



Lesion of Lateral Cutaneous Nerve of Forearm Following a Scorpion Bite in a Young Woman; A Case Report

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Keywords

Scorpion stings; Scorpions; Scorpion venoms; Wounds and injuries; Peripheral nerves injury; Neurotoxicity syndromes

Abstract

Background: Scorpion bite is fairly common in tropical regions (including southern, central, southeastern, and western parts of Iran). Scorpion bite complications include a range of local to systemic symptoms. The damage to the nervous system often occurs as sympathetic instability which is one of the systemic complications. There are rare reports of peripheral nerves injury following scorpion stings.

Case Report: Here we introduce a young woman that had a lesion of the left lateral cutaneous nerve of forearm, following a scorpion bite in the lateral side of her forearm.

Conclusion: Lateral cutaneous nerve of forearm is easily exposed to damage caused by cuts, deep burns, and other traumas, after moving to superficial soft tissues in the forearm. Scorpion bite can lead to peripheral nerve injury either indirectly by the skin and/or subcutaneous tissues scar formation or directly by inducing chemical injury to nerve tissue itself.

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Introduction

Scorpions are among the animals entered the lives of humans by extending marginalization and transformation of indigenous land into residential areas. According to available statistics, from about 200 different scorpions scattered around the world, only about 20 species are toxic. Scorpion bite is fairly common in tropical regions. In the southern, central, southeastern, and western parts of Iran, the rate of scorpion bites is high, so that in 2015-2016, 3,000 scorpion bites were reported only in Hormozgan Province.¹

Complications include a range of local to systemic symptoms, although local and topical symptoms are major complications (97%). Deaths from scorpion bite are seen only in certain species. Local symptoms include burning pain, swelling, and color changes at the site of the bite. Systemic symptoms are followed by early symptoms such as nausea and vomiting, irritation of the mouth, restlessness and anxiety, seizure, anesthesia, fingers, urinary/stool incontinence, and impaired consciousness. The toxin of some species (including the yellow scorpion that is common in Iran) also

cause ulcers, blisters, and inflammations that are similar to grade 3 burns, and are not easily recoverable at the site of the bite. The healing of the skin in some types of recovery is less, and in the absence of proper and timely treatment, a relatively large area of skin and subcutaneous tissue of the bite can be involved.²

One of the systemic complications is damage to the nervous system which often occurs as sympathetic instability. Central nervous system (CNS) complications such as cerebrospinal stroke, cerebral hemorrhage, seizures, and coma have rarely been reported after scorpion bite in the world. However, the articles did not deal with peripheral nerves system (PNS) lesions following scorpion bites.³ There is a report of a case of transient demyelinating polyneuropathy following a scorpion bite in Oman.⁴ A case of brachial plexopathy has been reported following a scorpion bite in an American as well.³ Moreover, in articles, the possibility of spastic palsy following scorpion bite has been mentioned.⁵ In the case of bites with skin scar formation, because of the damage to the surrounding tissues, if the bite site is near the superficial nerves, the possibility of peripheral nerves damage in these cases could be considered. Moreover, chemical injury, induced by the toxin, can be another way of injuring the nerve.

Case Report

Here we introduce a patient that had a lesion of the left lateral cutaneous nerve of forearm, following a scorpion bite in the lateral side of her forearm.

A 29-year-old woman referred with a complaint of numbness in the lateral side of her left forearm, since about one year before. Cervical pain or pain in the upper extremities was not mentioned. In the examination of the skin, a scar on the mid-lateral side of the forearm was seen (Figure 1). As the patient mentioned, she had a scorpion bite in that site about 5 months before the onset of symptoms.



Figure 1. Skin scar after scorpion bite

In other parts, the skin was normal. There was no laceration, and we did not find any muscle atrophy. In the sensory examination using cotton swabs, the sense of the lateral area of the forearm was reduced. The sensation of the skin in this area is supplied by a sensory nerve called "The Lateral Cutaneous Nerve of Forearm" or "The lateral antecubital (LAC) nerve".

The sensation of other areas, including the posterolateral side of the forearm (radial nerve territory), was normal.

Muscle stretch reflexes and the joints range of motion were within the normal limits. Manual muscle testing of the arm, forearm, and hand muscles showed no weakness. There was no positive finding in the cervical spine examination.

There was no history of blunt traumas in upper limbs.

For the patient, the electrodiagnostic tests including nerve conduction study (NCS) and needle electromyography (EMG) in the upper limbs were done, and the only abnormal finding was the absence of left lateral cutaneous nerve of forearm sensory nerve action potential (SNAP) (Figures 2-5).



Figure 2. The region of skin numbness

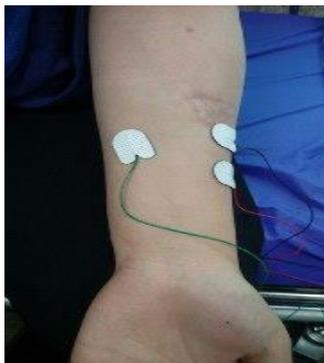


Figure 3. The sensory nerve action potential (SNAP) study lateral antecubital (LAC) nerve

This finding is equal to the severe damage and complete loss of the axons of this nerve. It should be noted that the other nerve SNAPs, including the radial nerve, were normal and symmetrical with the opposite side.

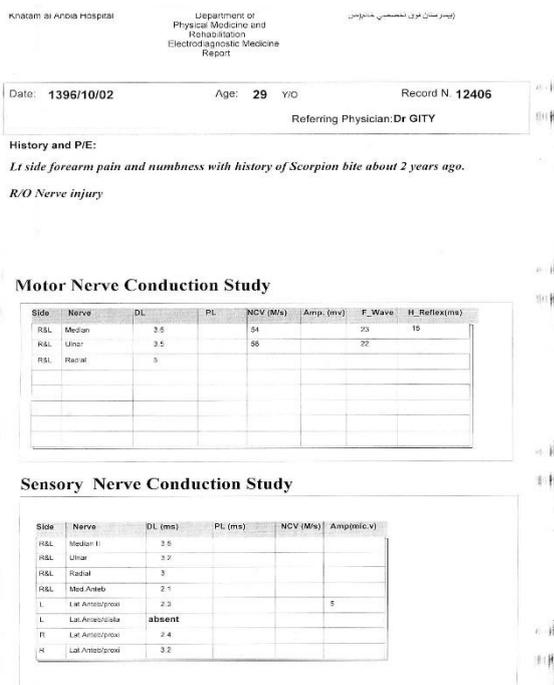


Figure 4. The report of needle electromyography (EMG)-nerve conduction study (NCS) (1st page)

Discussion

Another name for the lateral antecubital nerve is the “Lateral Cutaneous Nerve of Forearm”, which is a pure sensory nerve. As the name implies, this nerve supplies the skin sensation of the lateral side of the forearm. This nerve is the end branch of the lateral cord, just after the musculocutaneous nerve separation.

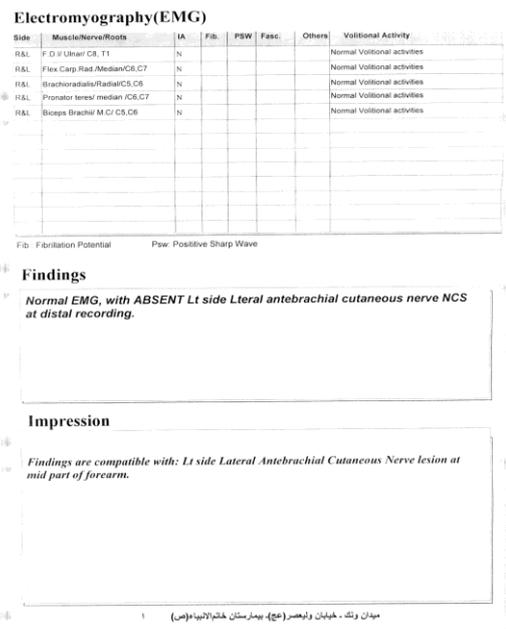


Figure 5. The report of needle electromyography (EMG)-nerve conduction study (NCS) (2nd page)

The LAC nerve becomes superficial just prior to elbow and antecubital skin fold on its path, which is easily exposed to damage caused by cuts, deep burns, and other traumas that have the potential to damage the subcutaneous tissue. Particularly in young and lean people (like our patient), the risk of injury from direct trauma is higher. As mentioned, the most common scorpion bite complications are localized skin and subcutaneous conditions, which in severe cases can lead to severe damage and scar formation.

It seems that in this patient, the scorpion bite resulted in severe cutaneous and subcutaneous tissues damage, which led to LAC nerve injury by the mechanisms of compression or traction (indirect injury).

Moreover, direct toxin chemical injury to nerve tissue can be considered as a theoretical cause of LAC nerve injury in this patient, which needs more studies to be done to be discussed.

Conclusion

CNS complications of scorpion bite are more common, but there are rare cases with damage to peripheral nerves due to scorpion bites.

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Conflict of Interest

Authors have no conflict of interest.

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