



Pseudomembranous Candidiasis Superimposed on Angular Cheilitis Due to Topical Steroid Misuse : A Case Report

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Received: April 25, 2025

Published: May 12, 2025

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Abstract

Angular cheilitis (AC) is an inflammatory condition affecting the corners of the mouth, leading to pain or a burning sensation when opening and closing the mouth. It can arise from various causes, including microbial infections. However, since pain is the primary symptom, patients may mistakenly identify AC as another type of oral ulceration. Additionally, with topical steroids being readily available over the counter at the pharmacy, patients might self-apply the topical steroids, as steroids are widely recognized for treating oral ulcers in Thailand. This case report describes a 27-year-old female with a chief complaint of pain at the corner of the mouth for 3 months. She applied the over-the-counter triamcinolone for 2 weeks. However, the symptoms worsened so she presented at our department. The extraoral examination revealed AC at both sides of the oral commissure. The intraoral examination revealed pseudomembranous candidiasis extending from the commissures to the buccal mucosae along with erythema area at palatal gingiva. The topical steroid was discontinued, then antifungal gel and chlorhexidine were prescribed for treatment. After 2 weeks, all of the lesion and symptoms resolved. This case report highlights the importance of awareness in topical steroid usage. As Candidiasis is a potential side effect of steroid use, and since AC may be Candida-related, steroids can exacerbate the condition.

Keywords: Angular Cheilitis; Topical Steroid; Pseudomembranous Candidiasis; Oral Candidiasis; Thrush

Abbreviations

AC: Angular Cheilitis

Introduction

Angular cheilitis (AC) is an inflammatory condition that occurs at the corners of the mouth, starting at the muco-cutaneous junction then spreading onto the surrounding skin [1]. Microbes are a significant cause of the lesion, as factors that create a persistent moist environment for microbial growth at the corners of the mouth, like habitual lip licking or biting the mouth's edges,

and tissue sagging at the mouth's angles, have been linked to the development of AC [2,3]. Patients with AC frequently experience discomfort, which can vary from a slight burning feeling to intense pain, particularly when the lesions are stretched during everyday activities [4]. Management of the lesion should begin once the underlying cause has been identified, whether it is infective, non-infective, allergic, or a combination of these factors [2], thus it should be done by experienced health care professional. In Thailand, triamcinolone acetonide 0.1% oral paste is available over the counter for treating oral ulcers. As a result, some patients purchase and

use it on their own when they experience pain in the oral mucosa. However, a notable side effect of topical steroids is candidiasis. Applying steroids on an AC lesion may worsen it if the AC lesion is already infected with *Candida*.

This case study will describe a 27-year-old female with a chief complaint of pain at the corner of the mouth for 3 months. She applied the over-the-counter triamcinolone for 2 weeks. However, the lesion worsened so she came to seek treatment. The extraoral examination revealed AC at both sides of the oral commissure. The intraoral examination revealed pseudomembranous candidiasis extending from the commissures to the buccal mucosae. The patient was advised to stop topical steroid, then antifungal gel and chlorhexidine were given instead. After 2 weeks, all of the lesion resolved.

Case report

A 27-year-old Thai female presented at the Oral Medicine Department Clinic with the chief complaints of red patch at the corners of her mouth and soreness when opening her mouth.

The lesions had appeared for 3 months, initially starting at both corners of the mouth. Following the application of a topical steroid to the affected areas 2 weeks before the visit, the white lesions had spread into the mouth with painful and burning sensation when eating spicy food rated by a numeric rating score of 7/10. The patient reported that she consumes a balanced diet with all five food groups but experiences stress and insufficient rest, and also reports a sensation of dry mouth. The patient denied any underlying diseases or drug allergies and reported taking only supplement vitamin C daily. Her hematologic test result on April 2024 (three months ago) revealed low hemoglobin (Hb), hematocrit (Hct), and mean corpuscular volume (MCV). However, her physician did not prescribe any supplement or medication.

The extraoral examination (Figure1) demonstrated erythematous area and fissuring at both lip commissures. Intraoral examination (Figure2) revealed white plaque can be rubbed off with erythematous area at right and left buccal mucosa near lip commissures (Figure2 a, b), upper and lower labial mucosa (Figure2 c, d). The lesions showed positive in candida spore and hyphae when smeared and stained with 10% potassium hydroxide (KOH). over, there is an erythematous area at palatal gingiva of 14-23 area (Figure2 e).

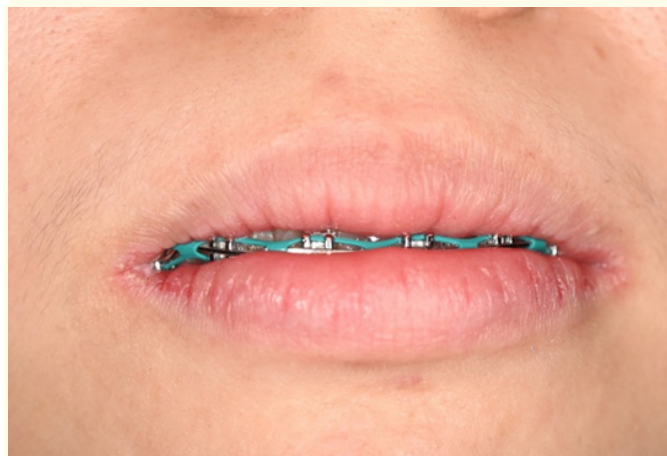


Figure 1: The first visit extraoral examination revealed erythema area and fissuring at both lip commissures.

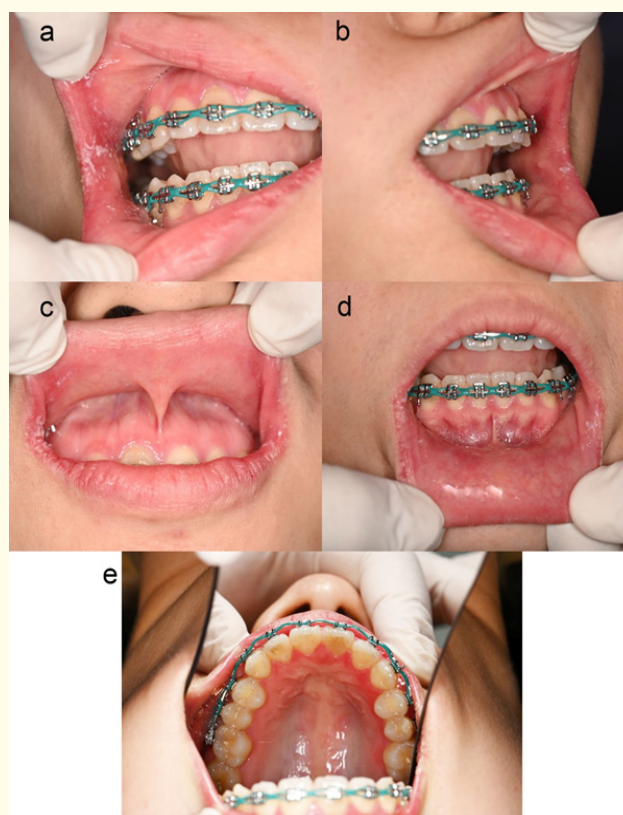


Figure 2: The first-visit intraoral examination demonstrated white plaque can be rubbed off at the (a) right buccal mucosa, (b) left buccal mucosa, (c) labial mucosa of upper lip, (d) labial mucosa of lower lip, and erythematous area at the (e) palatal gingiva of 14-23.

After history-taking and clinical examination, the clinical impression was given as angular cheilitis and pseudomembranous candidiasis. The patient received medication including miconazole oral gel (20mg/g) to apply at the lesions twice a day and 0.12% chlorhexidine mouthwash for rinsing her mouth once a day before bedtime. The patient was advised to discontinue the topical steroid. Two weeks later, the patient reported resolving symptoms. Clinical examination also showed resolving sign, from extraoral (Figure 3) to intraoral (Figure 4) all of the lesions in the last visit disappeared.

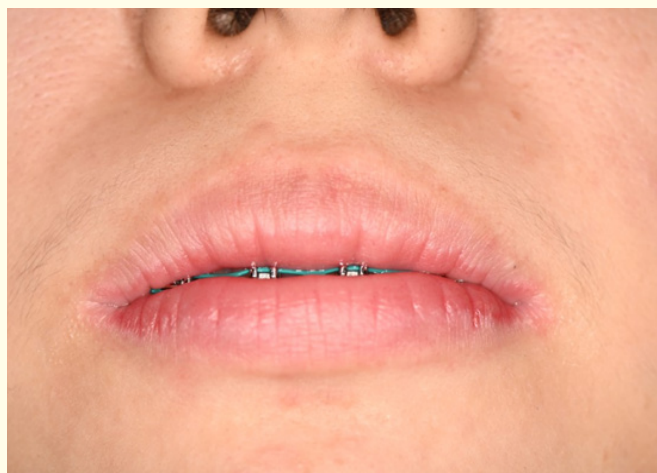


Figure 3: The second visit extraoral examination revealed normal lip commissure.

After the lesion resolved, we did the hematologic test and found low hemoglobin (Hb), hematocrit (Hct), mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH), mean cell hemoglobin concentration (MCHC), serum iron, transferrin saturation, ferritin with high red blood cell distribution width (RDW), and total iron-binding capacity (TIBC) as follows : Hb 7.9 g/dL, Hct 27%, MCV 62.1 fL, MCH 18.4 pg, MCHC 29.6 g/dL, RDW 18.6 %. However, vitamin B12 and folate levels were normal. These hematologic results suggested iron-deficiency anemia. We did not prescribe iron supplement since we considered that the lesion resolved. The patient received dietary consultation and was advised to consult a hematologist. A follow-up appointment was scheduled for 6 months. The patient was also informed to return sooner if similar lesions recur before the next scheduled check-up. The patient also gave a permission to use her medical records and picture for publication.

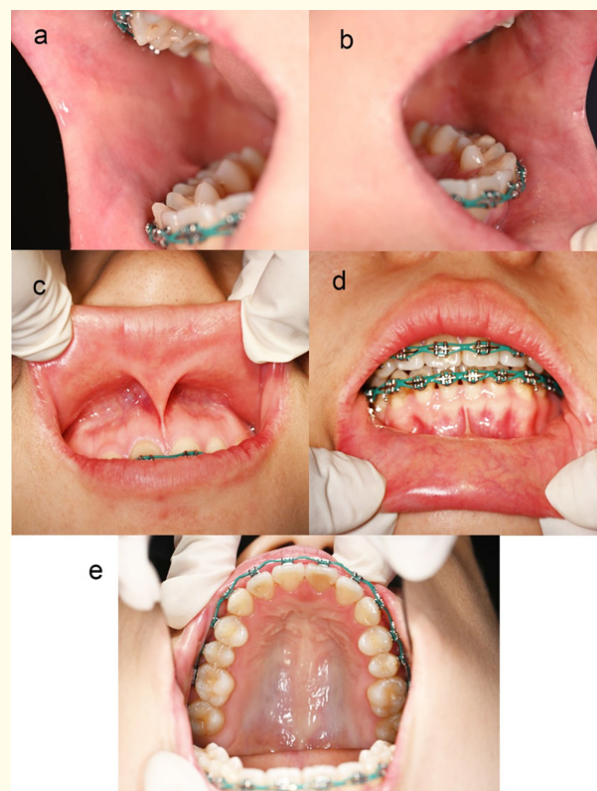


Figure 4: The second-visit clinical examination revealed normal oral mucosa of the (a) right buccal mucosa, (b) left buccal mucosa, (c) labial mucosa of upper lip, (d) labial mucosa of lower lip, and erythematous area at the (e) palatal gingiva of 14-23.

Discussion

The prevalence of angular cheilitis (AC) varies from 1% to 47% depending on region and study design. It is common in elderly with similar rate between male and female [5]. Microbe such as *Candida* has been proved to be one of the etiologies of the lesion [1]. Risk factors of oral candidiasis include immunosuppression, wearing dentures, certain medications, smoking, hormonal imbalances, and reduced salivary flow. Traditionally, oral candidiasis has been categorized into several types: acute pseudomembranous candidiasis, acute atrophic candidiasis, chronic hyperplastic candidiasis, chronic atrophic candidiasis, median rhomboid glossitis, AC, and linear gingival erythema [6]. In this case, patient presented with AC, pseudomembranous candidiasis and gingival erythema. She had routine check-up annually without any known underlying disease and had hematologic test suggesting iron deficiency ane-

mia (Low Hg, Hct, MCV, ferritin, serum iron and high TIBC). She also had fixed orthodontic appliance. Fixed Orthodontic appliance could promote *Candida* yeast colonization [7]. However, healthy orthodontic patients did not develop oral candidiasis [8]. Quantity of oral *Candida* was shown to have positive correlation with low red blood cell (RBC) count [9]. However, our patient had normal RBC count (4.30 Mcells/mm³). One study in Taiwan discovered that iron deficiency anemia increased the risk of *Candida* infections (85%), which were observed in various oral forms such as AC, atrophic glossitis, pseudomembranous candidiasis, erythematous candidiasis, and median rhomboid glossitis, with AC being the highest prevalence (63%) [10]. Iron is essential for the growth and differentiation of all cells. It also acts as a cofactor in various enzyme systems, including those involved in peroxide and nitric oxide production, which are crucial for the proper functioning of immune cells [11]. Iron deficiency leads to reduced hemoglobin levels, resulting in inadequate oxygen delivery to the oral mucosa and, ultimately, mucosal atrophy [10]. Therefore, iron deficiency anemia may be a predisposing factor for AC in this patient.

After topical steroid application by the patient herself 2 weeks before the visit, the lesion worsened with observable white lesion in her mouth along with painful and burning sensation in her buccal mucosa. This is the sign and symptoms of pseudomembranous candidiasis which could be the side effect of the topical steroids [12] or the exacerbation of *Candida* infection from her AC as corticosteroid suppress immune system [13]. Corticosteroids taking patient also had elevated levels of salivary glucose, which could facilitate the growth, proliferation, adherence and biofilm forming of *Candida* to the oral mucosa [14,15]. However, one study found that glucose concentration does not influence the behavior of *C. albicans* during tissue invasion, suggesting that other mechanisms may be responsible for the increased susceptibility to candidiasis in individuals with high salivary glucose levels [16].

In Thailand, some topical steroid such as 0.1% Triamcinolone acetonide oral paste is an over-the-counter drug with the prescription for oral ulceration. This might lead to the patients misinterpreting their symptoms, as their perception of pain and changes in the oral mucosa might be mistaken for ulceration. Even though topical steroid is very effective in mucositis treatment [17], it should be used with caution with prescription from experienced health care provider.

We selected miconazole gel in this case because the lesion is confined to the commissure and the anterior portion of the buccal mucosa, making it easier to apply the gel directly to the affected area. A meta-analysis has also demonstrated that miconazole is more effective than nystatin in treating pseudomembranous candidiasis [18]. Consequently, the gel is preferred over nystatin mouthwash for this patient.

Conclusion

Iron deficiency anemia could be the predisposing factor in angular cheilitis in the patient thus, hematologic test is recommended in patient with no otherwise risk factors for *Candida* infection. Also, topical steroid should be use cautiously with prescription from experienced health care provider, as it may exacerbate the lesion such as angular cheilitis from *Candida* infection. It is also important to educate other healthcare providers on painful oral lesions, enabling them to offer accurate information and proper guidance on medication use to the patient.

Acknowledgements

Center of Excellence and Innovation for Oral Health and Healthy Longevity is funded by the Ratchadaphiseksomphot Endowment Fund, Chulalongkorn University.

Conflict of interest

The authors declare no conflict of interest.

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