

Where is the diagnostic key? Sudden weakness in a 4-year-old child: A case report



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Abstract

Objective: Snake bites represent a significant public health issue worldwide, as venomous snake bites can result in dangerous and sometimes lethal consequences. Sometimes, the diagnosis is difficult. Herein, we present the case of a 4-year-old child who posed a challenge to diagnosis.

Case Presentation: A 4-year-old child was brought to the emergency department with sudden, severe general weakness and impaired consciousness. Initially, the cause of these symptoms was unclear and difficult to diagnose. However, after a more thorough examination, it was determined that the likely cause was a neurotoxic snake bite. The child was hospitalized for three days. He received anti-venom, painkillers, and symptomatic treatments and left the hospital in good general condition.

Conclusion: Snakebites are very dangerous and sometimes have unusual manifestations, so adequate personnel and physician information is necessary for timely diagnosis and appropriate management.

Keywords: Snake bite, Children, Weakness

Introduction

Snake bites are a frequent medical emergency, particularly in tropical and subtropical regions. In some studies, it has been found that in Iran, there are around 5000 cases of snake bites every year, out of which nearly 24% are related to children under 14 (1).

Children under 14 years old are particularly vulnerable to snake bites, especially in low-income countries. Such bites can cause severe physical and psychological harm to children. Due to their relatively smaller body mass, children are more likely to develop signs of severe envenomation, which can lead to neurological and hematological complications. They may also experience local symptoms with faster and more severe development. Therefore, it is crucial to diagnose snake bites in children accurately and treat them promptly to prevent further harm.

It is relatively easy to diagnose snakebites in older children due to their ability to provide a history. However, diagnosis will be difficult in younger children, especially if the snakebite occurs in the parents' absence.

This article introduces the case of a 4-year-old child with a snakebite that was challenging to diagnose due to its location on the body and its non-specific initial symptoms.

Case Presentation

A 4-year-old child was brought to the emergency department with a complaint of sudden severe general weakness and impaired consciousness. The child's father reported that they had been riding a motorcycle together back from a relative's house, and the child was riding behind the father. At the beginning of the ride, the child's general condition was completely normal. However, a few minutes after the beginning of the trip, the child suddenly became very weak and lethargic and showed signs of reduced consciousness. The child was brought to the hospital for this reason.

Upon arrival at the emergency department, the child was immediately evaluated, and the airways and breathing were adequate. SPO2 level was 98%, and the pulses were palpable, but the child had tachycardia with a pulse rate of 130/minute, respiratory rate of 30/minute, and blood pressure of 90/50 mm Hg. The glucometer showed 108 mg/dL, and other examinations were normal, but the level of consciousness was low. The child was lethargic, and the deep tendon reflex in the four limbs had decreased by 3.5–4.5. In the laboratory examination, most of the findings were normal, except for the white blood count, which was 15 000/ μ L.



There were no symptoms indicating infection, fever, or trauma, and there was no history of previous hospitalization. There was no underlying disease, and the child's growth and development were normal. The history of drug or chemical use was also negative. The history of convulsions in the family and the child was negative.

The possibility of poisoning by the exhaust emissions of the motorcycle was brought up. However, due to the lack of symptoms in the father, who had also been riding the motorcycle with the child, and the lack of problems in previous motorcycle rides, it was ruled out. In a detailed physical examination of the child, two bite marks one centimeter apart were identified on the medial side of the right ankle. Considering the lack of local pain, the simultaneous presence of neurological symptoms, i.e., relative loss of consciousness and sudden severe weakness, it was strongly suggested that a snake from the cobra family had bitten the child.

The child received supportive treatment, fluid therapy, pain relief, and 18 vials of polyvalent antivenom. After three days, he was discharged with normal tests, good general condition, and normal examinations. The follow-up visit after two weeks was also normal.

Discussion

Snake bites are a common medical emergency in many parts of the world, especially in tropical and subtropical regions. The severity of the symptoms depends on the type of snake and the amount of venom injected. Children are particularly vulnerable to snake bites due to their smaller body size and smaller blood volume (1). The diagnosis of snake bites is usually made based on the characteristic bite marks and the presence of symptoms, such as severe pain, swelling, and systemic effects (2).

The treatment of snake bites includes supportive care, pain relief, and antivenom administration. Early administration of antivenom is critical to prevent severe systemic effects and complications. Identifying the type of snake and administering the appropriate antivenom is essential. In this case, the child received polyvalent antivenom, effective against multiple types of snake bites (3).

Snake bites can cause local, hematological, and neurological systemic symptoms in children. Especially in cobra bites, neurological symptoms and impairment of acetylcholine release in synapses are more common. Therefore, sudden weakness, cranial nerve disorder, and speaking disorder may occur. Other neurological and systemic disorders may be ptosis, dyspnea, abdominal pain, diplopia, decreasing consciousness levels, and vomiting (4-8).

In the case of the child in question, apparently, after riding the motorcycle, a snake, probably of the cobra type, had wrapped itself around the base of the motorcycle and bitten the child's ankle. The child was experiencing

sudden weakness and impaired consciousness due to the neurological symptoms caused by the snake venom. In the initial examination of every child with impaired consciousness and sudden weakness, after initial stabilization and control of the airway, breathing, and circulation, performing an examination, and taking a quick history, the physician usually looks for differential diagnosis, including signs of infectious and metabolic disorders, cardiovascular problems, trauma, post-ictal phase convulsions, and poisoning. Considering that the key to diagnosing this child's problem was only the traces similar to two tick bites, which were difficult to locate, in the ankle area of the right leg, the diagnosis was initially challenging.

Conclusion

- 1- Snake bites, especially cobra bites, can be one of the causes of weakness and reduced consciousness in children.
- 2- Snakebites sometimes have unusual manifestations. Especially in children, diagnosis is difficult and requires careful attention and thorough examination.
- 3- Snakebites in children are among the most critical medical emergencies, and the medical staff must be familiar with them. Also, it is crucial to establish training courses for healthcare workers and physicians to ensure timely snake bite diagnosis and proper treatment.

Authors' Contribution

Conceptualization: Anahita Alizadeh.

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Writing-review & editing: Nafiseh Pourbadakhshan.

Competing Interest

None.

Ethical Approval

Ethical standards were followed, and informed consent was obtained from the child's parents.

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