Case Report

A Case Of Acute Akinetic Rigid Parkinsonism Due To Honeybee Sting

Banshi Lal KUMAWAT, Chandra Mohan SHARMA, Vipin SATIJA, Gotam TRIPATHI, Sudhir KUMAR, Shailesh DIXIT

SMS Medical college, Department of Neurology, Jaipur, India

Abstract

The clinical manifestations of honeybee sting are myriad. Although most such stings are followed by local allergic reactions only but it can be potentially serious. The rare manifestations comprise of encephalitis, acute disseminated encephalomyelitis, parkinsonism, polyneuritis, Guillain-Barre syndrome, myocardial infarction, pulmonary oedema, bleeding manifestations, haemolytic anaemia and renal failure. The literature regarding honeybee sting from India is sparse. We report a rare case of honeybee sting induced extra pyramidal manifestations in form of akinetic rigid parkinsonism which developed 48 hours after multiple honeybee stings.

Keywords: Honeybee sting, extra pyramidal, Parkinsonism, Neurological manifestations

INTRODUCTION

The envenomation from honeybee or wasp sting varies in terms of severity and protean clinical manifestations. Most people usually have a local allergic reaction in form of symptoms little more than a swelling at the site, pain and redness which usually subside in several hours. The other severe manifestations include myocardial infarction, pulmonary oedema, bleeding manifestations, renal failure and life threatening anaphylactic shock.(7) The neurological presentations are rarely reported in literature and include encephalitis, acute disseminated encephalomyelitis, extra pyramidal manifestations and polyneuritis.(2,15)

CASE PRESENTATION

A 40 year old farmer presented with history of multiple honeybee stings over left hand which was followed by a local
reaction in form of swelling, pain and redness. On third day he developed difficulty in speech, stiffness and abnormal posturing of all four limbs. There was no history of altered sensorium, convulsions, and weakness of limbs, sensory symptoms and bowel or bladder disturbances. He also had severe local allergic reactions following honeybee stings on multiple instances in the past but without any neurological manifestations.

On admission he was conscious and oriented, his vital parameters were normal. General physical examination was normal except for an erythematous rash over left hand. Higher mental functions and cranial nerve examination were normal. He had extra pyramidal dysarthria. Motor system examination revealed normal power and preserved reflexes, lead pipe rigidity and dystonic posturing without tremors in all four limbs. Sensory and cerebellar system examination was normal. There were no signs of meningeal irritation.

A thorough laboratory evaluation undertaken which revealed hemoglobin 13.7 gm%, Total leucocytes count 12,600 cells/mm³, (Differential leukocyte count-polymorphs 65, lymphocytes 25, monocytes-7, eosinophils 2, basophils 1), erythrocyte sedimentation rate: 15mm in first hour, platelet counts 2.53 lac /mm³, fasting blood sugar: 78 mg/dl, urea: 26mg%, serum creatinine: 0.8mg%, Na:134meq/L, K:3.3meq/L, Cl:98meq/L. liver function tests, lipid profile, electrocardiogram and chest X ray were normal. Enzyme linked immuno sorbent assay for HIV and VDRL serology was negative. Cerebro spinal fluid analysis revealed 5 cells, 100% lymphocytes, 79 mg/dl sugar and 35 mg/dl protein. His magnetic resonance imaging (MRI) of brain in T2W and FLAIR images showed hyper intense signals in bilateral basal ganglia (caudate and putamen) and left centrum semiovale (Fig: 1). Electroencephalography (EEG) was normal. He was administered injection methylprednisolone intravenously for five days and all symptoms and signs resolved promptly.

DISCUSSION

The hymenoptera are subdivided into families including the Apidae (honeybees and bumblebees) and the Vespidae (wasps, hornets and paperwasps). The process of honeybee sting induced allergies including systemic manifestation is poorly understood. The venom contains several chemical compounds thought to be responsible for its clinical features. These comprise of enzymes (phospholipases, hyaluronidase) and biological amines (histamine, serotonin, dopamine, nor epinephrine, and acetylcholine). Two types of reactions are usually associated with bee stings and those of other stinging insects as well; local or systemic. A local reaction is generally characterized by pain, swelling, redness, itching and a wheal surrounding the wound made by the stinging apparatus, principally type 1 anaphylactic reaction mediated by mast cells. Life threatening anaphylaxis account for most deaths from hymenoptera
stings and are result of dysfunction of the body's immune system whereby the venom allergens react principally with cell bound specific IgE to induce massive release of anaphylotoxins.(8) Some allergists believe that about 0.4-0.5% of general population is hypersensitive to hymenoptera venom.(3) Neurological reactions to hymenoptera stings are very uncommon and often delayed in onset.(7) These comprise of a variety of peripheral and central nervous system lesions including Guillain-Barre syndrome, multiple sclerosis, optic neuritis, parkinsonism, and transverse myelitis. The possible mechanisms of the neurological involvement include immunologically mediated damage resulting in Guillain-Barre syndrome and various other forms of encephalomyelitis, or the direct affection of the apamin receptors by the venom.(5) In the present case prominent basal ganglia involvement as evident on MRI led to extra pyramidal manifestations in form of akinetic rigid parkinsonism and use of methylprednisolone led to prompt resolution.

Correspondence to:
Bl Kumawat
E-mail: kumawatbl04@gmail.com

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