Progressive Hemiparesis Following Scorpion Sting in a Female with Uncontrolled Hypertension

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ABSTRACT

Scorpion sting is a potentially life-threatening medical emergency. Cerebrovascular manifestations (e.g. intracerebral hemorrhage) with focal deficits are uncommon presentations of scorpion sting. We present a case of a 42-year-old female with uncontrolled hypertension, who developed hemiplegia after scorpion sting. In the present case, the patient had a previous history of uncontrolled hypertension.

Key words: Hemiplegia; hypertension; intracerebral hemorrhage; scorpion sting; stroke

Introduction

Scorpion sting is an acute and potentially life-threatening medical emergency commonly seen in rural areas.[1,2] Cerebrovascular manifestations (e.g. intracerebral hemorrhage) with focal deficits are uncommon presentations of scorpion sting in India.[2-4] We present a case of a middle-aged female, who developed hemiplegia after scorpion sting.

Case Report

A 42-year-old female, known hypertensive on irregular treatment, presented with headache and giddiness of 1 week duration. There was history of scorpion sting 9-days back in her left leg. It was followed by local pain and progressive headache and gradual onset of left upper and lower limb weakness, drooling of saliva from left angle of mouth, and facial asymmetry. Initial computed tomography (CT) scan showed intracerebral hemorrhage involving the right basal ganglia with peri-lesional edema and mass effect [Figure 1]. There was no history of fever, seizures, bleeding, chest pain, dyspnea, or palpitations. At the time of admission, the patient was conscious, opening eye to call, and obeying commands. Pulse rate was 80/min and blood pressure was 170/90 mmHg.

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There was weakness of left upper and lower limbs of grade 3/5 with left upper motor neuron-type facial palsy. Other cranial nerves were apparently normal. Pupils were bilaterally equal and reacting to light. Fundus examination showed retinal hemorrhages. In view of neurological deterioration, she underwent a follow up CT scan and it showed resolving intracerebral hematoma but increase in peri-lesional edema [Figure 2]. Blood investigations including hemoglobin, total and differential leucocyte count, platelet count, erythrocyte sedimentation rate, bleeding time, coagulation profile, blood urea and sugar, liver function test, urinalysis, chest X-ray, and electrocardiogram (ECG) were within normal range. The patient was managed conservatively (injection mannitol and supportive therapy). At follow up, she was making gradual recovery.

Discussion

Scorpion species are nocturnal, hiding during the day under stones, wood, or tree barks, and scorpion sting poses occupational hazards particularly for farmers, farm labors, villagers, migrating population, and hunters.[5,6] Scorpion venoms are species-specific complex mixtures of neurotoxic proteins[7] and poorly crosses the blood–brain barrier, and the cerebrovascular effects of the scorpion sting are secondary to the direct stimulation on the medullary sympathetic center.[8] Various mechanisms have been proposed to explain cerebrovascular complications including venom-induced autonomic storm leading to hypertension, hypotension, myocarditis, disseminated intravascular coagulation (DIC), or vasculitis by direct actions.[9] The possible mechanism for intracerebral hemorrhage following scorpion sting is an acute rise in blood pressure causing rupture of blood

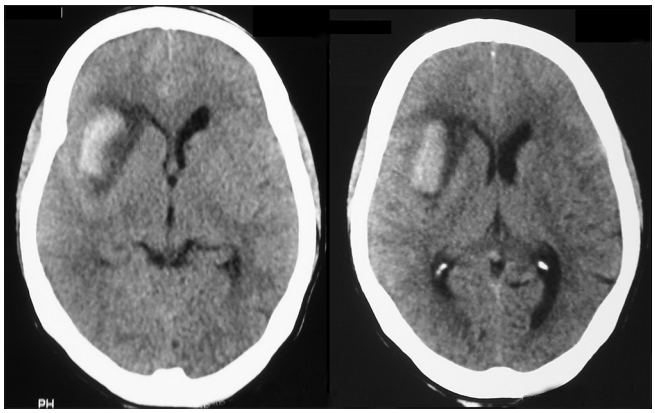

Figure 1: CT scan brain plain showing right basal ganglioninc intracerebral hematoma with peri-lesional edema, mass effect, and midline shift. CT = Computed tomography

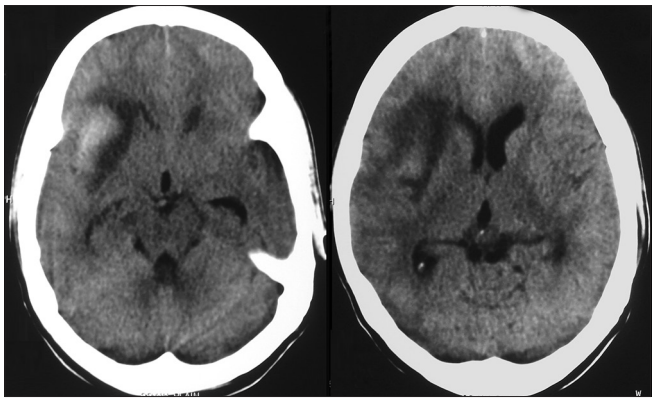

Figure 2: Follow up CT scan brain plain showing resolving right basal ganglioninc intracerebral hematoma with increase in peri-lesional edema, mass effect, and midline shift. CT = Computed tomography

vessels, intracranial hemorrhage, encephalic infarcts, and their sequelae.[2] Scorpion sting results in raised angiotensin I levels facilitating the sympathetic outflow through conversion to angiotensin II[10] causing alpha-receptor stimulation and acute rise in blood pressure due to sympathetic stimulation, rupture of unprotected perforating arteries, and intracerebral hemorrhage.[11-13] In the present case, the patient already had poorly controlled hypertension, but the scorpion sting may have precipitated an acute rise in blood pressure resulting in intracerebral hemorrhage. Local symptoms are the commonest manifestations following a scorpion sting;[14] 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.[2,15] Acute rise in blood pressure following scorpion sting can cause acute pulmonary edema, fundal hemorrhages, temporary blindness, and deafness.[15] Radiological investigation with either CT or magnetic resonance imaging (MRI) will show the underlying nature and severity of central nervous system (CNS) pathology (hemorrhage versus infarct).[13] Management of cerebrovascular complications is to control the hypertension and other supportive measures. It has been recommended that treatment with prazosin, if initiated early, can help to prevent cerebrovascular manifestations of scorpion sting.[2]

Conclusion

In the present case, there was already premorbid uncontrolled hypertension. One cannot scientifically attribute the intracerebral hemorrhage solely to an incidental scorpion sting. This article is geared not only toward enlightening health care personnel on possible cerebrovascular events following scorpion sting but also for the need to be aware of a possible 'red herring' event overriding an important precedent in the patient's history—in this case, long-standing uncontrolled hypertension.

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