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CASE REPORT

A case report of a patient with visual hallucinations following snakebite

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Abstract

Snakebites are a common problem in tropical regions, especially in South Asia, which are sometimes overlooked. The common side effects of snakebites include blood, neural and muscular reactions. However, psychiatric symptoms have been reported less frequently. The patient was a 19-year-old man, who was diagnosed with snake-biting by an adder snake in the maleol area of the right foot. The patient complained of the presence of visual hallucinations (seeing objects around him in colored droplets), and reported this symptom once at the time of the bite and once again upon his arrival at the general health center. The psychiatric and neurologic examination of the patient did not reveal a differential diagnosis.

By observing this symptom, it can be concluded that uncommon psychiatric symptoms can also occur in snake-bitten patients, while these symptoms may be overlooked

Key Words: Snakebite; Visual hallucinations; Psychiatric symptoms; Neurological symptoms

Introduction

Snakebites are among common health problems in the developing tropical countries, especially in Asia, which are often overlooked (1). More than 3,500 species of snakes have been identified in the world, of which less than 10% are poisonous (2, 3). In Iran, 83 species of snakes have been identified, of which 27 are venomous, 45 non-venomous, and 11 semi-venomous (4). About 1.5 million snakebites occur annually in the world, resulting in the death of 20,000 people (5). The main symptoms of snakebites include blood, neural and muscular reactions (6). Snakebites are accompanied by common complications such as the swelling of the bitten area, bleeding of the bitten area, redness, coagulopathy, etc., but some cardiovascular complications such as myocardial infarction and arrhythmias and neuromuscular paralysis which are severely life-threatening have also been reported by the venom of some snakes (7). Neurological complications include ocular muscle weakness, muscle weakness, respiratory failure, heart failure, neck muscle weakness and sensory neuropathy. Neural symptoms usually appear within 6 hours after the bite. After the administration of anti-venom, the signs of recovery appear within a few hours to a few days. The duration of complete recovery is between 2 to 4 weeks (8-10). Guillain-Barre syndrome is also a rare complication that has been reported after snakebites (11). Psychiatric symptoms after snakebite are rare, but some complications such as acute and latent stress and PTSD have been reported (12). So far, visual hallucinations have not been reported after snakebite. In this article, visual hallucinations following a snake bite in a 19-year-old man are reported.

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Cases

The patient was a 19-year-old soldier who was referred to the emergency section of Imam Reza Hospital in Birjand, due to snakebite by an adder snake in the maleol area of the right foot. The patient was calm and alert when entering the hospital, with GCS=15.15. The vital signs, at the beginning, were as follows: T=37 PR=67, BP=115/70 RR=14. With symptoms of pain and irritation in the bitten area of the body, swelling, ecchymosis and paresthesia, the patient was put under treatment. The patient's pain was continuous, and it was worsened when shaking the limb. The patient suffered from nausea after being bitten, and then he had a normal vomiting once. After the bite, he was dizzy, complaining of heartbeat and sweating. Heartbeat and neural symptoms were normal. The abdomen was soft and without tenderness. He did not mention the history of his previous illness and that of his family. The patient stated that immediately after the bite, he saw the objects in the form of colorful droplets for almost two minutes. This sign was also observed at the patient's entrance to the General Health Center. But he did not report this sign during the time he was hospitalized in the ward. 1.5 hours after the bite, the patient was hospitalized at a local center and injected with two anti-venom vials of hexavalent (six-capacity). 3.5 hours after the bite, he was hospitalized at the General Center Hospital. The patient's onset tests were as follows:

WBC=5.310*3/µL RBC=4.410*6/µL
HB: 13g/dl HCT: 38% PLT=16410*3/µL
PTT=40 sec PT=16 sec INR=1.32
LDH=442 U/L ALP=258 U/L ALT=13 U/L
AST=20 U/L CPK=453 U/L

Coagulation tests were repeated after an hour:
PT=>30 sec PTT=>90 sec INR=>5

The results of the tests indicated that PT, PTT, INR and CPK levels were elevated. The patient was hospitalized and treated in the poisoning department. The doctor in charge prescribed 6 anti-venom hexavalent vials in the form of stat, and the PT, PTT, and INR checks were administered 6 hours after the injection. Other prescribed drugs included vial hydrocortisone 200 mg every 8 hours in the form of IV and cephalexin capsule 500 mg oral every 6 hours.

The process of coagulation tests during the days of admission in the department has been summarized in Table 1. On the second day, the amount of anti-venom vials decreased and the patient received, this time, 4 anti-venom vials on the order of the doctor. On the third day, the patient received 2 vials of anti-venom. The course of the CPK test during the admission was U/L 483 the first day, U/L 230 the second day, and U/L 68 the third day, respectively. Following the treatment, the level of coagulation tests became normal. After the normalization of coagulation tests and CPK, for further examination of the patient's visual hallucinations, the following consultations were requested and the investigation was carried out: the report of the respected psychiatric specialist was as follows:

The patient is alert. The orientation of time, place and person is normal, with no psychiatric history, and no history of using hallucinogens, drugs, or heart disease; no history of convulsion, and no family history of illness and drug use; no medical and psychiatric disorders. Concerning perceptual function, he did not have a tactile or auditory hallucination except for his visual hallucinations, where he saw things in the form of colorful droplets. His disposition was normal and natural. He did not have any suicidal or obsessive thoughts. Therefore, differential diagnoses including schizophrenia and schizoaffective, panic attacks, psychotic disorders, delirium and dementia were rejected. MRI and EEG were performed for the patient. The level of the copper and ceruloplasmin of the blood was tested and reported as follows:

Cupper=100 mic g/dl
Ceruloplasmin=24.4 mg/dl
High sensitive CRP=0.24 mg/dl

Tests were reported to be within the normal range. On the order of the psychiatry specialist, a neurological consultation was conducted to investigate brain disorders. The neurological consultation was performed as follows:

There is no sign of the presence of pervasive brain lesions in the patient. There are no focal neurological symptoms. There is no history of epilepsy or convulsion. The babinski of the two sides is normal. The MRI of the brain and the EEG are both normal showing no specific lesion. The visual hallucinations of the patient have not been due to brain lesions or convulsion.

An orthopedic consultation was requested by the physician to examine the affected organ. The opinion of the respected orthopedic specialist was as follows:

There are no signs of compartment syndrome, and in order to prevent from compartment syndrome, the affected foot was put at the same level as the heart.

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Table 1: Coagulation tests in the first 24 hours of hospitalization

Test	Hours after hospitalization											
	12	18	24	30	42	50	62	74	86	98	110	122
PT (sec)	>30	>60	>60	>60	>56	19	16	15.2	14.5	14	14.5	14
INR	>5	>8	>8	>8	>8	2.2	1.5	1.3	1.2	1.2	1.2	1.2
PTT (sec)	>90	>120	>120	>120	85	41	29	28	27	27	27	27

PT=Prothrombin Time, PTT=Partial Thromboplastin Time, INR=International Normalized Ratio

The patient was discharged with a good general condition after 4 days. No specific problem was reported in the patient's follow up examination. And he did not report visual hallucinations too.

Discussion

Hallucination is defined as the perception of external stimulus by any of the five senses without the presence of the external stimulus. Visual hallucination is defined as seeing things or events without external stimuli. Snakebites can cause visual hallucinations but there are other disorders in the medical field that can also cause visual hallucinations. These disorders are: psychotic disorders (schizophrenia and schizoaffective disorder), delirium, dementia, panic attacks, convulsion, migraines, and the effect of some medications (including Mescaline and LSD) (13).

Our patient reported the seeing of the objects around him in the form of colorful droplets once at the moment of the bite and once at the time of his entrance to the General Health Center (about an hour after the bite). Several cases of neurological symptoms and complications have been reported after snakebites, but psychiatric symptoms have been reported less frequently. Among the neurological symptoms of the snakebites one can refer to muscle weakness especially the respiratory muscles, numbness in the limbs, and nervous and muscular paralysis.

In his study, Ranawaka showed that in the studied patients the most commonly reported neural complication following the snakebite is ptosis, which is the result of ocular muscle weakness. Other complications were muscle weakness, respiratory failure, heart failure, neck muscle weakness and sensory neuropathy. In some cases, the cause of the patients' deaths has been linked to acute neuromuscular paralysis (10). In another study, Dell Brutto referred to the presence of the attacks of stroke and muscle paralysis in the people who had been snake-bitten. He stated that these disorders were due to the effect of snake venom on the coagulation pathway and neuromuscular transporters (14). In their study, Abhishek and Srivastava reported a rare complication in a snake-bitten patient called Guillen-Barre Syndrome. Among the psychiatric problems following the snakebites, one can refer to acute and chronic stress, acute and chronic depression, PTSD, loss of job, personal and social problems in life, and functional impairment. Among the studies on the emergence of psychiatric problems following the snakebites(11), one can refer to Khosrojerdi's study, which was performed by making use of a four-stage structured interview (at the time of admission, three weeks after, six weeks after, and six months after the snakebite) on 71 snake-bitten patients from 2010 to 2012. They examined the psychiatric problems of the patients and stated that at the time of admission 36% of the patients and three weeks after the bite 15% of the patients had acute stress, and that 8% of the patients had PTSD, of whom 4% had chronic PTSD (12). In his study, Williams also studied psychiatric problems in 200 snake-bitten patients and concluded that 54% of the patients had depression criteria and 21.6% of them had PTSD criteria, and that 27% of the patients had problems in their occupational issues, and 10.2% of them lost their jobs (15). Visual hallucination following the snakebites has not been reported so far, and our case was the first to be reported. Only one case of hallucination was reported following the bite of a sea snake by Mercer in Australia, in which a 2-year-old child bitten by a sea snake had a tonic spasm and hallucination in the recovery phase after receiving the anti-venom (16). Unfortunately, studies on the psychiatric problems following the snakebites are rare, and it is advisable to further investigate the snake-bitten victims in this regard.

Conclusions

The presence of psychiatric symptoms following snakebite is rare, but these symptoms cannot certainly be ruled out. It is suggested that more studies be performed in this area and that psychiatric symptoms be emphasized. Perhaps there are symptoms that are overlooked in patients, which may cause problems in their lives.

Conflict of Interest: None Declared

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