



Three Cases of Burn Injury Due to Topical Ranunculus Use*

Abuzer Coskun¹, Tugba Demir², Sedat Ozbay¹, Afsin Emre Kayipmaz³, Osman Mahir Okur¹, Ilham Ozkan¹, Sevki Hakan Eren⁴, Cemil Kavalci³

¹ Department of Emergency, Sivas Numune Hospital, Sivas, Turkey

² Department of Food Processing, Cumhuriyet University, Sivas, Turkey

³ Department of Emergency, Baskent University, Ankara, Turkey

⁴ Department of Emergency, Cumhuriyet University, Sivas, Turkey

*: This study was presented as poster presentation at the 10th National Emergency Medicine Congress and the 1st Intercontinental Emergency Medicine Congress, 15-18 May 2014, Antalya, Turkey.

Abstract

Ranunculus (buttercup or mayflower) is an important plant species causing chemical irritation. It is one of the traditional treatment methods usually used for rheumatic disorders in Central Anatolia particularly in spring and summer months. Here we report three cases of burn injury that developed secondary to mayflower use. We are of the opinion that modern medical therapies should be preferred over herbal remedies since the benefits of the latter remains to be proved.

Keywords: Burns, chemical, plants, toxic

(Rec.Date: August 18, 2015

Accept Date: Sept 20, 2015)

Corresponding Author: Afsin Emre Kayipmaz, Fevzi Cakmak Caddesi 10. Sokak No: 45 06490 Bahcelievler, Ankara, Turkey

Telephone: +90 312 203 68 68

Fax: +90 312 223 73 33

E-mail: aekayipmaz@baskent.edu.tr

Introduction

Dermatitis induced by herbs may occur in the form of mechanical and pharmacological injuries or primary irritant phytodermatitis, allergic phytodermatitis, pseudo phytodermatitis, phytophotodermatitis, and pseudo phytophotodermatitis [1]. Ranunculus (buttercup or mayflower) is an important plant species causing chemical irritation (Fig. 1). It is one of the traditional treatment methods usually used for rheumatic disorders in Central Anatolia particularly in spring and summer months. This article reports three cases of burn injury that developed secondary to mayflower use.



Figure 1. Ranunculus (with the permission of Gökmen Cengiz Akdağ)

Case Presentation 1

A 54-year-old woman was admitted to emergency department with severe burning sensation and pain in her knees. On physical examination, she was conscious, and her general status was well; no systemic abnormality was noted. However, she had first and/or second degree

burn injuries on both knees, which were extending from the lower end of femur to the tibial tuberosity (Fig. 2). Her vital signs were stable, with a blood pressure reading of 120/70 mmHg, pulse rate of 78 beats per minute, and body temperature of 36.7°C. Laboratory tests were normal. Having chronic knee pain in her past history, the patient had crushed mayflower and applied its pulverized form on her knees about 10 hours before the index admission upon the recommendation of her neighbors to do so. Having being diagnosed with a second degree burn injury secondary to mayflower use, the patient was consulted with the general surgery department and admitted to the burn unit. She was applied chlorhexidine acetate soaked burn dressings. She developed no complications during follow-up and was discharged with outpatient recommendations.



Figure 2. First and second degree burn injuries on the patient's knee

Case Presentation 2

A 55-year-old woman was admitted to emergency department with burning sensation and pain in her knees. On physical examination she appeared conscious and well. Her vital signs included a blood pressure of 130/80 mmHg, pulse rate 76 beats per minute, and body temperature of 36.5°C. She had first and second degree burn injuries on both knees (Fig. 3). No abnormality was noted in her laboratory tests. Her past history was notable for chronic knee pain and osteoporosis, for which she was having physiotherapy. When her friends in her village told her that mayflower would benefit her knees, she had applied mayflower on her knees 4 hours before the index emergency department admission. The patient was consulted with the general surgery department and admitted to the burn unit. She was treated with daily dressings and discharged after an uneventful hospital stay.



Figure 3. First and second degree burn injuries on the patient's knee

Case Presentation 3

A 57-year-old woman presented to emergency department with redness, burning sensation, and pain in her right leg. Her general status was well and she was conscious. Her systemic examination was also normal. However, lower extremity examination revealed a right-sided first degree burn injury extending from the proximal part of femur to the distal end of knee (Fig. 4). She gave a history of application of an herb traditionally known as mayflower after crushing it, in an attempt to relieve chronic knee and leg pain. Her vital signs were as follows: blood pressure 130/80 mmHg, body temperature 36.6°C, and pulse rate 72 beats per minute.

A general surgery consultation was obtained and the patient was admitted to the burn unit where she was followed with daily dressing changes. She was discharged uneventfully.



Figure 4. First degree burn injury extending from the proximal part of femur to the distal end of knee

Discussion

Although herbal remedies are not preferred as widely as modern treatment modalities, they still maintain their importance among alternative therapies. Ranunculus species are traditionally used by lay people for rheumatic pain. It was also used by both patients presented here for knee pain that they suffered for a while and that was unresponsive to drug treatment.

Ranunculus species are caustic, irritant, erythema-inducing, toxic herbs [2]. A substance called protoanemonin that is an unsaturated lactone is held responsible for burn injuries and intoxications occurring with herbs belonging to the Ranunculus family [3]. It has been reported that fresh protoanemonin has a greater irritant property that is reduced after drying. Protoanemonin is volatile, highly irritant oil that inhibits DNA polymerase [4]. It breaks sulphur bridges and causes cutaneous bulla formation. Our patients also had cutaneous bulla formation and blisters. Chewing of leaves and stalk of crushed mayflower may cause bulla to form around lips and in face [4]. It has been reported that Ranunculus family may cause phytophotodermatitis by its furocoumarin content [5]. It is already known that the tendency to apply treatment modalities other than modern medicinal methods is more common in chronic disorders. Herbs belonging to Ranunculus family are traditionally used for abscess drainage, and treatment of hemorrhoids, burns, wounds, and rheumatic and muscle pain [6]. Our patients had chronic drug use. They applied paramedical therapies when they considered they did not benefit from therapies that they received so far; such a tendency is in agreement with the literature data. A literature search revealed case reports of chemical burns as in our patients induced by Ranunculus species used for joint pain in various regions of Turkey [7,8].

Conclusion

As indicated by these cases, traditional treatment methods are commonly applied in addition to modern medical therapies. While herbal products have been shown to benefit many dermatological and rheumatologic disorders, they may also cause many unexpected side effects. Herbal therapies may cause increased treatment duration and cost. We are of the opinion that modern medical therapies should be preferred over herbal remedies since the benefits of the latter remains to be proved.

Financial Disclosure: The authors declared no conflicts of interest.

Funding/Support: The study was not supported financially and did not get any grants.

Acknowledgements: The authors thank to Gökmen Cengiz Akdağ for permission to use his photograph of “May Flower”.

References

1. Stoner JG, Rasmussen JE. Plant dermatitis. J Am Acad Dermatol. 1983;9(1):1-15.
2. Sayhan MB, Gokdemir MT, Guloglu C, Orak M, Ustundag M: A Burn case associated with Ranunculus arvensis. Anatol J Clin Investig. 2009;3(1):85-87.
3. Orak M, Ustundag M, Guloglu C, Tas M, Baylan B. A skin burn associated with Ranunculus arvensis (wedding bloom). Indian J Dermatol. 2009;54(5):19-20.
- 4-Li R Z, Ji X J. The cytotoxicity and action mechanism of ranunculin in vitro. Yao Hsueh Hsueh Pao. 1993;28(5):326-31.
5. Akyol M, Ozcelik S, Polat M, Marufihah M. Ranunculaceae Dermatiti: A pattern of contact irritation dermatitis-(A case). Cumhuriyet Med J. 2001;23(1):54-6.
6. Metin A, Calka O, Akdeniz N, Behçet L: Phytodermatitis from Ceratocephalus falcatus. Contact Dermatitis. 2005;52(6):314-6.
7. Eskitascioglu T, Dogan F, Sahin G, Ozkose M, Coruh A, Ozyazgan I: An extraordinary chemical burn injury cause: buttercup, a report of five cases. Burns. 2008;34(5):727-30.
8. Karadas S, Gonullu H, Aydin I, Oncu MR: Contact Dermatitis Due To Alternative Treatment Methods: Four Case Reports. JAEMCR. 2012;3(3):77-80.