CASE REPORT

Scorpion sting cases in children of coastal region of Balochistan: a case report

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Abstract

Scorpion bites are a great health concern in various regions of the world, including the coastal areas of Balochistan. Mortality is especially high in the paediatric population.

This case report describes the presenting symptoms, management, and fate of two children who presented with scorpion bite from the coastal regions of Balochistan. The purpose of this report is to highlight these serious issues, occurring in this particular area, and the challenges faced by healthcare professionals in the management of such cases. The use of Doxazosin as physiological antidote of scorpion venom, due to non-availability of the conventional drug (Prazosin) in one of our patients, proved to have favourable outcome and comparable efficacy.

Keywords: Scorpion bites, Balochistan, Paediatric, Symptoms.

DOI: https://doi.org/10.47391/JPMA.25-11104

Introduction

The cases of scorpion bites are common in different parts of the world especially in coastal regions.[1,2] Some harmful species of scorpions are reported in sub-tropical regions. [3] Scorpion envenomation is particularly dangerous in children due to their small body surface area and low immunity.[4,5] The clinical presentation of scorpion envenomation varies widely ranging from asymptomatic to life-threatening multi organ dysfunction.[6] This case report focusses on a few cases of scorpion bites in children of Balochistan, highlighting the severity of symptoms and limitations in management. Such research has never been conducted in this area of Balochistan. We used Doxazosin (Cardura) instead of the conventional drug (Prazosin) due to its non-availability and it was found to have similar results to the conventional drug.[7] It also showed that Scorpion envenomation cases can be treated conservatively if adrenergic crises is managed timely[8] but involvement of cardio pulmonary system at the time of presentation is a red flag sign.[9] Furthermore, the utility of Anti scorpian venum in advance grade envenomation can not be denied.[10]

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Submission complete: 11-12-2023 **First Revision received:** 21-05-2024
Acceptance: 03-09-2025 **Last Revision received:** 02-09-2025

Case Report

Case I: A four-year-old girl from the coastal region of Ormara, Balochistan, came to Pakistan Naval Shipyard Darmaan Jah Hospital (a secondary care hospital) in September 2023 with a history of scorpion bite on her left ear at her home. She developed pain and was taken to a secondary care hospital in about six hours. The scorpion was killed by her father and reported as green in colour and approximately as long as a finger. In the hospital, the child was found restless, having profuse sweating and cold peripheries. She had three episodes of vomiting and one episode of loose stools. Local examination revealed redness and tenderness of the pinna of the left ear. Vital signs showed her blood pressure of 100/60 mmHg, heart rate 154 beats per minutes, a saturation of oxygen of 98% at room air, temperature of 101 degrees Fahrenheit; Glasgow Coma Scale score of 12/15 (M5 V3 E4), rotatory eye movements noticed. Chest examination showed bilateral harsh breathing. A cardiovascular examination revealed no gallop rhythm, and no visceromegaly was appreciated in the abdomen. Investigations showed HB of 14.2 mg/dl(Normal 11-13mg/dl) Platelets 484,000/L(Normal 150,000-400,000/L), TLC 17.8(Normal 4-10), PT 16/14 and APTT 64/34. ECG and Chest X-ray were not done due to the severe irritability of the child, however, Trop-T was negative. Creatinine was 0.82 mg/dl (Normal 0.6-1.1 mg/dl), urea 7.2 mg/dl (Normal 6- 20 mg/dl) RBS was 252 mg/dl(Normal 100-200) and urine output was 750ml/6 hours. She was given 500ml normal saline, Solumedrol 20mg, analgesic, antibiotic, and injection tetanus. Due to the non-availability of scorpion anti-venom and tablet Prozasin, tablet Doxazosin (Cardura 0.5mg) was given via nasogastric tube and repeated after six hours.

On day two of admission, the child was noted to be drowsy, fever was recorded up to 103°F, peripheries were cold, still tachycardic but local pain and vomiting had improved. Her blood pressure dropped to 86/55 mmHg. Tablet Cardura 0.5mg after every eight hours was continued, injection Solumedrol 20mg twice daily and

injection Dobutamine support was started at 5microgm/kg/min. Further, 100ml of fresh frozen plasma was transfused as 30ml of coffee ground aspirate was noticed in the nasogastric tube. Transfusion of fresh frozen plasma 100ml was repeated on the next day as well. On day three, the fever was recorded up to 100°F and Glasgow Coma Scale was 15/15. Oral intake was allowed and started tapering of inotropic support and steroids. The next day (day four), she showed much improvement, tablet Cardura was stopped and her total leukocyte count and coagulation profile were improved. She was discharged from the hospital on day five.

Case 2: A nine-year-old girl from the coastal region of Ormara, Balochistan, came in Pakistan Naval Shipyard Darmaan Jah (Secondary Care Hospital) in June 2023 with a history of scorpion bite on her left ring finger at her home. She started having pain and was immediately taken to the secondary care hospital in about half an hour. The scorpion was reported as black in colour. In the hospital, the child was found irritable and short of breath, and developed multiple episodes of vomiting and loose stools. Local examination revealed blue discolouration of the distal part of the left ring finger. Vital signs showed blood pressure of 90/60 mmHg, heart rate 104 bpm, saturation of oxygen of 84-92% with five-litre oxygen, temperature of 100 degrees Fahrenheit, Glasgow Coma Scale score of 10/15 (M4 V2 E4), and the chest showed bilateral crepitations. Cardiovascular examination revealed no gallop rhythm, and no visceromegaly was appreciated in the abdomen.

Investigation showed HB of 10.2mg/dl (Normal 11-13), platelets 356,000/L(Normal 150,000-400,000) TLC 13.8(Normal 4-10), PT 60/14 and APTT 90/33 suggesting venom induced consumptive coagulopathy. ECG and Chest X-ray were not done due to the severe irritability of the child, However, Trop-T was negative. ABG showed PH of 7.2(Normal 7.35-7.45), PCO2 = 36mmhg(Normal 32-48), PO2 = LOW, HCO3 = 16mg/dl (Normal 22-28), Creatinine 1.09mg/dl (Normal 0.6-1.1), urea 7.4 mg/ dl(Normal 6 -20), RBS was 303 mg/dl(Normal 100-200), urine output was 100 ml on catheterization.

Supportive treatment was started immediately with securing the airway, oxygen support, and IV fluids bolus. The patient was given Normal Saline 500 ml, Solumedrol 40 mg, analgesic, Intravenous antibiotic, and injection tetanus; Intramuscular Epinephrine 0.1mg/kg was given considering the possibility of anaphylaxis. Tablet Cardura 1mg was given via nasogastric tube. Injection Diazepam 0.5mg/kg was also given to decrease restlessness. Injection Dobutamine infusion was started.

Two hours after the presentation, the child developed profuse haematemesis shortly followed by cardiac arrest. Cardio pulmonary resuscitation was initiated and continued for 45 minutes. Intubation was not attempted as ventilator consent was not given by the family. Unfortunately, the child died.

Discussion

Scorpion bite incidents are frequent in Balochistan, however, mortality is much higher in children.[11] Clinical presentation varies widely depending on the depth of the sting and the nature of the constituents of the venom injected.[12] The venom is constituted by mucopolysaccharides, hyaluronidase, phospholipase, serotonin, histamine, enzyme inhibitors, and proteins namely neurotoxic peptides. Neurotoxins are the mainstay of the symptomatology in envenomation. They cause prolonged depolarisation by causing incomplete inactivation of sodium channels that leads to membrane hyper-excitability; they also cause excessive release of acetylcholine from parasympathetic ganglia as well as the release of epinephrine and norepinephrine from sympathetic ganglia, and the adrenal glands leading to adrenergic crisis.[13] Patients presenting with autonomic symptoms and complications need the administration of scorpion anti-venom along with other supportive measures.[14] Involvement of vital organs like cardiac, pulmonary, central nervous system and gastro intestinal system manifesting as excessive shortness of breath and oxygen requirement, fits, blood in vomiting or stool are among the poor prognostic features.[15] Lack of immediate access to anti-venom is the main obstacle in the effective management of scorpion bite victims. Most of the incident of scorpion stings are reported during the night hours, and on hands and feet. It is of utmost importance to raise awareness among communities, particularly for protecting their children.[16] Medical facilities in these regions should be expanded for effective management of envenomation cases;[17] moreover, effective means of transferring critical patients to tertiary care hospitals from remote areas should be developed to reduce hindrances. Collaboration with national and international organisations and enhanced research in this region is needed for the recognition of poisonous species, implication of preventive measures, and effective treatment of scorpion sting cases in Balochistan.

Conclusion

This case report highlights the outcome of scorpion envenomation in children of the coastal areas of Balochistan. The findings emphasise the urgent need for implementing preventive measures, improvement in healthcare infrastructure, and availability of scorpion anti-

venom in order to counter the impact of scorpion stings and decrease the associated sufferings and mortality.

Consent to Publish: The parents of both the children, whose cases have been included for publication, provided written consent for the purpose with the aim of promoting science.

Disclaimer: None.

Conflict of Interest: None.

Source of Funding: This case report received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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AUTHOR'S CONTRIBUTION:

TZ: Design, reviewed literature, writing and analysed the study critically.

SAK: Literature review, data analysis and highlighting the need of awareness and scorpion antivenom at regional level.

JA: Literature review, consent taking and approval of study by the ethical committee.