

## Case Report

# Giant Asian honeybee stings induced acute myocarditis: a case report

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Hymenopterid stings and subsequent allergic reactions including fatal anaphylaxis are a common indication for emergency department visits worldwide. Less commonly, multiple wasp stings can result in multi-system involvement ranging from intravascular hemolysis, rhabdomyolysis, acute renal failure, cardiac involvement, hepatic dysfunction and occasionally thrombocytopenia and coagulopathy. Here we report one case of multiple Giant Asian honey bee stings induced myocarditis.

**Key words:** Muscle spasms; Sri-Lankan Ornamental Tarantula; *Poecilotheria fasciata*

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**Introduction**

The medically important groups of Hymenoptera are the Apoidea (bees), Vespoidea (wasps, hornets, and yellow jackets), and Formicidae (ants). Hymenopterid stings and subsequent allergic reactions including fatal anaphylaxis are a common indication for emergency department visits worldwide. The incidence of anaphylaxis caused by insect stings has been estimated from 0.3 to 3% in the general population(1) Allergic manifestations to wasp stings are well recognized, but more serious complications like intravascular hemolysis, rhabdomyolysis, thrombocytopenia, acute renal failure (ARF), liver impairment and myocardial infarction(2) myocardial necrosis and myocarditis are less common(3). Acute renal failure would occur due to toxic-ischemic-type mechanism as hypovolemia, myoglobinuria, hemoglobinuria, renal ischemia, or direct venom toxicity while patient may develop hypersensitive myocarditis, myocardial infarction and fetal arrhythmias(4).

Here we report one case of multiple wasp stings induced myocarditis.

**Case Report**

A 25-year old previously healthy man from Achchuvely, Jaffna transferred to Emergency Unit, teaching hospital,Jaffna from District hospital Achchuvely with the history of multiple wasp stings (80 stings) 3 hours before, developed facial swelling ,chest pain and difficulty in breathing. He had been stung with a swarm of wasps (*Apis dorsata*-Figure 1) on the head, face, neck and upper and lower extremities while he was disturbing the wasp hives. He developed severe pain at the site of



Figure1. Offending Giant Asian honeybee

developed central chest pain which was crushing and squeezing in nature without radiation, which had been continuing for the last 1-2 hours and associated with difficulty in breathing. He had no history of itching,urticarial rash, headache or vomiting. He was given 400 milligram of intravenous (IV) Hydrocortisone and 10milligram of intravenous (IV) Chlophenaramine at the local hospital and was transferred since he started developing chest pain and difficulty in breathing. He had no history of hematemesis, melena, hematuria or loss of consciousness. n examination, the patient was conscious and well oriented to time place and person and had a swollen face without urticarial rash. His Blood Pressure was 114/70 mmHg and Pulse rate was 117beats/minute. Patient was dyspnoeic. Bilateral pedal edema was present. He had

stings and swelling of the body few minutes after the incident .Nearly about 45minutes after the sting he

multiple stings (around 80 stings) and the stung areas were edematous and erythematous. There was no pallor

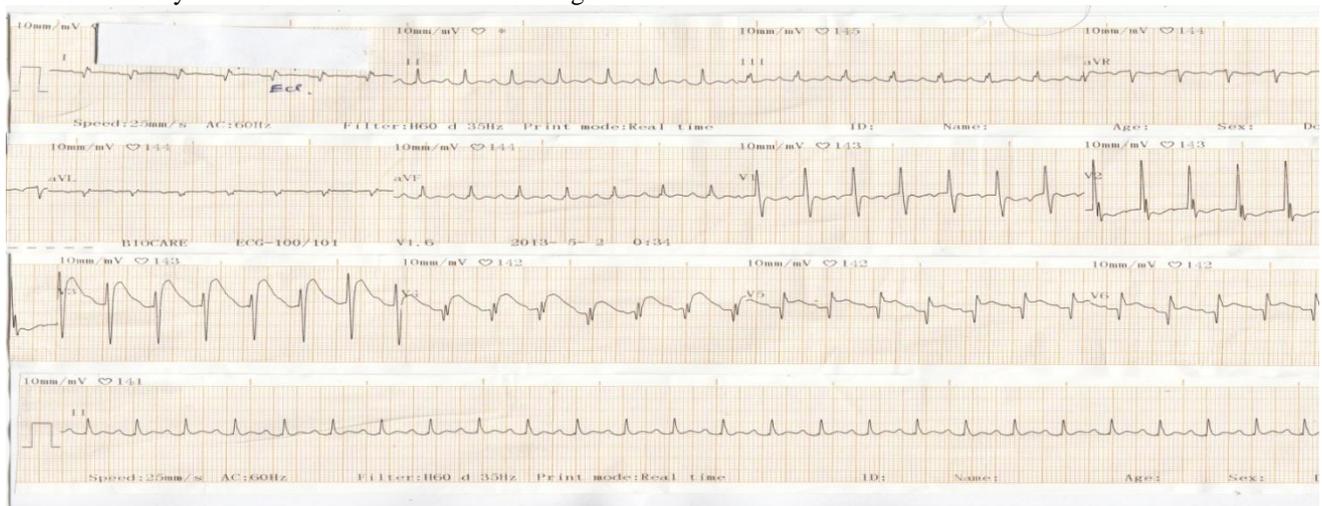


Figure 2 12 lead ECG showing diffuse ST/T changes 3 hours after *Apis dorsata* stings

or dehydration. Cardiovascular and respiratory system revealed normal findings. Tenderness over stung areas was present.

The laboratory results are shown in Table 1. Peripheral blood smear showed reticulocytosis and polychromatic red blood cells. Urinalysis showed protein +, Red Blood Cells 2-3, no casts. Liver function test revealed slightly increase of liver enzymes, otherwise normal. Chest X-ray and ultrasound abdomen and pelvis were normal.

Clinical manifestation and investigations revealed he had acute myocarditis and possible necrosis; but no coagulopathy or liver injury was present. The Patient was treated with antihistamines, IV Hydrocortisone, IV fluids and antibiotics. He did not require Intensive Care Unit (ICU) admission during the course of the illness. The 12

**Table 1 Laboratory results of Blood investigations on the day of admission**

Parameter	Normal range	Case
Hemoglobin	16-Nov	13.1
White Blood Cell counts	4000-10,000 / $\mu$ l	15700
Platelets counts	1.5-4.0 X 10 <sup>5</sup> / $\mu$ l	162
Neutrophils	50-80%	82%
Lymphocyte	25-50%	16%
Eosinophils	00-5%	2%
Prothrombin Time (PT)	15-Dec	13
Activated Partial Thrombin Time (aPTT)	28-31	29
Blood Urea	15-45	25
Serum Creatinine	0.6-1.5	0.9
Serum Sodium	135-145	141
Serum Potassium	3.5-5.0	4.7
Serum Protein	6.0-8.5 g/dl	6.7
Serum Albumin	3.5-5.0	3.5
Serum Bilirubin		
Total	0.2-1.0 mg/dl	1
Direct	0.1-0.3 mg/dl	0.4
Aspartate Transaminase (AST)	5-40 U/L	58
Alanine Transaminase (ALT)	5-40 U/L	25
Alkaline Phosphate	110-310 U/L	
Troponin-I	<0.15ng/ml	2.602
Arterial Blood Gas		
PaO <sub>2</sub> (mmHg)	60-80	53
PacO <sub>2</sub> (mmHg)	35-45	25
pH	7.35-7.45	7.45
HCO <sub>3</sub> (mmol/l)	23-28	18.1
SaO <sub>2</sub> (%)	> 92	89

lead ECG showed diffuse ST/T changes (Figure2) in limb and precordial leads suggestive myocardial involvement which was confirmed by elevated cardiac enzymes and

2D Echo Cardiogram with the finding of LVEF: 52%, with mild MR, Mild LV global hypokinesia with normal size of LV. With above findings working diagnosis of myocarditis was made. The patient was managed with IV Hydrocortisone, IV Chlorpheniramine, IV normal saline, Paracetamol and supportive care. On day three of the incident patient started to improve and free of chest discomfort or pain. Repeat 2D Echo Cardiogram done on day 6 showed LVEF: 64%, without regional wall motion abnormalities with normal size left ventricle. He was discharged from the hospital on day 7 of the illness with full recovery with the plan of reviewing him after two weeks. On two weeks review he was perfectly well with normal serum and urine biochemistry.

## Discussion

This case demonstrates that Giant Asian honeybee stings can cause acute coronary events such as myocarditis in previously healthy individual shortly after many stings. The characteristic pain of acute cardiac event can be masked by generalized aches and pain due to multiple stings. This can be due to the Kounis syndrome, also known as allergic angina or allergic myocardial infarction, is characterized by allergic reactions, coronary artery spasm and chest pain(5,6).It is not possible to identify the exact mechanism of myocardial involvement as both Type 1 hypersensitivity and direct toxic effects of the venoms are equally possible. Further investigation to find out the exact mechanism is technically and practically difficult in our setting. We think this is possible myocarditis rather than myocardial infarction because of generalized ECG changes, rapid improvement of myocardial changes demonstrated by repeat 2D Echo cardiogram. If it is myocardial infarction we expect changes confined to one arterial territory and little slower echocardiographic improvement. Cardiac MRI would have been a good imaging modality to clarify this beyond doubt.

He had neutrophil leucocytosis on admission to Teaching Hospital, Jaffna. It may be due to the effect of toxins or due to the steroid treatment which was given at local hospital. This type of case is not reported in Northern Province earlier, we hope this must be the first of this kind. This case indicates that Giant Asian honeybee (*Apis dorsata*) is found in Northern Province and about one million people in Jaffna peninsula is at a theoretical risk of stinging and its effects.

Insect bites and stings occasionally cause hypersensitivity responses that may include myocarditis, myocardial infarction or serious cardiac arrhythmias(7) There is evidence in the literature that death following a wasp sting may result from cardiac involvement(8).

Although systemic reactions to venom occur in less than 5% of the population (anaphylaxis in probably less than 1%), serious allergic reactions are far more frequent in stings from Hymenoptera species than from any other arthropod and may cause more fatalities worldwide than reactions to venom of any other animal(9,10). Renal

failure or death may occur in the range of 20-200 wasp stings and may occur within 4 hours to 9 days of stings(11) . Our patient did not have renal involvement suggesting that any combination of organ involvement can have after *Apis dorsata* sting. Fatalities are typically the result of renal failure or from cardiac arrest due to complications of the venom toxicity(11).

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**Competing Interests**

None

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