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CASE REPORT

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Acute cerebral stroke after multiple wasp bites: a case report from eastern Nepal

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ABSTRACT

Wasp bite is an important occupational hazard. The symptoms of wasp bite range from bite site pain, swelling, redness to systemic features like hypotension, acute kidney injury and rhabdomyolysis. The acute ischemic stroke after such bite is a rare phenomenon. We report the case history of a 65 years old patient who had an acute ischemic stroke on day third of wasp bite. The patient presented to an emergency room of B. P. Koirala Institute of Health Sciences with complaints of pain over the whole body after two hours of the bite. The patient was intubated because of hypoxia and kept on mechanical ventilation for two days in intensive care unit. On third day of wasp bite, the patient developed left hemiparesis along with upper motor neuron type facial palsy. Computed tomography of the head revealed acute ischemic infarct of the right frontoparietal lobe. Wasp bite may be considered as the risk factor for acute ischemic stroke.

Keywords: Wasp bite; Stroke; Nepal

INTRODUCTION

Wasp bite is a common occupational hazard worldwide. The usual clinical symptoms of wasp bite are categorized into local and systemic symptoms. Local symptoms like pain, swelling, and redness are common in almost all cases whereas general symptoms like hypotension (4.5%), hemoglobinuria (10.1%), cardiac arrhythmia(6.6%) and acute respiratory distress syndrome (1.6%) are less common.[1] Most of the local symptoms of wasp bite are self–limiting. However, in context of severe allergic reaction, rhabdomyolysis, acute renal failure, and haemolysis, patients seek the emergency management. The neurological complications after wasp bite are rare. There were few reported cases causing myasthenia gravis,[2] optic neuritis[3] and stroke.[4] We report a case of a 65 years old patient who had an acute ischemic stroke on the third day of multiple wasp bites.

CASE REPORT

A 65 years old patient from Dharan Municipality of Eastern Nepal presented to an Emergency room of B. P. Koirala Institute of Health Sciences with complaints of pain over

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the whole body and itchy reddish skin rashes. The patient had a history of a sting by 20 to 30 wasps while working in farm two hours prior to the emergency room presentation. After 15 to 20 minutes of hospital presentation, the patient developed shortness of breath and noisy breathing. On physical examination, he had a blood pressure of 80/40 mm Hg, respiratory rate of 32 cycle /min, pulse rate of 116/minute, arterial oxygen saturation of 80%. The patient was intubated and transferred to intensive care unit for the further management. The extubation was performed after two days of intensive care and transferred to Department of Internal Medicine. On the day first of admission at the Department of Internal Medicine, the patient developed weakness of left upper and lower limbs along with facial deviation towards the right side. There was no history of fall, fever and headache during the hospital stay. The past medical history of the patient was insignificant. The neurological examination revealed decreased tone of left upper limbs and lower limbs. The power of muscles of left upper and lower limbs was medical research council grade 1/5. All the deep tendon reflex in left upper and lower limbs showed areflexia. Cranial nerve examination showed upper motor neuron type facial palsy. Other motor, sensory, and cranial nerve examination were normal.

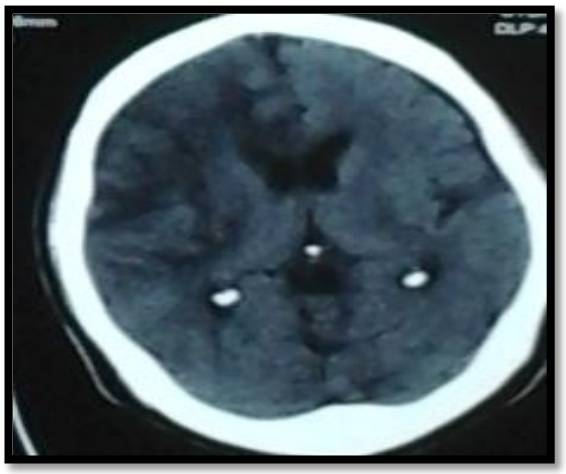

Fig 1: *Computed tomography of head of patient showing hypodensity at right frontoparietal lobe suggestive of acute ischemic stroke*

The patient had a hemoglobin of 13.8 mg/dl, total leucocyte count of 12000/mm^3, platelet count of 200000/mm^3, serum urea of 23 mg/dl, serum creatinine of 0.3 mg/dl, plasma glucose of 120 mg/dl. As illustrated in figure 1 computed tomography of the head revealed hypodensity in right frontoparietal region suggestive of acute ischemic infarct. Bilateral carotid artery doppler and transthoracic Echocardiography were normal. IgE antibody against wasps venom was not tested due to lack of facilities in the institute.

The patient was treated with injection adrenaline (1:1000) 0.5 ml intramuscularly in the anterior lateral aspect of the thigh, intravenous crystalloid, intravenous hydrocortisone 100mg as a starting dose and then three times a day for three days. The patient was kept in mechanical ventilation for two days. After the onset of acute ischemic stroke, the patient was prescribed tablet aspirin and tablet atorvastatin. Limb physiotherapy was initiated. The patient was discharged from the hospital after four days of onset of stroke.

DISCUSSION

Wasp venom contains phospholipase, hyaluronidase, serotonin, histamine, noradrenaline, and bradykinin.[5] These chemicals were attributed for vasospasm and coronary artery occlusion in various case reports of post-wasp bite myocardial infarction.[6-8] Similarly, the pathogenesis of cerebral infarction following wasp bite was presumed to be caused by cerebral artery occlusion and vasospasm mediated by a vasoactive and inflammatory substance found in wasp venom.

In our patient, the ischemic stroke developed on the third day of wasp bite. The delayed presentation of cerebral infarction can occur in wasp bite as reported by Romano et al.[9] The cerebral infarction after wasp bite can occur from 15 minutes to four days with a median time of 16 hours.[10] The patient had an ischemic stroke of fronto-parietal lobe which corroborates with the report of Moien et al that post-wasp bite stroke commonly occurs in middle cerebral artery territory.[10] The other sites of involvement of stroke after wasp bite are known to be medulla oblongata,[11] occipital lobe,[12] cavernous sinus,[13] pons and cerebellum.[14]

In our patient, the acute ischemic stroke occurred in the setting of wasp bite, anaphylactic shock and use of adrenaline injection. Acute ischemic stroke due to hypotension occurred mostly in the watershed region[15] in contrast to the involvement of

cortex in our patient. The use of adrenaline as a contributing factor for acute ischemic stroke in the patient can be hypothesized but literature has reported no case of acute ischemic stroke with the use of adrenaline.[15] So we consider that acute ischemic stroke was caused by wasp bite venom in our patient. However, we could not perform the serological studies of wasp venom due to lack of facilities in the institute but further research is required to analyse wasp bite venom to determine the exact pathogenetic factor for ischemic stroke. Literature is still limited to determine the predictors of stroke after wasp bite.

CONCLUSION

Wasp bite envenomation is a risk factor for acute ischemic stroke. The most common vascular territory involved is the middle cerebral territory. Any patients of wasp bite who has focal neurological deficits should be suspected as a case of acute ischemic stroke. The concerned stakeholder should disseminate the message to the public to create awareness regarding the prevention of wasp bite. The physician should counsel the patient attendant of wasp bite regarding the possibility of stroke to avoid the conflicts on patient management.

COMPETING INTERESTS

The authors declare that there are no competing interests regarding the publication of this paper.

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