

Allergic reactions and dermatitis to common bed bug bites: A case report from Ahvaz, Southwest Iran

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Dear Editor,

Bed bugs are an important public health concern, as they are urban pests and obligate blood-sucking insects that feed exclusively on humans. This insect is nocturnal, wingless, reddish brown color, and approximately 5-7 mm in length¹.

Bed bug Infestation can produce psychological distress with nightmares, insomnia, anxiety, avoidance behaviors, anemia, and personal dysfunction².

Although the bite is painless, it causes skin itching in individuals^{3,4}. The itching is often intense, especially in the morning, but can vary from person to person⁴. The pattern of distribution of these bites is in a linear sequence, with 3-4 bites in a line or a curve^{5,6}. Bed bugs mainly feed on the arms, forearms, legs, the torso, neck, and face. Generally, bites are observed on parts of body that are uncovered during the rest period and sleep^{7,8}. The bed bug bite may cause mild or severe cutaneous reactions in some sensitive individuals.



Figure 1. Cutaneous reactions and excoriated papules on the patient's forearm after: (A) 12-24 hours, (B) 2 days, (C) 5 days, and (D) 7 days.

In these individuals, the lesion morphology includes macules, papules, pustules, blisters and nodules, in addition to systemic reactions such as urticaria and anaphylaxis⁹.

A 28-year-old Iranian man who resided in Ahvaz had bite signs and severe itching on his forearm. He was referred to the Department of Medical Entomology and Vector Control, School of Health, Jundishapur University of Medical Sciences. At the physical and dermatological examinations, the signs were identified as cutaneous reactions and excoriated papules related to bed bug bites. The patterns of bite signs were in a line and curve distribution (Figure 1).

The patient's house was visited by a medical entomology expert. Adults, nymphs, eggs and feces of the insect were observed at the infected site. The specimens were collected and identified as the common bed bug, *Cimex lectularius* (Cimicidae).

The reactions included severe cutaneous allergic reactions with itching skin that presented one hour after the bed bug bites and continued 12-24 hours after the bite. After 2 days, a lesion that included papules, blisters, and nodules was observed on his forearm. After 5 days, the patient had local allergic reactions on his forearm. The cutaneous allergic reactions resolved after 7 days by using a corticosteroid cream and an oral antihistamine (Figure 1).

Recently, bed bug infestation is increasing worldwide¹⁰. Few reports of bed bug prevalence have been documented in Iran. Diagnosis of bed bug bite signs is difficult for people and often confused with other skin problems or allergies, even by dermatologists^{4,5}.

The degree of the bed bug bite reaction varies person to person, including low to high sensitivity and often depends on the level of prior exposure⁶. The bite may look similar to other blood-sucking insect bites⁷, but if the bites are in linear groups of three bites and the reaction presents in the morning, it can be related to bed bug bites¹¹. In general, at least three antigens have been identified in bed bug saliva, which cause a robust immunogenic substrate for hypersensitivity reactions to bed bug bites¹².

In several studies, hypersensitivity, cutaneous allergic reactions, and bullous reactions to common bed bug bites have been reported in individuals¹³⁻¹⁶. In another case report, common bed bugs caused

anemia in an elderly person¹⁶; however, generally bed bugs are usually considered harmless. Severe bed bug's blood-sucking can cause pallor and eventual iron deficiency in infants and children¹⁷.

In order to decrease bites from bed bugs, it is necessary to increase public awareness and knowledge, health services, and dermatologists about the signs of biting.

Ismaeil Alizadeh, MSc
Elham Jahanifard, PhD
Mona Sharififard, PhD

*Department of Medical Entomology and Vector Control,
School of Public Health, Ahvaz Jundishapur University of
Medical Sciences, Ahvaz, Iran*

Corresponding Author:

Mona Sharififard, PhD

*Department of Medical Entomology and Vector Control,
School of Public Health, Ahvaz Jundishapur University of
Medical Sciences, Ahvaz, Iran*

Email: sharififard-m@ajums.ac.ir

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