



DHMOSH GUIDANCE FOR PREVENTION & MANAGEMENT OF SCORPION STINGS

JANUARY 2024

Scorpions are one of the most venomous animals, mostly found in the hot and dry climate of tropical and subtropical regions. Worldwide, over 2.5 billion people are living at risk of scorpion stings. Every year, over 1.2 million are stung by scorpions leading to the death of at least 3,250 people globally. The most vulnerable group includes farmers, laborer, and those living in rural areas. Adults are most frequently stung, but envenomation is more severe among children¹. Most of these stings and deaths could be preventable with proper awareness, safety precautions, and timely access to treatment¹. Scorpion stings are usually unintentional because scorpions would rather escape humans than attack. Scorpions may hide in crevices of stone houses, roofing, bedding, clothing, and footwear. Stings may occur in humans when they dress, get into bed, or when they are either lean or sit against walls. Scorpions may also fall from the ceilings of thatched roofs onto sleeping victims below. Scorpion stings most commonly occur on an extremity when a human unintentionally steps on a scorpion or reaches under debris, rocks, or into crevices of buildings². This guidance developed by the Public Health Section of DHMOSH provides information on the clinical management of scorpion stings as well as preventative measures. The species of scorpion and associated medical management may differ based on geographic location and available medical services (i.e., local availability of antivenom sera), and it is recommended to follow national recommendations. For any questions on this document, contact the DHMOSH Public Health Section at dos-dhmosh-public-health@un.org.

CLINICAL MANAGEMENT OF SCORPION STINGS AND ENVENOMATION

1. Signs and symptoms:

- In most cases, stings are mild, and the sting causes local effects: pain, oedema (swelling), erythema (redness). Management includes strict rest, wound cleansing, analgesics by mouth, and tetanus prophylaxis³.
- General signs that appear of severe envenomation include hypertension, excessive salivation and sweating, hyperthermia, vomiting, diarrhea, muscle pain, respiratory difficulties, seizures, rarely, shock.

2. Etiological treatment:

- The use of scorpion antivenom sera is controversial (most of them are not very effective; they may be poorly tolerated due to insufficient purification)³.
- In practice, in countries where scorpion envenomations are severe (North Africa, the Middle East, Central America and Amazonia), check local availability of antivenom sera and follow national recommendations.
- Staff should be aware of how to access these recommendations and sera (if indicated) and familiarize themselves with the latest guidelines prior to an occurring event³.
- The criteria for antivenom sera administration are based on the severity of the envenomation:
 - the age of the patient (more severe in children)
 - the time elapsed since the sting. This should not exceed 2 to 3 hours.
 - If the time elapsed is more than 2 or 3 hours, the benefit of antivenom serum is poor in comparison with the risk of anaphylaxis (in contrast to envenomation by snakes)³.

3. Symptomatic treatment:

- In patients with significant pain, infiltrate the area around the sting with local anesthetic (1% lidocaine) and observe for 12 hours.
- Cardiovascular symptoms respond well to vasodilators such as alpha-1 blockers like prazosin⁵. Prazosin is considered a physiological and pharmacological antidote to scorpion venom action. It antagonizes the after-effects of venom-liberated catecholamines³. Early administration of prazosin helps arrest the development of severe systemic features and thereby prevents mortality⁵. As compared to the pre-prazosin era, the mortality rate due to scorpion envenomation has reduced from 30% to 1% after routine use of prazosin¹.
- In the event of vomiting, diarrhea or excessive sweating: prevention of dehydration (oral rehydration salts), especially in children³.



- In the event of muscle pain: 10% calcium gluconate slow IV (children: 5 ml per injection, adults: 10 ml per injection, administered over 10 to 20 minutes)³.
- In the event of seizures: diazepam may be used with caution; the risk of respiratory depression is increased in envenomated patients³.

TREATMENT MEASURES TO AVOID

- Do not try to suck the venom out of the wound.
- Several treatment options, such as lytic cocktail (pethidine + promethazine + chlorpromazine), insulin glucose drip, beta-blockers, digoxin, diuretics, rotating tourniquets to the extremities, and nifedipine have been experimented with, but with little success¹.
- Steroids, antihistamines, calcium channel blockers, and diuretics should be avoided in the management of scorpion envenomation as they can worsen cardiac complications by their negative effects on the heart¹.

PREVENTION OF SCORPION STINGS AND ENVENOMATION

- Preventive techniques, such as wearing protective clothing and checking the absence of scorpions in clothes, shoes, or bedding before use, clearing debris and trash from areas one inhabits, and using a flashlight at night are of paramount importance to reduce the risk of venomous bites and stings¹.
- If possible, houses/dwellings should have a row of ceramic tiles at the base of outside walls, and the doorsteps should be at least 20 cm high to prevent the entry of scorpions¹.
- False ceilings or bed nets below thatched roofs prevent scorpions from falling onto people while they sleep².
- Reducing small cracks and crevices in homes decreases the risk of human-scorpion interactions.
- In scorpion-infested areas, clothing, shoes, packages, and bedding should be carefully checked for scorpions².
- Footwear is recommended².
- Certain insecticides, including organophosphates, pyrethrins, and several chlorinated hydrocarbons, are known to kill scorpions. Spraying insecticides around the home can work indirectly by killing other insects in the area and reducing the scorpions' food supply².

WORKER AND HIGH-RISK POPULATION RECOMMENDATIONS⁴

The following recommendation should be followed by those with increased or high risk of exposure to scorpion bites:

- Wear long sleeves and long pants.
- Wear leather gloves.
- Shake out clothing or shoes before putting them on.
- Workers with a history of severe allergic reactions to insect bites or stings should consider carrying an epinephrine auto-injector (EpiPen®) and should wear a medical identification bracelet or necklace stating their allergy.

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