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Clinical case

Allergic Contact Stomatitis due to Consumption of Cinnamon Sticks

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Abstract

Introduction: Contact stomatitis is an intraoral reaction that can be caused by a wide variety of agents. Cinnamon as a triggering factor is infrequent due to its low consumption. However, it can be found in chewing gums, mouthwashes, and toothpaste making such products the most associated with this diagnosis. **Objective:** To report a case of allergic contact stomatitis associated with the consumption of cinnamon sticks. **Case presentation:** A 20-year-old female patient with an uneventful medical history referred to burning pain and the presence of spots in the oral mucosa of more than 3 months of evolution. She also reported an intermittent burning and itching sensation, for no apparent reason. After a thorough anamnesis, the patient reported that some years ago she had started chewing cinnamon sticks as a habit. The patient also related that she used to maintain the cinnamon in the vestibules, and after a while, she began to feel

an uncomfortable sensation in the mucosa. She was advised to suspend this habit, and in the subsequent controls, the disappearance of the signs and symptoms was evidenced. **Conclusions:** A meticulous anamnesis together with a physical examination is important to establish a correct diagnosis and an adequate clinical management of allergic contact stomatitis associated with cinnamon consumption.

Keywords: Cinnamon; allergic contact stomatitis; buccal mucosa

INTRODUCTION

Allergic contact stomatitis is an intraoral type IV hypersensitivity reaction that can be triggered by a wide variety of agents, such as dental materials, foods, and dental hygiene products[1,2]. It is reported infrequently, possibly due to the relative resistance of the oral mucosa to irritants and allergens. The specific environment of the oral cavity inhibits hypersensitivity reactions; saliva ensures constant mucosal cleansing and reduces contact time with allergenic substances; and the high degree of vascularization of the mucosa causes rapid absorption of antigens, which further reduces contact with these substances[2-4].

The use of cinnamon is present as a flavoring agent in foods, beverages, chewing gum, mouthwashes, lip sunscreens, volatile oils, and toothpaste. Most people who consume cinnamon do it indirectly through other foods where it participates as a flavoring agent, which can trigger allergic contact stomatitis[5]. However, in Argentina the consumption of cinnamon is not as common as in other countries, making this entity even less frequent. Allergic contact stomatitis (ACS) associated with cinnamon consumption was first described by Drake and Maibach[6]. The etiologic agent of this reaction is cinnamic aldehyde, also known as cinnamaldehyde, which is the organic compound that gives cinnamon its odor and flavor. This naturally occurring viscous yellow compound is derived from the bark of cinnamon trees and shrubs and other plant species of the genus *Cinnamomum*[5].

The described clinical cases of ACS are related to toothpaste and chewing gum[7]. Contact reactions affecting the mucosa may confuse the clinician with other pathological processes because they share clinical features with other diseases such as lichenoid reactions[4,8]. Although the signs and symptoms of ACS are varied, erythema, edema, leukoedema, desquamation, white patches, and erosion can be observed among the oral manifestations[2,3,8]. This article shows the report of a case of ACS, highlighting the importance of the process of recognizing the causative agent and the differential diagnoses.

CLINICAL CASE PRESENTATION

A 20-year-old woman was referred to our clinic after previous consultations with other specialties for presenting red lesions of more than 3 months of evolution. The patient reports that the lesions generate a sensation of discomfort, burning, and roughness in the mucosa that appears and disappears. The medical history does not reveal any disease or being under any treatment, and when performing the anamnesis, the patient refers to having consulted

different professionals who indicated treatments without having arrived at a diagnosis. Upon intraoral examination, both lingual edges showed very pronounced grooves with a symmetrical arrangement and slight edema compatible with the scrotal tongue. In both jugal mucosa, bilaterally and symmetrically, there were reddish-purple spots, negative to diascopy (Figure 1.A-B). Routine laboratory tests and serology for HIV, HBV, and syphilis were requested. In the second consultation, she reported that the lesions disappeared within 24 hours. The intraoral examination did not show any lesions. In the complementary examinations requested, the results were within normal parameters and the serologies were negative.

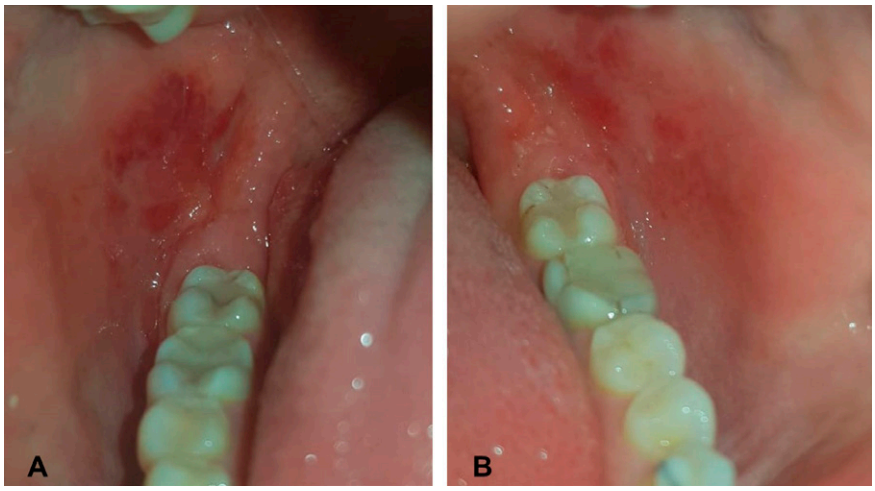

Figure 1. Initial clinical photographs. A. Purple-red spot on the right jugal mucosa. B. Purple-red stain in left jugal mucosa.

In this occasion, the patient reported that a few years ago she started chewing cinnamon in the form of a stick after trying it on a trip and used to place it in both vestibules and that after a few hours, she began to feel an uncomfortable sensation in the mucosa (Figure 2). Considering the examinations already performed and the continuous anamnesis, other possible diagnoses such as buccal lichen planus could be ruled out because she did not present characteristic white net lesions; benign pemphigoid of the mucosa, when performing bulb aspiration maneuvers that determined the absence of blisters; nibbled mucosa as no epithelial flaps were observed along the entire jugal mucosa as usual; the lichenoid reaction was dismissed during the anamnesis and inspection due to the lack of causative agents, and blood dyscrasias were excluded from the diagnostic hypotheses by normal serology and laboratory tests. It was indicated to suspend this habit and in the following controls, no lesions were found, confirming the diagnostic hypothesis of ACS (Figure 3). No new lesions were found during the follow-up.

DISCUSSION

Contact allergies are frequent on the skin, but rare in the oral cavity due to the protective role of saliva against allergen accumulation. The most frequent contact reaction is the lichenoid reaction[1,8], the consumption of cinnamon sticks is not common in Argentina, so ACS is an unusual finding.

Figure 2. Clinical manifestation in jugal mucosa a few hours after contact with the causal agent.

Figure 3. Follow-up clinical photograph showing the disappearance of the lesions.

The clinical forms of presentation are varied and are usually accompanied by symptoms such as burning sensation, itching, heat, and signs such as red and white patches, erosions, and epithelial detachments. The most affected regions are the contact areas, which are usually the jugal mucosa and lingual borders. The lesions are usually underdiagnosed due to the nonspecific nature of the manifestations, as well as the unusual nature of cinnamon stick consumption. Differential diagnoses include lichenoid reaction, buccal lichen planus, nibbled mucosa, hairy leukoplakia, bullous disease, and hematologic disorders[3,5].

The pathologic anatomy of ACS manifests mainly as hyperorthokeratosis, acanthosis, and atrophy, accompanied by hydropic degeneration of the basal layer. Neutrophilic exocytosis and spongiosis can sometimes be observed. The superficial area of the connective tissue presents chronic inflammatory infiltrate composed mainly of lymphocytes and plasmacytes sometimes organized in a band reminiscent of lichen planus, but with deeper extension[2,9]. The need for biopsy is postponed to cases where the clinical diagnosis is unclear and other diseases need to be ruled out[1]. Allergy testing (patch testing) may be useful as an adjunct to diagnosis; however, it is inconclusive and often produces false negatives[4].

ACS generates concern and anguish in patients because they often consult several professionals beforehand without having a diagnosis. Continuous questioning is important since patients reveal habits about clinical aspects. The arrival to diagnosis depends on the moment of the onset of symptoms and the time concerning the suspected allergen. Treatment consists of the suspension of the habit and avoidance of cinnamon consumption in all its forms.

CONCLUSION

It is essential to perform a rigorous anamnesis and physical examination as pillars for the development of a correct diagnostic hypothesis. Timely referral to a specialist improves the chances of reaching an early diagnosis and treatment.

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