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Acute intraparenchymal and subarachnoid hemorrhage following scorpion envenomation

KEYWORDS

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ABSTRACT *Scorpion envenomation is a life threatening medical emergency with various clinical manifestations. Cerebrovascular manifestation is a rare complication in which intracerebral hemorrhage is very uncommon. We report a rare case of scorpion envenomation in a 28-year-old male with acute intra parenchymal bleed and subarachnoid hemorrhage. (Keywords: Scorpion envenomation, intracerebral bleed, subarachnoid haemorrhage)*

Introduction:
Scorpion envenomation is a significant public health problem in rural India. Clinical effects of scorpion envenomation mostly depend upon the species of scorpion, its lethality and the amount of venom injected at the time of sting[1]. "There are about 86 species of scorpions in India and in which,*Mesobuthus tamulus* (Indian red scorpion) and Palamneus gravimanus (black scorpion) are of high medical importance • Multi-system complications are usually associated with *Mesobuthus tamulus*[3].

Scorpion venom consists of a mixture of many pharmacologically active enzymes like phospholipase, hyaluronidase, proteinase, peptidase, urease, and enzymes with gelatinolytic and thrombin-like activities[4]. Pathophysiology of scorpion envenomation is a complex phenomenon and is characterized by hyperstimulation of the autonomic nervous system, resulting in a wide range of clinical manifestations ranging from mild local skin reactions to severe cardiovascular, respiratory, and neurological complications[5].Systemic complications are not uncommon but CNS complications are rare, comprising only 2% of all complications[3].The unopposed effects of alpha-receptors stimulation lead to acute rise in blood pressure causing rupture of unprotected perforating arteries which in turn causes intracerebral hemorrhage and cerebral infarction[2].

"Since the advent of vasodilators such as prazosin, captopril, nifedipine, sodium nitroprusside, hydrazine, and scorpion antivenom with intensive care management the fatality has dropped to less than 2-4%[1]. In this case report we present an interesting case with rare cause of acute intra parenchymal and subarachnoid hemorrhage following scorpion envenomation.

Case Report:
A 28-year-old male farmer was bitten by Mesobuthustamulus (red scorpion) as described by him on his right little finger. Following which, the patient had severe pain and he visited local primary health center. He was treated with prazosin and was given a digital lignocaine block on the affected finger and sent home. After 4 hours the patient developed breathlessness and experienced weakness of the right upper limb, as the weakness was worseninghe had to visit the primary health center again where he was referred to a higher center. Later, the patient was brought to our hospital emergency room. On examination, his vitals were stable with blood pressure of 130/80 mm of mercury and heart rate of 74 per minute. There were no autonomic disturbances and general physical examination was normal. Cardiac, respiratory and abdomen examination was normal. Neurologic examination revealed right upper limb weakness, distal more than proximal (power 1/5) with right UMN facial palsy and presence of Babinski sign. Blood counts, bilirubin, liver enzymes, creatinine, electrolytes and coagulation profile (PT, PTT, INR) were normal. CPK was 903 IU. Patient underwent MRI brain with MRA, which revealed acute Intraparenchymal hemorrhage with surrounding perilesional edema and subarachnoid hemorrhage in the left high frontal region. ECG, chest X-ray and 2D echo were normal. Patient was treated with IV dexamethasone 4mg 8th hourly, IV fluids and other conservative treatment. Patient improved slowly over 2 to 3 days and upper limb power increased to 4/5 distally over the next 7days

Discussion:
Our case shows the rare complication of scorpion envenomation resulting in acute intra parenchymal bleed and subarachnoid hemorrhage in a young adult. Intra CNS complication following scorpion sting occurs due to various mechanisms like fluctuations in blood pressure due to abnormal autonomic out burst, direct action of toxin on central nervous system and toxin induced vasculitis, disseminated intra vascular coagulation, vasospasm or vasoconstriction, emboli secondary to myocarditis induced arrhythmias and anoxia or hypoxia. Local symptoms are the commonest manifestations following a scorpion sting;cerebrovascular involvement (hemorrhagic or thrombotic stroke) with focal neurological deficit (comprising only 2% of all complications) following scorpion sting are uncommon only in few reported cases[6].

Despite adequate treatment and supportive measures, involvement of CNS in cases of scorpion envenomation carries a very bad prognosis. Early diagnosis and prompt treatment can reduce mortality and morbidity caused by neurological manifestations of scorpion envenomation.

Conclusion: The present case has been highlighted due to the rare occurrence of intracerebral bleed and subarachnoid haemarrhage due to scorpion envenomation and the rapid recovery with treatment. Physicians and radiologists

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should be aware of various neurological manifestations and neuroimaging appearances following scorpion envenomation

Figure 1: MRI brain of the patient which reveals subarachnoid haemorrhage

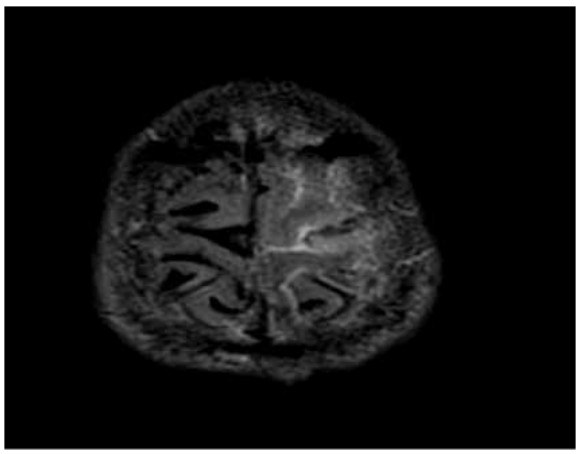
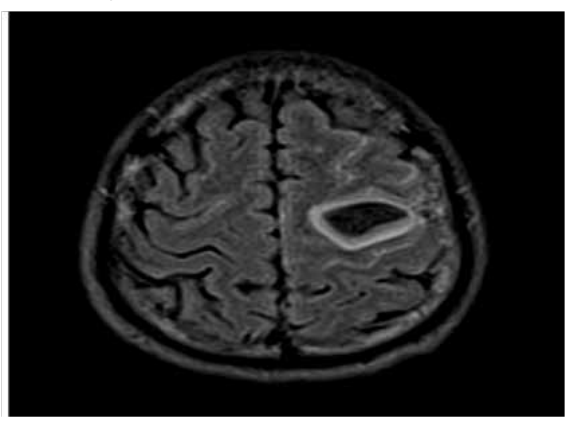


Figure 2: MRI brain suggesting intracerebral bleed with surrounding perilesional oedema



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