Fatal scorpion sting in a child

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Abstract

Fatal scorpion stings are rare in Nigeria. Hitherto, there has been no report from Nigeria of death following scorpion stings. This report is that of a 2-year-old boy who was stung by a scorpion while playing outside his home environment in Osogbo, South West Nigeria. He subsequently presented to the Children Emergency Unit of Ladoke Akintola University of Technology Teaching Hospital, Osogbo, in pain and with features of shock. He died within 2 h of admission despite all treatment given to relieve pain and manage shock. The case is reported in order to share the important lessons learned.

Key words: Fatal, pediatric, scorpion sting

Date of Acceptance: 16-Mar-2013

Introduction

Scorpions are the animals found worldwide. They are not insects unlike most other things that sting because they lack the characteristic head, thorax, and abdomen. A scorpion has four pairs of legs, a pair of claws, and a segmented tail that has a poisonous spike at the end.[1] Most scorpions cause local pain from their stings, while very few cause life-threatening events. Of the 1200 species of scorpions worldwide, only a few cause more than a painful sting.[2] Some of the other significant medical effects that may follow scorpion stings include paresthesia, cardiovascular collapse, respiratory failure, hypertensive crisis, and seizures. These effects arise from envenomation.[3-5]

Reports on scorpion stings in Nigerians are rare. The few available reports focus on the aftermath of pain and its management. To our knowledge, the present case is the first case of death following a scorpion sting in a Nigerian child. The lessons learnt and the challenges faced in the management of this patient are discussed.

Case Report

A 2-year-old boy was brought crying inconsolably from acute pains to the Children Emergency Unit of Ladoke Akintola University of Technology Teaching Hospital, Osogbo. He was strongly suspected to have been stung by a scorpion while playing unsupervised outside the house because the child ran indoors with blood dripping from the middle left finger. No bleeding was noticed from any other site of the body and the blood loss was estimated to be less than 2 ml. The mother, however, escorted the child to the point where he had the encounter that necessitated his running inside. This led to the discovery of the scorpion which was subsequently killed and brought to the hospital with the child. The picture of the killed scorpion is shown in Figure 1.

No treatment was given at home. However, about an hour after the sting, the patient was noticed to be salivating excessively from the mouth and to have developed respiratory distress. The patient was therefore taken to a mission hospital where intravenous hydrocortisone and some other unknown intravenous drugs were given. The child was then immediately refereed to the Ladoke Akintola University of Technology Teaching Hospital, Osogbo.

There was no associated loss of consciousness, convulsions, or fever. There was no history of previous admission or

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Access this article online

Quick Response Code:

Website: www.njcponline.com

DOI: 10.4103/1119-3077.122866

PMID: *******

Figure 1: The scorpion that killed the child

anything to suggest hypersensitivity to drugs in the past. The child had received all the childhood vaccines according to the Nigerian National program on immunization. The pregnancy, birth, and developmental milestones were assessed and found to be normal and not adversely eventful. Both parents have a higher national diploma. The mother is a 36-year-old trader who sells second-hand clothes, while the father is a 38-year-old administrative officer in a private furniture firm. The only sibling of the patient is a 5-year-old girl who is alive and well.

On examination, the boy was drowsy and restless. He was dyspneic and had a subnormal temperature of 35.4°C. There was no palor, jaundice, or evidence of dehydration. Systemic examination findings indicated the presence of anaphylactic shock. Cardiovascular examination revealed a pulse rate of 180 per minute. The pulse was low volume and thready. A systolic blood pressure of 80 mm Hg was recorded, while the diastolic blood pressure was unrecordable. The first and second heart sounds were heard. Respiratory system examination showed that the patient was dyspneic with a respiratory rate of 60 cycles per minute. The breath sounds were vesicular and of normal intensity.

Central nervous system examination revealed an unconscious child with a Glasgow coma score of 8. The head circumference was 45 cm. Both the tone and muscle tendon reflexes were normal. Examination of the abdomen also showed a distended abdomen. The abdominal organs were difficult to palpate because of the restless nature of the patient. The percussion notes were tympanitic.

An assessment of anaphylactic shock secondary to scorpion envenomation was made. The packed cell volume was 30%, while the random blood sugar was 33 mmol/L. Saturation pulse pressure was 65%. Other investigations ordered were the electrolytes, urea, and creatinine, complete blood count, and chest radiograph. The chest radiograph was to be done at the Radiology Department when the patient was stable, while the other outstanding tests were to be done when the mother would have obtained money to cover their payment.

The child was admitted immediately and placed on 100% oxygen at 2 l/min. The bite site was cleaned with sterile water and infiltrated with lidocaine to reduce the pain. Normal saline was also administered intravenously at presentation at a rate of 20 ml/kg. It was repeated 30 min later because the pulses remained thready, the diastolic blood pressure remained unrecordable, and alternative volume expanding fluids were not available. Intravenous hydrocortisone was also given, but the condition of the child remained the same because the child still showed features of shock. Intensive care could not be provided because the hospital lacked intensive care facilities for the pediatric age group. An hour after presentation, the patient was noticed to have stopped breathing and all attempts to resuscitate him failed.

Discussion

Deaths arising from scorpion stings in Nigeria are rare and have not been previously reported.[6-8] The death of this boy would probably have been the result of envenomation from the scorpion sting. Venoms from scorpions are usually neurotoxic and usually cause severe pain in human beings.[1-4] Some of the less common effects of envenomation include circulatory collapse, respiratory distress, and anaphylaxis. Restlessness and excessive salivation are commoner features. The patient in the present case presented with signs of circulatory collapse.

Envenomations are more serious in children because smaller children with lower body weights in comparison to adults have a larger ratio of venom to body weight.[1,4] Death usually follows envenomation, if the body is unable to get rid of the lethal venom. The species of the stinging scorpion is an important determinant of the clinical manifestation of envenomation.[1,2] The paucity of reports on respiratory distress, anaphylactic shock, and death complicating scorpion stings may suggest that the species of scorpions capable of producing these features of envenomation are uncommon, or rarely sting. Underreporting of similar cases may also explain the rarity of such reports in Nigeria. The scorpion associated with the death of this child was identified at the Entomology Department of the Obafemi Awolowo University, Ile-Ife, Nigeria, as the bark scorpion, which is one of the very few poisonous species whose stings can lead to death in the absence of an antidote.[2]

Anti-venoms to scorpions' venoms are species specific. To our knowledge, anti-venoms to scorpions are not available in Nigeria. There is a need to stock specific anti-venoms to the venomous scorpion species in Nigeria. Anti-venom to the bark species is available in the United States of America.[2] There is a high possibility that other scorpions of the bark species may be around the environs where the present case of scorpion sting occurred. Hence, there is a need to stock

anti-venoms to this species of scorpion, especially in the health care facilities around where this sad mishap occurred, in order to guide against similar outcome from similar scorpion sting in the future. Highly purified and specific anti-venoms have the advantage of promptly resolving the crisis form envenomation and provoking minimal or no adverse reactions such as anaphylaxis.[9-12]

The hospital also needs to be well equipped. A tertiary hospital should have a pediatric intensive care unit. It is possible that this child might have been kept alive over the turbulent venomous period, if intensive care and support were provided. The child could have eventually got rid of the venom from the body system while on support probably without the use of anti-venoms. Prazosin has been found to be beneficial in managing autonomic crises in patients with features of envenomation from *Mesobuthus tamulus* scorpion species, when combined with the species-specific anti-venom. However, there is no evidence indicating prazosin's superiority to the anti-venom when given as monotherapy.[9]

It is concluded that the patient should have received better care which might have saved his life. Possible steps that might be life saving and prevent a recurrent fatality from future scorpion stings include equipping the tertiary hospitals with life-saving and supporting equipments for the pediatric age group. Furthermore, there is a need to conduct more studies on the scorpion species associated with fatal stings in Nigeria, with a view to obtain their venoms and produce highly purified anti-venoms to them.

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How to cite this article: Oyedeji OA, Musa TL, Adebami OJ, Oyedeji GA. Fatal scorpion sting in a child. Niger J Clin Pract 2014;17:112-4.
Source of Support: Nil, **Conflict of Interest:** None declared.