Stroke as a Very Rare Complication of Multiple Bee Sting: A Case Report

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Abstract

Bee stings are commonly encountered worldwide [1]. Various manifestations after bee sting have been described. Local reactions such as pain, wheal, flare, edema and swelling are common and generally self-limiting. Uncommonly manifestations like vomiting, diarrhea, dyspnea, generalized edema, acute renal failure, anaphylactic shock, myocardial infarction, hypotension, collapse, pulmonary hemorrhage, acute hemorrhagic pancreatitis, atrial fibrillation, vasculitis, serum sickness, neuritis and encephalitis may occur [2]. We report a case of a 27-year-old male who developed right sided hemiparesis and dysphasia following multiple bee stings.

Keywords

Bee stings, Stroke, Hemiparesia

Introduction

Hospitalization arising from bee stings is generally due to anaphylactic and systemic allergic manifestations. Vascular events of coronary and cerebral circulation due to bee stings are very rare, there are few reports of stroke following bee or wasp stings [3]. We report on a young man who suffered from a stroke after multiple bee stings.

Case Report

27-years-old patient, was brought to the emergency department with a history of bee sting. He had been stung multiple times from his right hand (2 times), right leg (2 times) and his face. In the emergency service, 30 minutes later after the stung, he had been given intravenous anti-histamines and corticosteroid and he was discharged out from the hospital. Approximately 18 hours later, in the morning of the other day, he woke up and found that he has right upper and lower extremite weakness. He was unable to speak, could only communicate by signs. Then he was brought to the hospital. On general examination, he had normal blood pressure, normal pulse and normal respiratory values. He had multiple erythematous wheals over his leg, hand and face. Neurological examination revealed the patient had dysphasia and right sided hemiparesis. His right upper extremite motor power was 1-2/5, lower extremite was 3-4/5. The patients past medical and surgical history were insignificant. Fundus examination was normal.

Computed tomography (CT) of the brain performed as soon as he was admitted to the hospital. CT revealed minimal changes of left MCA territory gyri (Figure 1). Then diffusion magnetic resonance imaging (MRI) performed to the patient immediately, on the diffusion MRI, an acute infarction was detected extending from the left fronto-temporal region to the parietal region (Figure 2). ECG and echocardiography were normal. His hemogram, liver function tests, prothrombin time, activated prothromboplastin time, and IgE level were normal. D-dimer analysis, thrombin-antithrombin complex evaluation, and a workup for other hypercoagulable states were detected as normal.

The patient was transferred to the intensive care unit and medical treatment was started. Patient was treated aspirin, heparin and antiedema drugs. On the 3rd day of hospitalization, his right sided hemiparesia improved partially. His speech improved almost completely. On the outpatient clinic, the patient was followed 3 days, his right sided limb weakness (he had 4/5 power on his affected side) and speech improved before his discharge from the hospital.

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Discussion

Reactions to bee stings may include local pain and swelling [4]. In literature review, we had few cases of cerebral infarction occurring after bee sting. Neurologic reactions, including stroke after bee stings, are very rare [5]. The pathophysiology to explain the stroke after bee sting is unknown. The proposed mechanisms include: 1) Hypotension caused by anaphylaxis or due to histamine release may induce cerebral ischemia; 2) Vasoconstriction secondary to mediators released after the sting, may be aggravated by exogenous adrenaline, and platelet aggregation may contribute to hypertension and cerebral ischemia; 3) Bee venom itself contains vasoactive and inflammatory mediators (histamine, thromboxane, leukotrienes, dopamin, noradrenaline and other) leading to cerebral ischemia. Both thromboxane and leukotrienes have been shown to cause vasoconstriction resulting in cerebral infarction [6]. Neurologic vascular events resulting from bee stings are due to either hemorrhage or infarction. In our case, we thought that acute ischemic stroke due to the bee sting caused by vasoconstriction and the prothrombotic state.

In conclusion, bee sting-related neurologic events like stroke are very rare, with no proven pathophysiologic mechanisms. We report this case due to its rarity.

Figure 1: CT Brain demonstrating minimal changes of left MCA territory gyri.

Figure 2: Diffusion MRI demonstrating an acute infarction extending from the left frontotemporal region to the parietal region.
References


