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Case report

ANGULAR CHEILITIS DURING ORTHODONTIC TREATMENT

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ABSTRACT

Angular Cheilitis (AC) is a multi-factorial disorder clinically characterized as an eroded and erythematous non-vesicular lesion radiating from the angle of the mouth, which may be unilateral or bilateral in presentation. AC offers many etiological causes, from infectious to traumatic and iatrogenic forms. The recurrence of this manifestation represents an unpleasant and painful discomfort for the patients. Besides using antifungal drugs as the first choice option, alternative topical treatments, vitamin supplementation, and photodynamic therapy have experimented with actinic cheilitis. This report presents a case of AC in a 15-year-old girl undergoing orthodontic therapy for 18 months, treated with combined therapy of topical antifungals and low-level laser therapy.

KEYWORDS: *cheilitis, commissure, infection, pain, laser*

INTRODUCTION

Angular cheilitis (AC) is an inflammatory skin process of varied etiology occurring at the angle of the mouth, also known as "labial commissure" or "perlèche" (1). The etiology is highly varied, with many local and/or systemic causes responsible for first onset and recurrence (2) and several predisposing factors like microbiological changes, smoking, drug assumptions, mouth breathing, hematological deficiencies, and loss of vertical dimension in the elderly (3). Among the infective etiology, Candida albicans, Streptococcus aureus, and Streptococci are generally associated with AC; pseudo-hyphae and budding yeasts have been detected in 48% up to 93% of cases (4, 5). AC has also been correlated to immunocompromised individuals and atopic patients (6); the peak incidence is during the third, fifth, and sixth decades (7).

The labial commissures are interface points for the oral mucosa and the face's squamous epithelium. They are likewise a mechanically active hinge for the oral aperture that supports more action and forces than the rest of the lips. Therefore, the commissures are specifically susceptible to stress (8).

AC is clinically characterized by erythema, rhagades, ulcerations, and crusting of one or both lip commissures and

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peri-labial skin, responsible for an unpleasant and painful discomfort (9). Some authors suggest that when these clinical manifestations occur during orthodontic treatment, it could be due to a nickel allergy (10). Different therapy options are available, which should be chosen by the severity of the disease, the symptomatology, the frequency of recurrences, and the potential adverse effects of the medications. Low-level laser therapy (LLLT) has been widely employed for treating oral mucosa affections, such as aphthous stomatitis (11), because of its biomodulation and analgesic effect. Moreover, the healing process stimulates and promotes immediate pain relief without an overdose of medication or side effects are advantages to be considered (12). Hence, in the present work, we present a patient in orthodontic therapy diagnosed with AC treated with LLLT.

CASE REPORT

A 15-years-old girl presented bilateral erythematous lesions affecting mouth angles. She had been attending a specialist orthodontic practice for 18 months to treat her class II division 1 malocclusion using fixed appliances. A thorough medical history was taken to rule out other disorders, but no relevant information was provided. She had no known allergies and no courses of antibiotics recently; she was a non-smoker with competent lips. Extra-oral examination revealed two deep erythematous lesions affecting the mouth angles, which extended 5 mm from the vermillion border to the surrounding skin (Fig.1). These lesions were weeping slightly and were sore and tender on the mouth opening. These manifestations have been present for several weeks and were not preceded by prodromal symptoms associated with herpes labialis. Intra-oral examination showed no other disorders, and oral hygiene was found to be fair to good. Thus, a clinical diagnosis of AC grade 2 was performed, according to the scale proposed by Ohman et al. (13).

The patients gave a history of frequent recurrence of these extremely painful lesions since the beginning of the orthodontic treatment. She also reported having used various pharmacological aids, including topical anesthetics, topical antifungals, mouthwashes, and steroids, which took around one week to heal but still, the lesions recurred every 1-2 months. Therefore, we decided to treat the patient with combined therapy of topical antifungals and LLLT using a 940- nm diode laser (Biolase, USA). The laser was activated 1-2 mm away from the lesion and advanced slowly toward the area ending up 1-2 mm away from the lesion, moving continuously from the periphery of the lesion to the center, covering the whole area, and shifting away from the lesion if the patient sensed warmth. The setting was initially put at 0.6 W CW (1.2 W pulsed) for 30-45 seconds. The laser cycles were alternated to allow the tissue to cool down with free cycles of 15-20 seconds. The patient reported that lesions started healing earlier than in previous attacks; there was also an early reduction in pain. Healing was uneventful, and the patient experienced a spontaneous reduction in pain. The lesions healed within 7-8 days; a follow-up after one year showed no recurrence of the lesions. The patient reported no further signs of AC during the last 12 months. The patient's orthodontic treatment continued uneventfully.

DISCUSSION

AC can be a painful condition that affects the corners of the mouth (7). The case presented in this paper indicates that

Fig. 1. *Erythematous lesions revealed by extra-oral examination*

AC can also occur in healthy patients undergoing orthodontic treatment, even if these patients do not have a nickel allergy or are not immune compromised. Scientific evidence supports antifungals as the first-line treatment for AC. However, these trials clearly express pieces of evidence about the role of Candida albicans in the pathogenesis of AC, showing antifungal agents as a valid treatment choice option (14, 15). In 2016, Rocha and colleagues reported a case of AC at the right commissure treated by methylene blue – mediated photodynamic therapy, leading to immediate pain relief and re- epithelization of the site (16). Several studies reported the LLLT employment for treating and managing oral mucosa disorders, such as recurrent aphthous stomatitis and actinic cheilitis (11, 12, 17). Since no medications are required, no side effects and no risk of over-dosage could be encountered. Moreover, LLLT enables rapid wound healing without scarring providing high comfort for the patient and giving a very satisfactory cosmetic result (17). The topical treatment with antifungals seems to remain the most reliable therapeutic option against AC. Nevertheless, when LLLT was performed, there was a considerable healing improvement and a consequent analgesic effect. Therefore, although further studies are needed to assess whether new therapeutic approaches may replace conventional pharmacological treatments, the efficacy of the LLLT should be deepened not only for its efficacy against microorganisms but also for its biomodulation and analgesic effects, accelerating healing and improving the quality of life of the patients.

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