

**AN UNEXPECTED COMPLICATION OF FOLK MEDICINE: ACUTE BULLOUS
IRRITANT CONTACT DERMATITIS DUE TO TOPICAL ONION OIL****Mustafa Alperen Aydeniz***

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ABSTRACT

Topical folk remedies are widely used for musculoskeletal complaints despite their potential cutaneous adverse effects. We report a 60-year-old woman who developed severe burning, erythema, and tense bullae on the lower back 6 hours after applying pure onion oil (*Allium cepa*) for chronic low back pain. Acute bullous irritant contact dermatitis was diagnosed based on the rapid onset and sharply localized distribution. The patient showed marked clinical improvement with substantial re-epithelialization within 20 days following appropriate wound care and topical treatment. This case highlights the potential dermatological hazards of unsupervised herbal remedies and emphasizes that natural products should not be considered inherently harmless.

KEYWORDS: *Allium cepa*; bullous irritant contact dermatitis; folk medicine; onion oil; phyto dermatitis.**INTRODUCTION**

Musculoskeletal pain is one of the most common reasons for healthcare seeking and self-medication strategies worldwide. Patients suffering from chronic low back pain frequently turn to complementary and alternative medicine (CAM) or unverified folk remedies, largely driven by peer advice and cultural beliefs. A prevalent misconception within society is that "natural equals safe" and that herbal preparations are inherently free of harmful side effects. This misleading assumption often leads individuals to apply potent plant extracts directly to their skin without medical supervision.^[1,2]

Plants belonging to the *Allium* genus, such as garlic and onion, are frequently used as topical folk remedies due to widespread beliefs regarding their analgesic and anti-inflammatory properties.^[3] However, onion (*Allium cepa*) contains a variety of bioactive organosulfur compounds, including thiosulfinates and other volatile sulfur-containing compounds, which may contribute to its local irritant and cytotoxic effects. Cutaneous exposure to irritant compounds derived from *Allium* species may cause epidermal barrier disruption and trigger acute irritant contact dermatitis (AICD) without requiring prior immunological sensitization.^[3,4]

Herein, we report a case of a 60-year-old woman who developed severe, burn-like bullous AICD on her lower back following the direct application of pure onion oil for low back pain relief. Through this report, we aim to emphasize the potential dermatological hazards associated with uncontrolled folk remedies and underscore the public health necessity of educating the public regarding the risks of topical herbal self-treatment.

CASE REPORT

A 60-year-old woman presented to our dermatology outpatient clinic with sudden-onset severe pain, erythema, and bullous lesions on her lower back. Her medical history revealed that she had applied pure onion oil (*Allium cepa*) directly to her lumbar region in an attempt to alleviate chronic lumbalgia. Approximately 6 hours post-application, she experienced intense burning sensations, erythema, and rapidly progressing vesicles and bullae in the applied area. Her personal and family medical histories were unremarkable for any additional dermatological diseases or known allergies. Dermatological examination revealed a well-demarcated, markedly erythematous, edematous, and hyperpigmented plaque strictly confined to the application site on the

lumbar region. Within this area, multiple tense vesicles and large bullae filled with clear serous fluid were present on an erythematous base, alongside a central erosive area resulting from epidermal sloughing (Fig. 1). Linear bullous and vesicular lesions following the gravitational run-off paths of the applied oil were notably present along the lateral margin (Fig. 2). The clinical appearance strikingly mimicked a second-degree chemical burn. Systemic examination findings were normal; no regional lymphadenopathy or mucosal involvement was detected. Based on the rapid clinical course, strict spatial limitation to the application site, and close temporal relationship with topical onion oil exposure, a diagnosis of onion oil-induced acute bullous irritant contact dermatitis was established. Patch testing was deemed unnecessary due to the typical history and

distinct nature of the irritant reaction. Therapeutic management involved sterile aspiration of the large bullae while preserving the bullous roof to act as a natural biological dressing. The patient was prescribed cold compresses with normal saline twice daily, followed by a topical combination of betamethasone valerate and fusidic acid to mitigate inflammation and prevent secondary bacterial infection. Extensive counseling was provided to the patient regarding the strict avoidance of similar folk remedies and herbal applications in the future. Follow-up on day 20 demonstrated complete resolution of pain, extensive re-epithelialization of the erosive areas, and significant regression of the lesions, leaving residual post-inflammatory hyperpigmentation (Fig. 3 and 4).



Fig. 1: Well-demarcated, erythematous, and hyperpigmented plaque on the lumbar region featuring multiple large tense bullae, vesicles, and a central erosive area due to epidermal sloughing following topical onion oil application.



Fig. 2: Lateral view of the lesion demonstrating linear, streak-like erythematous bases with tense, clear serous-filled bullae and vesicles corresponding to the gravitational run-off paths of the applied onion oil.



Fig. 3: Follow-up on day 20 of treatment demonstrating complete resolution of bullae, a broad area of re-epithelialization, and peripheral post-inflammatory hyperpigmentation.



Fig. 4: Close-up view of the lesion on day 20 of treatment, showing ongoing re-epithelialization at the base of the central erosive area, focal yellowish-brown crusting, and regression of the surrounding erythematous halo.

DISCUSSION

Traditional and complementary medicine practices and herbal folk remedies are widely used in the community, particularly for the management of musculoskeletal complaints such as chronic low back pain.^[1] The widespread misconception that natural products are inherently safe and free of adverse effects may lead patients to apply highly concentrated herbal preparations directly to the skin without medical supervision.^[2]

Plants belonging to the *Allium* genus, including onion (*Allium cepa*) and garlic (*Allium sativum*), contain various bioactive sulfur-containing compounds, including thiosulfates and other volatile organosulfur compounds.^[4] These constituents may contribute to local irritant and cytotoxic effects, particularly following direct or prolonged cutaneous exposure to concentrated preparations. Such exposure may disrupt epidermal barrier integrity and trigger an inflammatory response, ultimately resulting in irritant contact dermatitis.^[3,4]

In dermatological practice, distinguishing AICD from allergic contact dermatitis (ACD) is important. As observed in our patient, the rapid onset of intense burning, erythema, and bullous lesions within approximately 6 hours after a single topical exposure, together with the sharp confinement of the lesions to the application site, strongly supported an irritant mechanism.^[3] In contrast to ACD, which requires prior sensitization and develops through a delayed type IV

hypersensitivity mechanism, AICD results from direct cutaneous injury without the requirement for immunological sensitization and is influenced by the concentration of the irritant and duration of exposure.^[3,5] Severe irritant exposure may result in vesicle and bulla formation, producing a clinical appearance that can mimic a chemical burn.^[3] In our patient, the tense bullae, marked erythema, and distribution corresponding precisely to the application site were consistent with this severe irritant reaction pattern.

The management of acute bullous AICD is primarily based on discontinuation of exposure to the offending irritant, preservation of epidermal barrier integrity, control of inflammation, and appropriate wound care.^[5,6] In large and tense bullae, sterile aspiration while preserving the blister roof may help protect the underlying erosion and improve patient comfort.^[6] In our patient, the large bullae were aspirated under sterile conditions while the blister roofs were preserved, and cold compresses with normal saline were followed by topical treatment with a combination of betamethasone valerate and fusidic acid. At the 20-day follow-up, complete resolution of pain, extensive re-epithelialization, and marked regression of the lesions were observed, with residual post-inflammatory hyperpigmentation.

This case highlights that products perceived as “natural” should not automatically be considered safe or harmless.

The use of herbal and traditional products without adequate knowledge of their composition, concentration, and appropriate method of application may result in preventable cutaneous adverse reactions. In particular, self-treatment practices based on advice from non-medical sources and traditional beliefs rather than guidance from healthcare professionals may increase the risk of inappropriate use of concentrated herbal products. Therefore, clinicians should actively inquire about the use of complementary and traditional remedies, while greater public health literacy regarding the potential dermatological risks of herbal products should be encouraged. Our case is educational in demonstrating that a topical practice perceived as harmless may lead to a severe bullous dermatological reaction mimicking a chemical burn.

CONCLUSION

This case demonstrates that direct topical application of onion oil may result in severe bullous AICD with a burn-like clinical presentation. When evaluating patients presenting with acute, well-demarcated bullous lesions, particularly at sites of musculoskeletal pain, clinicians should carefully inquire about the use of topical folk remedies. Public health initiatives should focus on raising awareness that natural herbal remedies are not inherently harmless and may cause serious dermatological complications.

INFORMED CONSENT

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

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CONFLICT OF INTEREST

The author declares no conflict of interest.

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