Case Report / *Olgu Sunumu*

Ege Journal of Medicine / *Ege Tıp Dergisi* 2023; 62 (4): 576-578

Subarachnoid hemorrhage following scorpion bite: case report.

Akrep sokması sonrası subaraknoid kanama: olgu sunumu

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ABSTRACT

Scorpion stings are life threatening and toxicological emergencies with systemic effects caused by autonomic nervous system damage. Subarachnoid hemorrhage (SAH) is extremely rare complication of scorpion sting. In this report, we present an unusual case of a 62-year-old male patient with scorpion sting who developed a complication of SAH. A high index of suspicion is vital for early diagnosis and prompt management of the complication because it is as a life-threatening emergency for patients presenting with hemorrhagic stroke.

Keywords: Subarachnoid hemorrhage, scorpion sting, toxicology.

ÖZ

Akrep sokmaları, otonom sinir sistemi hasarına bağlı sistemik etkilere sahip, hayatı tehdit edici ve toksikolojik acil durumlardır. Subaraknoid kanama (SAK), akrep sokmasının oldukça nadir bir komplikasyonudur. Bu yazıda, akrep sokması sonrası çok nadir rastlanan SAK komplikasyonu gelişen 62 yaşında erkek hastayı sunuyoruz. Hemorajik inme ile başvuran hastalar için yaşamı tehdit eden bir acil durum olduğundan, bu komplikasyonun erken tanı ve hızlı yönetimi için şüphelenmek çok önemlidir.

Anahtar Sözcükler: *Subaraknoid kanama, akrep sokması, toksikoloji.*

INTRODUCTION

Scorpion stings are a common health problem, especially in hot climates including Africa, India and Latin American countries (1, 2). Nowadays, they are one of the most common envenomation observed in the world (3-5). In Turkey the most common species of scorpion is *mesobuthus gibbosus*. Systemic effects of scorpion sting are caused by autonomic nervous system damage. Clinical findings resulting from involvement of sympathetic and parasympathetic systems are observed in victims of scorpion stings. It is well-known that they are known to cause a stroke, commonly ischemic or rarely hemorrhagic (3, 4). Intracranial hemorrhage, as a kind of hemorrhagic stroke, is a rare life-threatening complication of scorpion sting and here we present an extremely rare case of subarachnoid hemorrhage (SAH) caused by scorpion sting poisoning.

CASE REPORT

A 62-year-old man was admitted to the regional emergency service upon the scorpion sting in the upper one third posterior of the right leg.

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Application date: 29.04.2023 Accepted: 15.06.2023

In the present case, the species of the scorpion could not be determined precisely because the scorpion was killed immediately by the patient and his relatives. Following one dose of antivenom (Scorpion antivenom, Turkey Public Health Institution), complaints of chills, shivering, sweating, nausea, vomiting and fluctuations in consciousness were began respectively. Physical and neurological examinations were evaluated as normal. However, the patient was admitted to the Internal Medicine Intensive Care Unit (ICU) for advanced evaluation and monitorization.

Laboratory findings, including complete blood count, biochemistry, cardiac panel and urine analysis examinations, at admission was as follows: glucose: 214 mg / dl, creatinine: 1.34 mg / dl (N: 0.70-1.20 mg / dl), AST: 63 U / L (N: 0-40 U / L), LDH: 395 U / L (N: 135-225 U / L), amylase: 226 U / L (N: 28-100 U / L). In the cardiac panel examination of the patient, myoglobin 354.2 ng / ml (N: 28-72 ng / ml), mass Ck -Mb 14.46 ng / ml (N: 0-4.94 ng / ml), troponin-T 678.6 pg / ml (N: 0-14 pg / ml). In the troponin-T follow-up of the patient on the same day, troponin T level increased upto 892.7 pg / ml and then started to decrease. In the first evaluation made by the cardiology, allergic myocarditis was considered in the patient, and there was no finding on ECG and ECHO, and it was observed that troponin-T level decreased to 77.3 pg / ml in the follow-up.

SAH was suspected in the patient after scorpion sting, on the 6 th day, due to headache and neck stiffness, hyperdense SAH foci -linear in the left parietal cortical sulcus and punctate in the right parietal cortex- were detected on computed tomography (CT) (Figure-1A and B). Pure hemorrhagic cerebrospinal fluid (CSF) was observed in lumbar puncture material performed to confirm the diagnosis. Relative correlation difference was considered, since the amount of bleeding entering the imaging area was low and pure hemorrhagic CSF was detected in the puncture. In order to rule out vertebral vein puncture in the differential diagnosis, pure hemorrhagic CSF was observed in the second puncture. In the cranial magnetic resonance imaging (MRI) an area with high signal in the FLAIR series was observed, and it was thought to be compatible with SAH (Figure-1C). The patient was transferred to Neurology ICU and nimodipine treatment was initiated due to possible vasospasm, which may be further increased by scorpion toxin.

Troponin-T values decreased to normal levels in the follow-up, and no pathology was found in the control ECHO. The patient was discharged without any sequelae, because no aneurysm or arteriovenous malformation was found in the control brain CT angiography on the 21st day of SAH. The patient provided written consent for personal images to be included in this report.

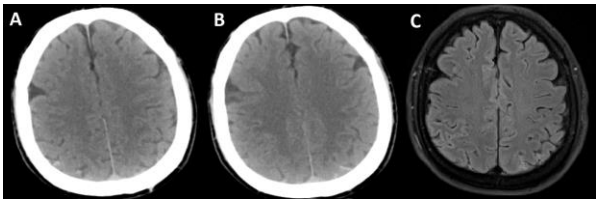

Figure-1. (**A** & **B**) Noncontrast head computed tomography (CT) showing the hyperdense foci in both posterior parietal lobes, suggestive of subarachnoid hemorrhage (SAH). (**C**) Axial section of flair sequence magnetic resonance imaging (MRI) confirming the presence of SAH.

DISCUSSION

Clinical manifestations of scorpion poisoning are variable and can be serious with damage to the cardiac, pulmonary, renal, coagulation cascade and central nervous system (CNS). Cerebrovascular involvement occurs in approximately 8% of cases. In an analysis made through PubMed until 2013, a total of 23 cases with cerebral involvement were identified and two thirds of these were compiled as ischemic stroke and one-third (8 cases) as intracranial hemorrhage; among the hemorrhagic strokes, SAH was encountered in only one case (6, 7). To the best of our knowledge, our case is the second case of SAH confirmed by CT and MRI as a serious complication of scorpion sting in the literature.

Scorpion venom consists of sodium and potassium channel-directed toxins that lead to prolonged depolarization and hence excitation of autonomic nerves, due to involvement of the presynaptic nerve endings targeting the sodium and potassium channels (8, 9). As a result of this activation, massive catecholamine and acetylcholine release occurs. The toxin also causes damage to the vascular endothelium, called toxin-induced vasculitis, by increasing the release of inflammatory mediators such as neuropeptide Y, IL1, TNF, and endothelin. In

addition to affecting the coagulation cascade, known as disseminated intravascular coagulation, cerebral hemorrhage may occur as a result of endothelial damage and increased catecholaminergic activity (10). Lastly, neurologic manifestations develop in cases of scorpion stings because of anoxia or hypoxia, vasospasm or vasoconstriction.

In conclusion, it should be considered in the differential diagnosis when confronting a patient with intracranial hemorrhage in the emergency service in endemic regions of the world for toxic scorpion species. Early recognition and prompt treatment can reduce mortality and morbidity in cases of scorpion sting poisoning with involvement of CNS, despite its very poor prognosis trend.

Conflicts of interest: There is no conflict of interest.

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