

## SKIN NECROSIS AFTER VESPIDAE BITE

Esabil EKER<sup>\*</sup>, Elif SARI<sup>\*\*</sup>, Gülsüm TETİK<sup>\*\*\*</sup>, Hulda Rifat ÖZAKPINAR<sup>\*\*\*\*</sup>

<sup>\*</sup> Nafiz Korez Hospital, Plastic, Aesthetic and Reconstructive Surgery Clinic, ANKARA

<sup>\*\*</sup> Polath Duatepe Hospital, Plastic, Aesthetic and Reconstructive Surgery Clinic, ANKARA

<sup>\*\*\*</sup> Antalya Education and Research Hospital, Plastic, Aesthetic and Reconstructive Surgery Clinic, ANTALYA

<sup>\*\*\*\*</sup> Dışkapı Yıldırım Beyazıt Education and Research Hospital, Plastic, Aesthetic and Reconstructive Surgery Clinic, ANKARA

### Abstract

Vespidae genus bite can occur variable symptoms such as severe pain, edema and erythema, dizziness, vomiting, sweating, increased saliva secretion, muscle spasm at the respiratory system. The poison of some genus can be hemolytic and it can make necrosis at the skin. In this case we report an unusual case that occurred skin necrosis after the Vespidae bite.

**Key words:** Vespidae bite, insect bite, skin necrosis

### Vespida Sokması Sonrası Cilt Nekrozu

#### Özet

Vespida cinsi arı ısırığı sonrası ciddi ağrı, ödem ve eritem, baş dönmesi, kusma, terleme, tükürük salgısında artış, solunum sisteminde kas spazmı görülebilir. Bazı cinslerin zehiri hemolitik olabilir ve ciltte nekroza neden olabilir. Bu olguda Vespida sokması sonrası cilt nekrozu gelişen nadir görülen bir vakayı sunduk.

**Anahtar kelimeler:** Vespida ısırığı, böcek ısırığı, cilt nekrozu

### Introduction

In Turkey the most important insect bite is bumblebees (Vespidae) bites<sup>1</sup>. Bumblebees are genus of Vespidae familia including to *apocrita subordo*<sup>2</sup>. The bumblebees are use their teeth in the mouth for bite and they drop their needles in case of selfdefence. These needles are poisonous. The bumblebees' poison occur a pain so sudden and the poison leads to severe allergic reactions in people<sup>2</sup>.

Vespidae genus bite can occur variable symptoms<sup>3</sup>. At the bitten area there can be seen severe pain, edema and erythema. Dizziness, vomiting, sweating, increased saliva secretion, muscle spasm at the respiratory system are the other effects. Rarely bite effect may occur with serum sickness or anaphylaxis. The poison of some genus can be hemolytic and it can make necrosis at the skin<sup>4</sup>. In this case we report skin necrosis after the Vespidae bite.

### Case Report

The 33-years-old male patient consulted to our clinic for necrosis in his foot. We learned of the patient that he has bitten by a bee 5 days ago. After applying steroid ointments by the patient the skin became necrotic. So in the followig days the patient consulted to our clinic skin necrosis on the left leg. The necrosis' dimensions were 4,5x2,5 cm (Fig 1a).

**Figure 1a:** The tissue necrosis after Vespidae bite.



**Figure 1b:** Debridement of all of the necrotic tissues.



The debridement was performed to all of the necrotic tissues (Figure 1b). The skin defect was covered with split thickness skin graft (Figure 1c).

**Figure 1c:** Coverage of the defect with split thickness skin graft.



## Discussion

Vespa or vespula bumblebees bite is common in the summer. When Vespidae bite, the poison in the body is affected in two ways. At the first way the poison joins into the blood circulation system. By this way, neurotoxic proteins can be spread very quickly and will take effect within minutes. At the second way the poison joins to the lymphatic circulatory system<sup>5</sup>. Toxic elements of neurotoxic proteins show effects and these elements destroy to surrounding tissue and the vessels. Although diffusion is low through the lymphatic system, diffusion into the body go on this way.

Venom of Vespidae contains many proteins<sup>3,6,7</sup>. These proteins have 3 kinds of toxic effect: 1. Neurotoxic (Nervous system paralysis), 2. Hemorrhagic (permeability increases in blood capillary), 3. Hemolytic (damage in erythrocytes). All venom allergens are proteins. Acid phosphatase, hyaluronidase and phospholipase-A enzymes showing activity to venom of Vespidae<sup>6-8</sup>. These factors are responsible for diffusion and enzymatic hydrolysis. Mellitin and apamin are peptides of the venom<sup>1</sup>; These peptides include approximately 50% of total venom. These are responsible for inflammation, pain, inflammatory reactions, histamine release and hypotension<sup>9</sup>. Moreover it causes higher toxicity, hemolysis, increasing capillary permeability and smooth muscle contraction<sup>6,7</sup>. The biological amines in venom; kinin, histamine, serotonin, dopamine, adrenaline and noradrenalin. They are responsible for the overall local and systemic toxic effects, at higher concentrations it causes of erythrocyte hemolysis. Antigen 5 is the major allergens of Vespidae bumblebee genus<sup>7</sup>.

At the vespidae bite skin and soft tissue reactions are type 4 hypersensitivity reactions<sup>4</sup>. The most common reactions are pain, itching, edema and erythema after the Vespidae bite. The prevalence of anaphylaxis is approximately %0.5-1 leading to retrospective studies<sup>7</sup>. According to the same study severe anaphylaxis is seen often 1 / 2000 from first 10 min to first 5 hours. Serious systemic reactions are laryngeal edema, hypotension and bronchospasm. Systemic reactions after Vespidae bites also can be seen as vasculopathy, arthralgia, encephalopathy, liver and kidney diseases.

In contrast to these known symptoms, the skin necrosis developing by Vespidae bite has not been reported before. So as mentioned at our report, skin necrosis after Vespidae bite should not be forgotten and early consideration should be taken.

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**Corresponding Author:**

Dr. Elif Sarı  
Fethi Bey Sok. 21/12, Subayevleri,  
Keçiören, ANKARA  
Telephone number: 0 506 381 37 03  
Fax: 0 312 318 66 9  
E-mail: drelifsanli@hotmail.com