

Bee sting envenomation resulting in gross haematuria in an eight-year-old Nigerian male with sickle cell anaemia: A case report

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ABSTRACT

Gross haematuria is an unusual complication of Honey bee stings. Herein, we report a rare case of gross haematuria following multiple honeybees stings in an 8-year-old Nigerian child with sickle cell anaemia. The patient had evidence of massive intravascular haemolysis and was transfused with a unit of fresh whole blood. However, he died within 36 hours on admission despite medical intervention.

Key words: Envenomation, gross haematuria, honeybees, sickle cell anaemia

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INTRODUCTION

Insects that sting to defend their colonies or subdue their prey belong to the order Hymenoptera, which includes bees, wasps, hornets, yellow jackets and fire ants.¹ Honeybees are beneficial to man because they produce honey, which has nutritional and medicinal benefits. They are also important pollinators essential for the propagation of plants, including many agriculturally important crops.² Despite these benefits, being stung by a bee is an unforgettable painful experience and can lead to untimely death. Bee stings occur as accidents or occupational exposure, especially in rural areas, within close proximity to forests,³ or in bee farms. The clinical manifestations of bee sting range from local or benign to systemic life threatening multisystem involvement, which result from allergic and/or anaphylactic to toxic reactions. Bee venom contains many toxic fractions, the most important being mellitin, which alters capillary permeability, causes local pain, haemolyses red cells and lowers blood pressure.⁴ The venom also contains antigenic components which are capable of invoking an allergic response in the form of hypersensitivity in a significant proportion of the population, if subjected to a subsequent

challenge. Multiple stings, usually in excess of 100, may result in significant haemolysis with acute anaemia and subsequent renal failure.⁴ A bee dies after stinging her victim, leaving the barbed end of her stinger apparatus, or ovipositor, firmly embedded in the skin.⁵ There are a few reports on the uncommon reactions to bee sting which include acute renal failure and haematuria.^{3,6} However, there is no documentation of bee sting in a sickle cell anaemia patient in medical literature to the best of our knowledge. It is against this background that we report an uncommon presentation of gross haematuria following multiple bee stings in a 8-year-old Nigerian male with sickle cell anaemia and as well to highlight therapeutic challenge in the management.

CASE REPORT

An 8-year-old Nigerian male presented with a history of multiple bee stings on the head and passage of bloody urine 50 minutes prior to hospitalisation. He was initially rushed to a private clinic where he received intravenous (I.V) 5% dextrose saline fluid, I.V Ampiclox, I.V hydrocortisone and intramuscular diclofenac before referral to our facility for further care. He is a known sickle cell anaemia patient diagnosed at the age of 8 months in a tertiary health facility. He has been in stable state of health for over 1 year prior to the bee stings.

On admission, he was observed to be vomiting and passing watery non-bloody stools. Physical examination revealed extensive swelling on the head and face, he was moderately pale, febrile (temperature 37.6°C), and mildly jaundiced. His blood pressure was 90/60 mmHg. Other vital signs

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were essentially normal. Significant systemic finding was splenomegaly of 3 cm. His laboratory investigations revealed a packed cell volume of 20%, white blood cell count of 28,700/mm³ with normal differential count. Peripheral blood film showed evidence of haemolysis in the form of poikilocytosis and anisocytosis. His platelet count was 84,000/mm³. Serum electrolyte urea and creatinine were within normal limits, malaria parasite test was positive (+). Dipstick urinalysis showed blood (++++), other parameters were normal. He was transfused with 1 unit of fresh whole blood and was also commenced on IV antibiotics, IV antihistamines, I.V antimalarial, zinc and acetaminophen tablet. Hydrocortisone was discontinued. Visible stingers were scrapped off from this head. He developed incoherent speech and became delirious within 24 hours, and died after 36 hours on admission.

DISCUSSION

The sight of passing overtly bloody urine is scary and needs urgent evaluation to determine its cause and institute appropriate treatment. Gross haematuria following bee sting is a rare occurrence and the exact mechanism is not known. It is possible that mellitin contained in the venom might have triggered widespread alteration of capillary permeability coupled with extensive haemolyses of red blood cells, which eventually resulted in gross haematuria. The patient had features in keeping with red cell haemolysis (moderate anaemia, thrombocytopenia, poikilocytosis, anisocytosis), which might have resulted from the haemolytic action of mellitin or from sickle cell disease. Our patient also had other features of anaphylactic reaction to bee sting that include: Local pain, fever, swelling over the head, vomiting and passage of watery stool. These effects are caused by mellitin and other substances contained in the venom like histamine, hyaluronidase, apamine and phospholipase A.^{7,8} The incoherent speech and delirious state of our patient 24 hours on admission might have been due to neurotoxic effect of apamine and hyaluronidase in bee venom.^{7,8} It is also possible that he had evolving stroke as a complication of sickle cell anaemia precipitated by the bee sting. A transcranial Doppler ultrasound would have been beneficial but it was not done because we lacked the equipment in our facility. Our patient did not receive I.V adrenalin for management of anaphylactic reaction because it causes vasoconstriction and might trigger or worsen vasoocclusive crises in children with sickle cell anaemia. This is a therapeutic dilemma for Paediatricians. Autopsy was not performed because parents declined consent; therefore, the cause of sudden death of our patient is not certain. It could have been caused by overwhelming toxemia due to the venom, which has been reported

to cause acute myocardial infarction in humans and myocardial necrosis in animal studies.^{9,10} This highlights the need for autopsies to be carried out routinely on every case of sudden death of unknown aetiology.

CONCLUSION

Clinicians should be aware that the risk of developing gross haematuria following bee envenomation appears to be increased by co-existing sickle cell anaemia. Therefore, every patient with bee sting should be closely monitored for the possibility of this life threatening rare occurrence, especially if they suffer from sickle cell disease.

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