

## A Rare Case of Impaired Consciousness, Compartment Syndrome and Rhabdomyolysis Following Local Dermal Exposure to Stinging Nettles (*Urtica dioica*)

### *Isırgan Otu (Urtica dioica) ile Lokal Dermal Maruziyet Sonrası Nadir Görülen Bilinç Bozukluğu, Kompartman Sendromu ve Rabdomiyolizis Vakası*

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#### ABSTRACT

**Aim:** Nettle (*Urtica dioica*) is widely used in traditional medicine but is also known for its irritating effects upon dermal contact. While local irritation is common, severe systemic reactions are rarely reported. In this case, we aim to present a patient who developed altered consciousness, rhabdomyolysis, and compartment syndrome following dermal exposure to *Urtica dioica*.

**Case:** An eighty-five-year-old female initially presented to the emergency department with localized itching and edema. However, on repeat admission days later, she exhibited confusion, agitation, and significant swelling in her left arm. Laboratory findings revealed rhabdomyolysis, with marked renal dysfunction, elevated creatine kinase, troponin, and inflammatory markers. Imaging ruled out intracranial pathology, and Doppler ultrasonography excluded vascular obstruction. Despite treatment, the patient required long-term care in a palliative setting.

**Conclusion:** Although *Urtica dioica* is traditionally known for its medicinal properties, its irritant effects can lead to serious systemic complications following dermal exposure. The findings highlight the potential life-threatening outcomes of a commonly encountered plant, emphasizing the need for awareness and prompt intervention in such cases. Clinicians should consider these risks when managing patients with similar presentations.

**Keywords:** Stinging nettle, *urtica dioica*, systemic reaction

#### ÖZ

**Amaç:** Isırgan otu (*Urtica dioica*) geleneksel tıpta yaygın olarak kullanılır ancak aynı zamanda dermal temasta tahriş edici etkileriyle de bilinir. Lokal tahriş yaygın olsa da şiddetli sistemik reaksiyonlar nadiren bildirilir. Bu vakada, *Urtica dioica*'ya dermal maruziyet sonrası bilinç bozukluğu, rabdomiyoliz ve kompartman sendromu ile gelen hastayı sunmayı amaçladık.

**Olgu:** Seksen beş yaşında kadın hasta acile ilk lokalize kaşıntı ve ödem şikayetiyle başvurdu. Ancak tekrarlayan başvurusunda günler sonra bilinç bulanıklığı, ajitasyon ve sol kolda belirgin şişlik şikayetleri mevcut olup, laboratuvar bulguları, önemli böbrek bozukluğunun yanı sıra yüksek kreatinin kinaz, troponin ve inflamatuvar belirteçleri ile rabdomiyoliz tanısı konuldu. Görüntülemelerle intrakraniyal patolojiyi dışlandı ve Doppler ultrasonografi ile vasküler tıkanıklık dışlandı. Tedaviye rağmen, hasta palyatif bir ortamda uzun süreli bakıma ihtiyaç duydu.

**Sonuç:** *Urtica dioica* geleneksel olarak tıbbi özellikleriyle bilinse de tahriş edici etkileri dermal maruziyet sonrasında ciddi sistemik rahatsızlıklara yol açabilir. Bulgular, yaygın olarak karşılaşılan bir bitkiden kaynaklanan yaşamı tehdit edici sonuçlar potansiyelini vurgulayarak, bu tür vakalarda farkındalık ve acil müdahale ihtiyacını vurgulamaktadır. Klinisyenler benzer sunumlara sahip hastaları yönetirken bu riskleri göz önünde bulundurmalıdır.

**Anahtar Kelimeler:** Isırgan otu, *urtica dioica*, sistemik reaksiyon

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## Introduction

Stinging nettle (*Urtica dioica* L., Urticaceae) (Figure 1) is commonly found in Asia, Africa, the name means “to burn” in Latin language and nettle means “noedl” (needle) in Anglo-Saxon (1). *Urtica dioica* (UD) has been widely used by the traditional medicine providers to cure diseases such as hematuria, nephritis, jaundice, arthritis, menorrhagia and rheumatism. Phytochemical studies revealed the presence of many valuable chemical compounds like saponins, phytosterols, flavonoids, proteins, tannins and amino acids (2). It is known that dermal exposure results in irritation mainly due to a fluid release which contains acetylcholine, formic acid, acetic acid, serotonin, histamine, and leukotrienes which are blamed for this irritant effect (1). However, there is a lack of knowledge in the literature about catastrophic outcomes of this irritant effect. In this report, we present a case of an 85-year-old female patient developing impaired consciousness, compartment syndrome and rhabdomyolysis after dermal exposure to UD. To our knowledge, this is the unique case with fatal consequences of UD exposure.

## Case Report

An 85-year-old female patient was exposed to UD unwillingly while walking in the countryside. The site of exposure was her left hand. Then, she was admitted to our Emergency Department (ED) due to itching and edema in the left hand. Her laboratory findings were normal. A local allergic was considered and the patient was discharged with a recipe. A few days after exposure, the patient was re-admitted due to alteration in the level of consciousness, agitation, decrease in oral intake and edema in the entire left arm (Figure 2).

On admission, her general condition was moderate-poor with a Glasgow Coma Scale score of 14. Her vital were as follows: blood pressure 140/80 mmHg, temperature: 36,7 °C, respiratory rate: 20/minute, saturation: 92, heart rate:145/minute and glucose level: 125 (mg/dL). Her ECG revealed atrial fibrillation with high ventricular response. Following rate control drugs administration, heart rate was taken under control. Her left arm was edematous; however, peripheral pulses were evident. Light reflexes were bilateral positive and pupils were isochoric. Neck-stiffness, loss of motor function on extremities or pathological reflexes were not determined. In order to exclude an intracranial pathology, computed tomography and magnetic resonance imaging were performed. They were both normal. A doppler ultrasonography (USG) to the left upper extremity was also performed and deep venous thrombosis or embolus were not determined. Superficial USG of the effected region was also reported as normal. Laboratory analysis of the patient was as follows; creatinine: 5.3 mg/dL, K: 6.69 mmol/L, creatinine kinase: 13119 U/L, troponin: 1240 ng/L, C-Reactive Protein: 445 mg/dL, venous pH: 7.23, bicarbonate levels: 13 mmol/L, serum lactate levels: 4.60 mmol/L. Laboratory analysis is given in Table 1. IV fluid resuscitation was initiated and following appropriate consultations, the patient was transferred to the intensive care unit. The patient’s treatment is still ongoing in the palliative care unit for six months.

Written informed consent was obtained from the patient’s relatives for the publication of this case report and the accompanying images.



Figure 1. Stinging Nettle. Location: 40°37'49.8"N 35°13'02.5"E



Figure 2. Edema in the left arm due to contact with nettle

Laboratory test	Results	Laboratory test	Results	Laboratory test	Results
White blood cell count, 10 <sup>9</sup> /L	9830	Total bilirubine	0.96 mg/dL	pH	7.23
Hemoglobin	13 g/dL	Direct bilirubine	0.27 mg/dL	Bicarbonate	13
Platelet count, 10 <sup>9</sup> /L	129000	Albumine	28 g/L	Partial CO <sub>2</sub>	33 mmHg
Blood glucose	109 mg/dL	Calsium	7.5 mg/dL	Lactate	4.60 mmol/L
Blood Urea Nitrogen	114 mg/dL	Sodium	135 mmol/L	Prothrombine Time/INR	12.8 second/1.02
Glomerular filtration rate	7 ml/min/1.7	Potasium	6.69 mmol/L	Partial thromboplastin time	33.7 second
Creatinine	5.3 mg/dL	Amilase	83 U/L	HBS Ag	Negative
Aspartate aminotransferase	252 U/L	C-reaktive protein	445 mg/dL	ANTI HBS	Negative
Alanine aminotransferase	156 U/L	Troponin	1240 ng/L	ANTI HCV	Negative
Lactate dehydrogenase	726 U/L	Creatinin Kinase	13119 U/L	ANTI HIV	Negative
Total protein	61 g/L	Urine test	Normal		

Table 1. Laboratory findings of the patient

## Discussion

Members of nettle family plants (Urticaceae) are frequently found in Anatolia. As in other regions of the World, the most common kind is *Urtica dioica* (UD). This plant has been used by people for cancer therapy, diseases of pancreas, high blood sugar and common cold (3).

*Urtica dioica*, also known as Stinging nettles are known to cause contact urticaria. Following stinging, burning sensation in the area exposed, in several minutes, an urticarial, blanching rash takes place. The reason for the dermatitis is biochemical irritation caused by multiple small spicule-type hairs located on the stem and the underside of the leaves (4). Those act like needles and chemicals causing dermatitis like histamine and acetylcholine are expressed (5). In addition, nettle leaves are highly rich in flavonoids, phenolic acids amino acids, saturated fatty acids, carotenoids, and organic acids (1). It is known that phenolic acids and polyphenolic compounds can be determined in root, stalk, and stinging nettle leaves (6). Exposure to a nettle is equivalent to being injected with many tiny hypodermic syringes. These tiny, hollow, rigid hairs and their base contain irritant liquid (7). In our case, the first admission of the patient was due to this local irritation which is relatively less dangerous.

In the literature, in case of a possible presentation due to DU exposure, various methods of treatment are suggested. Massaging of the affected area and cold compress are known to have potential to relieve pain, itching and local reaction. Bathing in tepid water may also provide some relief from nettle stings (7). In our case, the patient was discharged with similar recommendations. However, on re-admission, patient was in a condition that these local measures were

not enough. The patient required close monitorization in the ICU in order to avoid morbidity and mortality.

Rhabdomyolysis occurs for two reasons: traumatic and non-traumatic. Non-traumatic rhabdomyolysis is more common in glycogen storage diseases, muscular dystrophies, mitochondrial disorders, arterial occlusions and infections, and can be seen rarely in toxic substance exposure and illicit drug use (8). Rhabdomyolysis is clinically seen as a triad of weakness, myalgia, and myoglobinuria. Dark urine is seen in only 10%. In the laboratory, elevated creatinine kinase, lactate dehydrogenase is detected (9). The most important complication of rhabdomyolysis is acute kidney injury, which is thought to be due to the nephrotoxic effect of myoglobin. In our patient, after contact with nettle toxins caused local inflammation, muscle breakdown and rhabdomyolysis.

Our patient presented with alteration of consciousness which is not a frequent symptom of UD exposure. In a case report, altered mental status and a delayed serious allergic reaction due to the ingestion of boiled nettle water was determined (3). However, in the above-mentioned report, the exposure was oral not dermal. So, our case is a unique report that reports dermal exposure to UD causing systemic reaction.

## Conclusion

*Urtica dioica* is used for therapeutic purposes for ages as a component of traditional medicine in various cultures. It is known with its irritating properties, particularly in case of dermal exposure irritation is common. Irritation occurs due to fluid release which contains acetylcholine, formic acid, acetic acid, serotonin, histamine, and leukotrienes. In our case, we aimed to emphasize that UD exposure may cause severe local and systemic reactions.

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