

A Rare Complication of Scorpion Sting: Hemiplegia: Case Report

Akrep Sokmasının Nadir Bir Komplikasyonu: Hemipleji

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ABSTRACT The scorpion venom is a toxin that causes local, systemic and neurotoxic effects within the first 12-24 hours following the sting. In this paper will be analyzed a patient with hemiplegia after a sting by a scorpion. After being bitten by scorpion patient with hemiplegia was admitted intensive care unit. On the physical examination, there was erythema and loss of sensation on the lateral site of the right forearm where the scorpion had stung, and numbness in the right arm and right hemiplegia. The deep tendon reflexes were decreased on the right. The patient was performed scorpion antivenom. 24 hours after the anti-venom injection hemiplegia started to regress. In scorpion sting, even if the patient was long before stung, we suggest that application of antivenom will be successful for the regression and improvement of the symptoms.

Key Words: Hemiplegia; bites and stings

ÖZET Akrep venomu, ısırığı izleyen 12-24 saat içinde nörolojik, sistemik ve bölgesel etkilere sebep olan bir toksindir. Bu yazıda akrep sokmasından 24 saat sonra hemipleji gelişen ve geç dönemde antivenom ile tedavi edilen erişkin bir hasta sunulmaktadır. Hastanın fizik muayenesinde, ısırığın olduğu sağ üst kolda duyu kaybı, eritem, uyuşukluk ve sağ hemipleji mevcuttu. Derin tendon refleksleri sağ üst kolda azalmıştı. Hastaya akrep antivenomu verdikten sonra hemiplejisi gerilemeye başladı. Akrep sokmasında, hasta uzun süre önce ısırılmış olsa bile antiserumun başarılı bir şekilde semptomları ortadan kaldırdığını ve bulguları düzelttiğini söyleyebiliriz.

Anahtar Kelimeler: Hemipleji; ısırıklar ve sokmalar

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Scorpions, the most dangerous species of which live in North Africa, Latin America, India and middle East, are a threat to human health all over the world.¹ In Turkey, they are commonly found in warm regions, East and Southeast Anatolia and the Aegean Region. In our country, of the species, *Androctonus crassicauda*, *Leurus quinquestriatus*, *Mesobuthus gibosus* and *M. eupeus* from the Buthidae family, have been encountered.²⁻⁴ The Buthidae family venom is the most neurotoxic one. Neurotoxic peptides in the venom are responsible for the symptoms during the intoxication. Systemically, pictures such as vomiting, increase in secretions, sweating, respiratory insufficiency, hypotension or hypertension, myocardial dysfunction, arrhythmia, pulmonary edema, renal dysfunction,

hepatic dysfunction, disseminated intravascular coagulation, paraesthesia, motor loss, fasciculation and loss of consciousness can occur.³⁻⁵

In this paper, we will explore a case treated by antivenom in the late period after development of hemiplegia. Especially in adult, we rarely encounter similar cases in the literature.⁶⁻⁹

CASE REPORT

Because of the scorpion stings, a 26-year-old, 76 kg male case had presented to another center. Before transferring to our institute patient had been monitored, his wound had been washed, 0.9% NaCl had been given from 1 mL/kg/h. For analgesia, paracetamol (2*500 mg) had been applied. While he was on treatment due to scorpion sting on his follow-up, the numbness in the stung arm increased, sensory loss ensued and immediately after determining on the neurological examination that hemiplegia had evolved, he was transferred to our hospital's anesthesia intensive care unit (ICU) 24 hours after the scorpion sting. In admission to our unit, the general condition of the patient was moderate and consciousness was clear.

On the physical examination, Temperature: 37°C, Blood Pressure: 110/70 mmHg, Heart Rate: 110/min, Respiratory Rate: 27/min, SpO₂: 96%, there was erythema and loss of sensation on the lateral site of the right forearm where the scorpion had stung. There were bilateral moderate crackles in the bases of the lungs. The bilateral light reflexes were positive, deep tendon reflexes were active on the left extremities and decreased on the right extremities. There was hemiplegia on the right side with grade 1 power. Laboratory results were glucose: 127 mg/dL, WBC: 18000/ mm³, ALT: 52 U/L, AST: 79/L, Ca: 7.6 mg/dL. Others laboratory results and blood gas analysis were within normal ranges. Sinus tachycardia was detected on the ECG and there was no pathology detected on telecardiography and echocardiography. On the MRI or CT imaging, there was no evidence of any finding that would cause a neurological problem.

When the patient admitted to our intensive care unit; a standard symptomatic treatment was

initiated. Oxygen (4 L/min) was given by nasal cannula. Patient was administered 0.9% NaCl (1 mL/kg/h). For analgesia, paracetamol (3*500 mg) had been applied. For the treatment; to provide diuresis, furosemide 20 mg and 1-2 mL/kg/h isotonic fluid were initiated. We performed routinely the ranitidine 50 mg and metoclopramide 10 mg in our intensive care unit. Because of not applied previously, scorpion anti-venom (Acsera 5 mL, Vetal Medical) was intravenously administered. Oral feeding regime of the patient was not restricted. 24 hours after the anti-venom injection, the neurological problems recovered and the hemiplegia regressed. On the physical examination, 24th hour of admission to the ICU, Temperature: 37°C, Blood Pressure: 120/80 mmHg, Heart Rate: 100/min, SpO₂: 99%, Respiratory Rate: 18/min, there were bilateral mild crackles in the bases of the lungs. Hemiplegia in right side regressed grade 5 power. Laboratory results were WBC: 17000/ mm³, ALT: 45 U/L, AST: 79/L, Ca: 8.5 mg/dL. The case was referred to the Infectious Diseases Clinic at the 48th hour of admission to the ICU, as all the neurological problems had disappeared completely.

DISCUSSION

In Turkey, particularly in the East and Southeast Anatolia Regions, scorpion stings are an important cause of mortality and morbidity. The amount of venom varies depending on the species of scorpions. *Leurus quinquestriatus* (yellow scorpion), which exists in Turkey, is more toxic than *Androctonus crassicauda* (black scorpion).¹⁰ From the history of our patient, we learned that the poisoning scorpion was a black scorpion. The venom of *A. crassicauda* is a potent autonomic stimulator. Severity of symptoms depends on the size of the victim, the season and the time elapsed between sting and hospitalization. Vomiting, profuse sweating, pain at the sting site, local urticaria, and cool extremities are early signs of autonomic stimulation due to scorpion sting. Fatality after scorpion envenomation may be the result of cardiovascular failure complicated by pulmonary edema as well as by respiratory arrest.¹¹ According to Ozkan et al. it can be concluded that *A. crassicauda* venom has

neurotoxic effects, which enhance the release of catecholamines with consequent stimulation of autonomic nervous system. Ozkan study's showed that rats experimentally envenomed with *A. crassicauda* venom showed acute renal failure, liver dysfunction, and cell destruction. The venom could also be the cause of cardiac problems.¹²

In the conducted studies, it has been determined that the scorpion sting is most commonly stung from the toes, and second most commonly from the hands. The clinical findings in scorpion stings differ according to the scorpion species, the stung site, the amount of venom, the number of stings, the time of arrival at the hospital, the patient's susceptibility, age, weight, and the regional climate. Our case was stung from the right arm by the scorpion.

In a study conducted in Turkey, it was reported that of the 145 patients admitted with scorpion sting, 32 of them had systemic reactions.¹³ In a study conducted in Shiraz Nemazi Hospital in Iran, of the 232 patients admitted with the complaint of scorpion sting, 14 (6%) patients had systemic complications.¹⁴ Again in a study conducted in Turkey among children, it was reported that of the 99 patients, systemic reactions occurred in 9 patients. Only in one of these patients, hypotension, tachypnea, hypothermia and mortality due to convulsion has occurred.¹³ Bahloul et al. researched scorpion sting in patients of childhood age and determined that of the 685 cases, 85.1% demonstrated various cardiac and neurological findings.¹⁵ Furthermore, single cases such as convulsion, intracranial bleeding, cerebral thrombosis, pulmonary edema-myocardial damage and chronic pancreatitis have been reported in the literature.^{3,16-20}

We encountered few cases in adult in the literature that had hemiplegia as a result of scorpion sting.^{6,7,19,20} However, none of these cases have been reported to improve of hemiplegia with antivenom applied in late period. After being stung, our case reached the ICU 24 hours. When the case arrived at our clinic, there was no complication other than localized erythema on the forearm and right hemi-

plegia as a systemic finding. Death is usually seen within the first 24 hours, and neurological symptoms may sometimes persist for up to 7 days.²⁰ In our case, the neurological signs had begun at the 20th hour and had totally regressed at the end of the 2nd day.

In scorpion sting cases, the state of consciousness, patency of the airway, respiration and circulation should be evaluated. Vital findings should be monitored and blood gases are evaluated. The extremities should be examined and peripheral pulses should be checked.^{12,20} The site of the scorpion sting should be washed with NaHCO₃ or plenty of water. For the treatment, fluid-electrolyte support, antibiotic in needed cases, tetanus toxoid, scorpion anti-serum, analgesics to relieve the pain, Phenobarbital for agitation, and to prevent the muscle spasm, calcium gluconate should be administered. For specific treatment, specific anti-venom for the scorpion species should be used. In Turkey, the anti-venom from the *A. crassicauda* venom produced by Refik Saydam Hygiene Center is used.³ An anaphylactic reaction should be considered when applying the anti-venom. Before that, the adrenalin, antihistaminic, steroid, and the emergency intervention kit should be ready.

With the clinical and laboratory findings, our case was diagnosed as neurotoxicity due to the scorpion sting. As it is seen from the literature, neurological symptoms are mentioned as complications of scorpion sting in childhood. However, although our case was an adult patient, differently from the reported cases, he presented with neurological sequel. Moreover, although the findings had emerged, the Scorpion Anti-Venom used in the treatment was successful.

Consequently, in scorpion stings, which are an important health problem, apart from the appropriate intervention, for the treatment of emerging severe neurological systemic symptoms, even if the symptoms have already emerged, we suggest that application of anti-venom serum will be successful for the regression and improvement of the symptoms.

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