



Case Report / Olgu sunumu

# Chemical Burn Caused by Garlic

## Sarımsak Kullanımına Bağlı Kimyasal Yanık

Emre Bülbül<sup>1</sup>, Çağdaş Can<sup>2</sup>, Fikret Gözübüyük<sup>3</sup>

<sup>1</sup>Erciyes University Hospital, Department of Emergency Medicine, Kayseri, Turkey  
<sup>2</sup>Merkezefendi State Hospital, Department of Emergency Medicine, Manisa, Turkey  
<sup>3</sup>Kayseri City Hospital, Department of Burn Service, Kayseri, Turkey

### Abstract

In traditional medicine garlic is used intensely for its antimicrobial, antihypertensive and antihyperlipidemic etc. effects. For this reasons, use of garlic is common among the public health. In this case we aimed to present a patient with a second degree skin burn because of self-applying garlic on his superficial eruptions.

**Keywords:** Burn, chemical burn, garlic (*Allium sativum*), traditional treatment, contact dermatitis

### INTRODUCTION

Garlic (*Allium sativum*), which is originated from Asia, has a long history. It is primarily used as a spice in meals, later in the treatment of traditional medicine.<sup>[1]</sup> It was also tested in cholera and plague epidemic in the treatment of amoebic dysentery in Africa.<sup>[2]</sup> Even a world congress which was named 'The Health Importance of Garlic and Garlic Ingredients' washeld in Washington in 1990.<sup>[3]</sup> There are many publications emphasized that garlic has not used only for its antibacterial, antiparasitic and antiviral purpose but also antihypertensive, antihyperlipidemic, fibrinolytic and antitumor effects.<sup>[4-9]</sup>

In this case we aimed to represent a patient with a second degree skin burn because of garlic usage.

### CASE REPORT

A 62-year-old diabetic male patient admitted to our emergency department (ED) with eczema-like skin lesions on his bilateral hands and feet. He applied crushed garlic on his both feet and distal tibial regions with wrapped bandage. His vital parameters were stable (TA: 121/71 mmHg, pulse:

### Öz

Sarımsağın geleneksel tıpta antimikrobiyal, antihipertansif, antihiperlidemik vb. nedenlerle kullanımı mevcuttur. Bu nedenle halk arasında yanlış kullanımına sık rastlanmaktadır. Bu olgu sunumunda yüzeysel döküntülerini iyileştirmek için cildine sarımsak süren ve 2.derece yanık yakınması ile acil servise başvuran hastayı bildirdik.

**Anahtar Kelimeler:** Yanık, kimyasal yanık, sarımsak (*Allium sativum*), geleneksel tedavi, kontakt dermatit

72 beat/min, respiratory rate: 12/min, temperature: 36.8°C). In his physical examination there was a 10% total second degree burn where was surrounding of the both distal tibial/feet region and its approximately 5% of the one leg and 5% of the other (**Figure 1**). Other systemic examinations was normal. Patient's laboratuvarı findings were found within normal range except complete blood count (WBC 9520 mm<sup>3</sup>) and blood glucose level (146 mg/dL). After the patient's burned areas was washed with pressurized sterilwater, he was consulted with the burn specialist.

The patient was hospitalized because of the diabetes mellitus comorbidity and the total 10% percentage of burns in both feet. Due to rule out possible vascular pathologies, arterial/venous doppler ultrasonography was performed in burn service and pathological condition was not detected, microorganism growth was not observed in patient's wound cultures either. He was followed up with daily wound care and dressing. On the 5<sup>th</sup> day of hospitalization he was discharged without any complication with a good clinical improvement. Blood glucose level was in normal level during the hospital stay.





**Figure 1.** Chemical burns due to garlic use

## DISCUSSION

Garlic (*Allium sativum*) has been used in traditional medicine for a long time and is still using for the therapeutic purpose in many cultures.

During World War II, the Soviet army used garlic to prevent infections so it was called "Russian Penicilin". The antifungal, antiparasitic, antiviral, antimicrobial, antihypertensive, blood glucose lowering, antithrombotic, antimutagenic and antiplatelet properties of this herb have been confirmed.<sup>[3]</sup>

'It is the dose that separates the drug from the poison' said Paracelsus however this situation may not be the case for some herbal treatments likewise garlic.

The first contact dermatitis and chemical burn case by using topical garlic was reported in 1987 in a 17 month-old child.<sup>[10]</sup> Likewise this case, there is still skin chemical burn ED admissions caused by topical application of garlic.

Monosulfides, disulfides, trisulfides, and allicin are the primary allergens in garlic believed to cause a contact dermatitis. Although not entirely figured out, singular reactivity to garlic is hooked to genetic differences, concentration and freshness of the garlic, duration of exposure, preexisting skin diseases, individual reactivity and occupational exposure.<sup>[4]</sup> Therefore, while taking anamnesis in case of burn patients, garlic usage should always be in mind for differential diagnosis.

We believe that not only the herbalists must be kept under control but also patients should be more frequently educated such of these traditional treatment complications.

This case report underline the importance of clinicians' ability to recognize unforeseeable presentations of injury due to culturally abusive etiology of herbal treatments.

Application of raw garlic (skin or mucosal) must be discouraged.

## ETHICAL CONSIDERATIONS

**Informed Consent:** Written informed consent was obtained from all participants who participated in this study.

**Status of Peer-review:** Externally peer-reviewed.

**Conflict of Interest Statement:** The authors have no conflicts of interest to declare.

**Financial Disclosure:** The authors declared that this study has received no financial support.

**Author Contributions:** All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

## REFERENCES

1. Bhattarai A, Atreya A, Karki B. Garlic-induced face burn. *Med Leg J.* 2021;25817220981818.
2. Ayaz E, Alpsoy HC. Sarımsak (*Allium sativum*) ve Geleneksel Tedavide Kullanımı. *Türkiye Parazitoloji Derg* 2007;31:145-9.
3. Hitl M, Kladar N, Gavarić N, Srđenović Čonić B, Božin B. Garlic burn injuries- a systematic review of reported cases. *Am J Emerg Med.* 2021;44:5-10.
4. Kaçar CK, Kiliç ET, Akelma H, Uzundere O, Kaydu A, Gökçek E. Medical Folk Remedy: Two Cases of Garlic Burns. *J Burn Care Res.* 2019;40(1):133-5.
5. Harris JC, Plummer S, Turner MP, Lloyd D. The microaerophilic flagellate *Giardia intestinalis*: *Allium sativum* (garlic) is an effective anti-giardial. *Microbiology (Reading).* 2000;146:3119-27.
6. Sharp O, Waseem S, Wong KY. A garlic burn. *BMJ Case Rep.* 2018;2018:bcr2018226027.
7. Barr R, Chin KY. Iatrogenic burns from garlic. *J Burn Care Res.* 2013;34(3):e214.
8. Yılmaz HH, Gormez O, Hastar E, Yıldırım D, Aksoy MC. Garlic burn in a patient with trigeminal neuralgia: a case report. *Eur J Dent.* 2010;4(1):88-90.
9. Karasaki Y, Tsukamoto S, Mizusaki K, Sugiura T, Gotoh S. A garlic lectin exerted an antitumor activity and induced apoptosis in human tumor cells. *Food Res Int* 2001;34:7-13.
10. Bagga S, Thomas BS, Bhat M. Garlic burn as self-inflicted mucosal injury- a case report and review of the literature. *Quintessence Int.* 2008;39:491-4.