to use cinnamon chewing gum. Patients might approach dentists, dermatologists, otorynolaryngologists and allergists due to the oral condition, therefore a multidisciplinary approach is suggested. Therefore, all aforementioned specialists should be aware of cinnamon contact reactions in order to correctly diagnose and manage this condition.

**Keywords:** Cinnamon Chewing Gum, Contact Stomatitis

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## INTRODUCTION

Oral allergic cinnamon contact stomatitis (CCS) is a rare entity. The frequency of contact stomatitis is considerably lower than the frequency of contact dermatitis due to the following reasons: 1) the allergens are rapidly dissolved by saliva before they pass through and digested with the help of the enzymes, 2) oral mucosa contains a number of blood vessels, therefore potential antigens crossing the oral mucosa barrier are quickly removed before the allergic reaction occurs, 3) oral mucosa contains less keratin than the skin, hence, the possibility of binding hapten to protein is reduced (1). CCS is a rare reaction to the products containing artificial cinnamon flavor ingredients which might be part of the various foods (candies, chewing gums, cookies) as well as toothpastes and mouthwashes. Cinnamon is preferred flavouring because of its pleasant taste and sensation of freshness (2).

To date only few case reports upon cinnamon chewing gum induced intraoral contact stomatitis have been described. Cinnamon chewing gum has been implicated in occasional cases of burning sensations, red or white lesions - typically on the tongue or buccal mucosa - and has even been implicated in rare cases of leukoplakia and squamous cell carcinoma (3, 4).

### Case report

We report a case of 39-year-old female patient which presented with bilateral buccal lesions that clinically resembled lichenoid reactions, after cinnamon chewing gum intake (Figures 1, 2). In the course of taking medical history she reported that she is healthy, only suffering from hay fever. She was only taking vitamin D and B solution as a mouthrinse. Otherwise, she was taking supplements of vitamin C, zinc and iron (Natural Wealth). She reported that she was anaemic. Also, she correlated the appearance of oral lesions with nut intake at the Christmas Eve, however three weeks since then have passed and she was not taking any nuts from that time. Punch biopsy specimen for histopathological analysis of buccal mucosa showed chronic inflammation. Complete blood count showed mild anemia as iron level was 7 (reference values for women 8-30). She was prescribed solution made of saline together with corticosteroids (0.1 mg/ml dexamethasone) as a mouthwash three times a day and after corticosteroid unguent in orabase (betamethason). After three days lesions subsided.

## DISCUSSION

Cinnamic aldehyde is widely used as a flavoring agent in foods as well as oral hygiene products. However, intraoral allergic contact stomatitis to cinnamon flavoring agents has only been sporadically reported and therefore clinical presentation is unfamiliar to most dentists. The clinical presentation of intraoral allergic contact reactions varies greatly, and as a result, clinicians often do not recognize this clinical entity leading to misdiagnose (5). The same authors (5) described few cases of contact allergy to candy, chewing gum, mouthwash, lip sunscreen, cinnamon toast, volatile oils, and toothpaste.

Calapai et al. (6) reported that signs and symptoms of contact intraoral allergic reactions might mimic other common oral disorders, making true diagnosis difficult. Clinical presentation of CCS might be very variable and includes oedema, leukoplakic, erythroplakic, or ulcerative changes, which might be accompanied by a burning sensation (7, 8). Differential diagnosis in this case might be lichenoid reaction to other oral agents, oral adverse reaction to certain drugs, erythroleukoplakia, discoid lupus erythematoses, squamous cell carcinoma, etc. Histology might be rather non-specific (7). However, Miller et al. (9) described hyperkeratosis, chronic lichenoid mucositis with plasmacytic infiltration, and marked chronic perivasculitis. Therefore, Miller et al. (9) suggest that when aforementioned histopathologic features are recognized, cinnamon stomatitis should be considered. Treatment relies upon elimination of the cinnamon containing products, however application of corticosteroids might help to alleviate the symptoms.

## CONCLUSION

Differential diagnosis of nonspecific lesions of the oral mucosa with clinical and histopathological features aforementioned should include intraoral cinnamon contact stomatitis. Removal of allergens and giving timely symptomatic therapy leads to healing of the patient, and prevents recurrence of the disease.

**Figure 1: Lichenoid lesions on the right buccal mucosa.**



**Figure 2. Čichenoid lesions on the left buccal mucosa.**



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