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Case Report

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A very rare complication of sublingual captopril

Adem Adar[a], Orhan Onalan[a], Habibullah Aktas[b], Suha Ertugrul[c], Fahri Cakan[a*]

[a] *Department of Cardiology, Faculty of Medicine, Karabuk University, Karabuk, Turkey*
[b] *Department of Dermatology, Faculty of Medicine, Karabuk University, Karabuk, Turkey*
[c] *Department of Otorhinolaryngology, Faculty of Medicine, Karabuk University, Karabuk, Turkey*

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*** Correspondence to:**
Fahri Cakan
Department of Cardiology,
Faculty of Medicine,
Karabuk University,
Karabuk, Turkey
e-mail: dr.fahri.cakan@gmail.com

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ABSTRACT

Captopril inhibits angiotensin-converting enzyme and it is the most used sublingual drug in emergency departments to decrease blood pressure. Sublingual captopril is safe, effective and useful in treating hypertensive urgency. However, it is known that captopril has fewer systemic and dermatologic side effects such as headache, weakness and oral ulcers, oral pemphigus, consecutively. No data is available about captopril induced oral mucositis. Herein, we present a 50-year-old hypertensive woman who uses sublingual captopril frequently and suffers from recurrent, reversible and painful oral mucositis that thought to be caused by sublingual captopril.

1. Introduction

Captopril inhibits angiotensin-converting enzyme and it is the most useful sublingual drug in emergency departments to decrease blood pressure. Sublingual captopril is safe, effective and useful in treating hypertensive urgency (Guerrera et al., 1990). It shows a quick decrease in blood pressure with in 10 minutes and the maximum efficiency was seen after 30 minutes (Maleki et al., 2011). A gradual blood pressure drop with the absence of serious side effects makes captopril an ideal anti-hypertensive agent (Gemici et al., 1999). Headache and weakness are well known side effects of sublingual captopril. Herein, we present a 50-years-old hypertensive woman who uses sublingual captopril frequently and suffers from recurent, reversible and painful oral mucositis that thought to be caused by sublingual captopril.

2. Case

A 50-year-old female patient applied to the cardiology clinic with hypertension and headache complaints. It was learned that she used trandolapril 4 mg / verapamil 240 mg (once a day). As the patient has frequent headache and measured arterial blood pressure during this period is about 160/90 mmHg, she uses sublingual captopril often. She mentioned that after

taking sublingual captopril, she had a sense of burning under the tongue after half an hour and painful and itchy lesions emerged under the tongue after two hours (Fig. 1A). The lesion makes it difficult for the patient to eat and speak. It was learned that the lesions always emerged under the tongue and had declined during the day (Fig. 1B) and had dissappeared completely within two days (Fig. 1C). There was no other suspected sublingual drug that could cause this kind of lesion in her medication. For revealing possible allergic reactions, at the same time with sublingual captopril, a quarter, half, and full dose of captopril was mixed with the vaseline and rubbed on to the patient's forearm skin. After waiting for two days it was seen that there was no reaction against captopril. A biopsy from the lesion was taken and was sent for pathological investigation. The finding of non-specific inflammatory cells and bacterial clusters (Fig. 2) gave rise to thought that the lesions are oral mucositis secondary to the sublingual captopril.

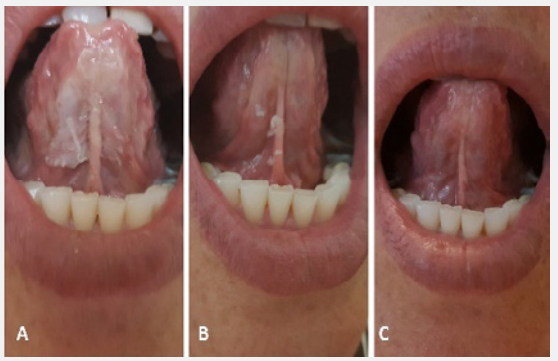

Fig. 1. A: After using sublingual captopril. B: Oral mucositis decreases as the effect of captopril decreases. C: Normal appearance of the oral mucosa with the end of the captopril effect.

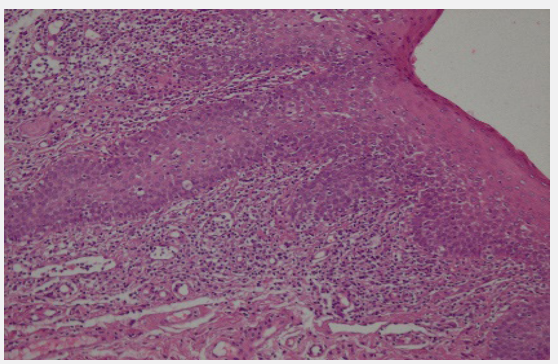

Fig. 2. A biopsy from the lesion demonstrated nonspecific inflammatory cells and bacterial clusters.

3. Discussion

Sublingual captopril is an effective and frequently used anti-hypertensive agent in the treatment of hypertensive urgency. Oral mucositis caused by sublingual captopril is a rarely seen complication making it difficult to maintain oral functions like eating as well as speaking. Oral medications can cause adverse side effects such as salivary gland disease, oral ulcers, taste sense alteration, mucosal pigmentation, and tooth decay (Shinkai et al., 2006). Angiotensin-converting enzyme inhibitors are a well known cause of cutaneous adverse reactions. It is known that captopril, an angiotensin converting enzyme inhibitor, causes pemphigus in the oral mucosa (Wolf et al., 1991). Captopril contains the thiol group, so, as a result of the interaction of thiol group with the keratocyst membrane, acantholysis occurs, resulting in pemphigus and ulceration on the oral mucosa (Lombardi et al., 1993). This mechanism may have contributed to the formation of oral mucositis in the present case. Findings suggesting that the lesions are not pemphigus 1) biopsy samples from lesion were consistent with oral mucositis, 2) spontaneous resolution of the lesion after stopping sublingual captopril, and 3) negative autoantibodies (Lombardi et al., 1993).

In the present case, appearance of lesions after using captopril sublingually but not by ingestion, suggests that captopril causes mucosal damage and inflammation due to direct contact with sublingual mucosa. Non-specific inflammatory reaction is another finding which supports that the lesions are related to the contact of captopril directly with sublingual mucosa. Lack of reaction formation after applying captopril-vaseline mixture over skin may be attributed to the fact that the sublingual mucosa differs from the other skin mucosa in that it is thinner, more sensitive and has a different blood supply (Narang and Sharma, 2011; Goswami et al., 2013).

Sublingual drug application have some advantages such as direct transition to the systemic circulation without elimination in the liver, rapid absorption of drug compared to other oral cavity mucosa and good patient compliance. In addition to the advantages of sublingual mucosal delivery, there are some disadvantages such as short duration of action (Goswami et al., 2008) and development of oral mucositis as in the present case. Clinicians always should be alert to this rare adverse side effect.

The clinician should keep in mind that a very rare cause of oral mucositis may be sublingual captopril.

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