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CASE REPORT

Fig tree leaf caused phytodermatitis: A case report

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Abstract

Objective: Traditional and complementary medicine practices, which are becoming more and more widespread in the world, appear as a global problem in particular. The leaves of the fig tree (Ficus carica) contain furocoumarin and this may cause phytodermatitis. In this study, it is aimed to present the medical condition of a family of four who were deliberately exposed to fig leaves.

Method: Patient records were reviewed retrospectively.

Results: The complaints of the patients started on the second day of exposure and the patients applied to the hospital on the fifth day. After their treatment, the patients were discharged with full recovery.

Conclusion: Herbal treatment is widely used in our country as well as all over the world. Making evidence-based recommendations for the medical treatment of medicinal plants and phytotherapy products without providing adequate standardization and determining indications and contraindications poses a danger to public health.

Keywords: Ficus Carica**,** Poisoning, Phytodermatitis, Case Report

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INTRODUCTION

Traditional medicine practices are becoming more common around the world day by day, and this may lead to some complications. Many plant families include species that can cause phytophotodermatitis. The photoreactivity of plants depends on their furocoumarin (psoralens) content. These, when activated by long-wave ultraviolet radiation (UVA), cause skin damage through phototoxic mechanisms. Clinical changes such as erythema, bullae, and then hyperpigmentation appear on the skin 24-72 hours after exposure. Fig tree leaf (*Ficus carica*) is one of the plant species with a strong phototoxic effect.[1]

METHODS

The records of the mentioned family were scanned retrospectively from the hospital database. Case report consent was obtained from the patients.

RESULTS

This case covers a family of 4, whose feet were kept in a bucket, on the same day, at the same time, for half an hour, in a water container containing boiled fig leaves, which became lukewarm. The patients stated that they used this traditional method to treat the fungus between the toes and to relieve the pain caused by rheumatism. Complaints that developed in the form of burning and pain emerged in the first 24 hours after exposure, and the patients applied to the hospital after the development of vesicles and bullae approximately 48 hours after exposure. Two of the patients are women and two are men, and their ages are shown in Table 1. Patient 1's burn images at admission are shown in Images 1, 2, and 3.

Table 1. Blood findings of the patients (Day 1 and Day 4).

Test (Days 1 and 4)	Patient 1 (57 y, Female)	Patient 2 (41 y, Male)	Patient 3 (37 y, Female)	Patient 4 (35 y, Male)
AST (11-25)	14 / 20	**108 / 172**	25 / **110**	**35/125**
ALT (7-28)	16 /19	**109 / 213**	12 / 82	23/**235**
CPK (34-131)	60 / 96	**639 / 1616**	**729 / 2903**	**1324/2489**

Image 1. Left foot view of a 57-year-old female patient.

Image 2. Right foot view of a 57-year-old patient.

Image 3. Left foot view of a 57-year-old female patient.

There was also mild hyperpigmentation appearance at the feet of all. On the 8th day, escarectomy, escharotomy, and debridement operations were performed on the feet of the patients under general anesthesia. It was not possible to remove the scars of the patients who were admitted to the hospital lately, with only bullae debridement of circular foot burns. Therefore, it was decided to perform surgery on the patients. In the surgeries, escharotomy was performed primarily, and intact skin depth was found. Afterward, escarectomies were performed. In these cases, escharotomy was performed not for compartment blocking, but for determining the scar excision margin. Local bacitracin ointment, oral paracetamol tablet, and oral pantoprazole tablet were used in the treatment of all patients. The reason for not using local silver silvadiazine is to prevent the increase of hyperpigmentation caused by a fig leaf. For this reason, bacitracin ointment, which is the cheapest topical antimicrobial agent used in burn wounds, was preferred. Oral paracetamol was administered to relieve pain, and oral pantoprazole was administered to prevent bleeding. The patients continued their polyclinic controls after discharge, and the follow-up ended with full recovery on the 35th day after discharge. Antiscar ointment topical treatment was recommended for the burn scar for 3 months. It was also supported by antihistamine treatment for itching. Medical treatments were stopped at the end of the 4th month. The scars healed as lightly pigmented lesions at the end of the 6th month.

In three of the patients, the increments of liver function tests (AST, ALT) and creatinine phosphokinase (CPK), a muscle breakdown enzyme, were observed at the time of hospitalization and during follow-up.

DISCUSSION

The leaves and immature fruits of *Ficus carica*, which belongs to the mulberry family (Moraceae), contain furocoumarins, psoralen, and bergapten, as well as coumarins, umbelliferone, 4',5' dihydro psoralen and marmesin. Furocoumarins are fat soluble and can easily penetrate the epidermis. In fig latex, there are other enzymes with keratolytic effects that increase the effect of furocoumarins, such as lipodiastase, amylase, and lipase. When it comes into contact with the skin, it can cause cell death by disrupting cell division, deoxyribonucleic acid (DNA) repair and DNA synthesis, and DNA cross-linking after exposure to UV light. These deleterious changes are more common in epidermal DNA and it is characterized by blistering and vesicle formation. The main

symptoms of phytodermatitis are burning sensation and pain, itchy erythema, and edema, which usually start 24 hours after exposure. [1, 2] Our patients also had a burning sensation and pain. Saeed et al. published a study in 2002 stating that *Ficus carica* has irritant properties.[3] In addition, in a case report published by Imen et al. in 2019, four pediatric patients who were admitted to the hospital with burn symptoms eight hours after contact with fig leaves are discussed. Phytophotodermatitis was also seen in these cases and the burns were second-degree.[4]

In a case report reported from our country in 2003, a 22-year-old female patient used a fig tree leaf bath to treat another dermatitis on her body, burning, itching, and erythema occurred within the first 24 hours, 2nd degree burn occurred and local treatment was applied to the area, burning 72 hours after exposure. It has been reported that hyperpigmented appearances and raised lesions develop at the lesion sites, although there is no exposure to direct sunlight with an increase in sensation. [5] In a case series of 3 cases reported from Turkey in 2012, a 13-year-old child with mental retardation developed erythema, pruritus, and bullae 24 hours after taking a bath with boiled fig tree leaves to improve cognitive impairment. Due to the contact of his parents, 2nd degree burns developed on his hands and his child's body. [6] In a case report reported by Dölek et al. in 2021, it was mentioned that a 72-year-old female patient applied to the hospital due to a burn that developed after boiling fig tree leaves and washing her feet with water. [7]

In the literature review, in case reports describing the phototoxic effects of Ficus carica, there are no findings related to elevated AST and ALT values, which are liver function tests, and elevated creatinine phosphokinase levels.

In a study on mice conducted by Zhou et al. in 2018, it was shown that psoralen causes liver toxicity.[8] In this case, high liver enzymes in our patients pointed out liver damage. However, the reason for the elevation of creatinine phosphokinase in our cases is not fully understood. CPK has isoenzymes found in the heart, lung, skeletal muscle, and brain tissues. The CPK elevation in patients may be due to local tissue destruction of burns reaching the 2nd degree. Elevated levels of AST and ALT may also be secondary to liver toxicity of psoralen or tissue damage and hypoxia due to its local effect.

The concept of phytotherapy, defined in the field of traditional and complementary medicine, means treatment with herbs.[9] Traditional medicine is rapidly spreading all over the world. Not only in our country but also in Europe, North America, and even in developed countries, more than 50% of the society turns to complementary medicine practices. Traditional and complementary treatment practices should be supported by scientific studies that determine their safety and effectiveness. In the same way, there is a need for the evaluation of medicinal plants by researching their effects, side effects, and safety, and the creation of application-oriented use schemes such as their use. The purpose of safety and calculation of the amount of the active substance used in the product is the provision of a certain standard. Otherwise, as seen in this case, treatments that are believed to be safe but have no or limited evidence cause harm.

Nearly one-third of pharmaceutical drugs are derived from plants. There have been reports of very dangerous and fatal side effects from the use of herbal products. These side effects may be due to several different mechanisms. For example; direct toxic effects of the plant, allergic reactions, effects due to contamination, and interactions with drugs and other plants. Some studies have shown that existing herbal products vary depending on the amount of various active markers they contain. [10] In Turkey, the Ministry of Health published the "Regulations on Traditional and Complementary Medicine Practices" in 2014. [11] However, such regulations are open to discussion in terms of benefit/possible harm assessment. In addition, any deviation from evidence-based information threatens both the patient and public health. [12]

In survey studies investigating which treatment method the patients think is more effective about modern medicine and GETAT (Traditional and Complementary Medicine) methods, the opinion that GETAT methods are as effective as modern medicine is dominant at rates between 37% and 67.8%. It is understood from the answers in the studies that the patients have great hopes of recovery with the GETAT methods. The majority of patients using herbal medicine prepare and use the herbal treatment they will use with their means from plants or plant parts obtained from herbalists. At this point, the main problem is that millions of people trust plants so easily, and as a result of this trust, unconscious widespread use can cause many problems that will endanger public health. [11] Despite its widespread use, the lack of a specific protocol creates uncertainty.

As a result, herbal treatment is an issue that should be emphasized by healthcare professionals as it causes many health problems as a result of its widespread use all over the world and in our country. The indiscriminate use of plants without sufficient evidence-based studies on their safety is an important public health problem.

The use of traditional and complementary medicine is prevalent throughout all segments of society in our country. [13] In the use of herbal products, it is very important to convey the perspective of "herbal product is good, it is harmless, it is useful" to the public with correct information. Because science is based on evidence; It cannot be guided by thoughts or beliefs. It is very important to replace the wrong with the right ones according to the attitudes and behaviors of the society, to provide training to raise public awareness, and to observe the effects on the attitudes and behaviors of the society.

CONCLUSION

Herbal and complementary treatments are widely used, but their use may be risky due to the lack of scientific evidence. There are many case reports in our country showing that phytodermatitis develops due to boiling fig tree leaves. It is of great importance to standardize the use of phytotherapy agents, conduct phase 2 and phase 3 studies on indications and contraindications, and make evidence-based recommendations for medical treatments.

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