Research Article

Bee Alert! Multiple Honey Bee Stings Lead to Heart Attack: A Case Report

Kiran Shetty[1], Ranjan Shetty[1*], Naveen Chandra GS[2], Umesh Pai[3], Amruth Kiran[4], Mohan NK[5].

1. Dept. of Cardiology, Kasturba Medical College, Manipal University, Manipal-576104*, India.
2. Dept. of Cardiology, Columbia Asia Hospital, Bengaluru, India.
3. Dept. of CVT, SOHAS, Manipal University, Manipal, India.
4. Dept. of Pharmacology, MMMC, Manipal University, Manipal.
5. Dept. of Microbiology, HIMS, Hassan, India.

***Corresponding author's E-mail:** sampkiran@gmail.com

Accepted on: 11-09-2016; **Finalized on:** 30-11-2016.

ABSTRACT

Acute myocardial infarction resulting of multiple honey bee stings, there is no much data available on this topic, but the few previous studies have explained the relationship between a honey bee sting and myocardial infarction (MI). The possible mechanism for this event includes severe hypotension, hypertension and coronary vasospasm with thrombotic events after the release of vasoactive agents. The honey bee venom is highly vasoactive, inflammatory and thrombogenic substance. The massive envenomation by multiple honey bees capable of causing multiple organ dysfunctions by its direct action and anaphylactic reactions. This condition is also known as Kounis syndrome. Here we are presenting a case of a 42-year-old male, with an acute MI with severe anaphylactic reactions followed by multiple honey bee stings. The patient underwent angioplasty to left anterior descending artery (LAD), followed by antihistaminics and steroid therapy.

Keywords: Honey bee, strings, heart attack, hypertension.

INTRODUCTION

Honey bee stings are the most commonly seen in rural than the urban areas[1]. Anaphylactic reactions to honey bee stings are very commonly reported, but acute myocardial infarction followed by multiple honey bee sting is very rarely described in previous literature. The allergic myocardial infarction by honey bee stings explained under Kounis syndrome. It is a spontaneous mast cell activation disorder.[2] Symptoms range from simple skin reactions to severe systemic complications. The most common manifestations are bronchospasm, laryngeal oedema and severe hypotension with systemic anaphylactic reactions.[3] We are presenting a case of acute myocardial infarction triggered by multiple honeybee stings.

Case presentation

A 42-year-old male without any comorbidities, with a history of multiple honeybees, stings in his village ten hours before admission to hospital. He received initial treatment at the primary health centre in his village and then referred to our hospital. During admission, he was stable, conscious and oriented. There were multiple stings on his face, upper limbs and neck region along with swelling and urticarial rashes all over the body. Vitals are pulse rate was 126 bpm, Blood pressure 110/70 mmHg and respiratory rate 16/min. The chest was clear. At the admission, Electrocardiogram (ECG) showed ST elevation in leads V2-V5 with inversion of T-wave at V3-V5 chest leads (fig.1). The patient started with intravenous (IV) fluid, and Injection Hydrocortisone. Immediately patient was shifted to the cath lab. Coronary angiography showed a significant thrombus with the 95% occlusion of the proximal *left anterior descending* (LAD) artery (fig.2). The patient underwent PCI with thrombus aspiration, and DES implanted to LAD. The dose of hydrocortisone was tapered, and after four days the patient was significantly better. He was discharged with dual antiplatelet medication, statin, ACEI and beta-blocker and advised regular follow-up.

DISCUSSION

The class arthropods are spread all over the world, and few of them such as spiders, scorpions, honey bees, wasps and they are highly venomous. These animals have special characters that they produce the poison in their secretory glands and envenomation occurs during stings or bites.[4] The frequent clinical manifestations are dyspnoea, hypotension, tachycardia, angioedema and anaphylactic shock.[5] There are many reported cardiovascular events following Honey bee stings. There are some mechanisms to cause MI followed by a honey bee sting. Hymenoptera toxin is a potential vasoactive and inflammatory, Thrombogenic allergic proteins. They are leukotrienes, histamine, bradykinin, and thromboxane serotonin.[6] These proteins directly act on coronary vasculature or indirectly by a cascade of anaphylactic reactions. This event may facilitate to cause coronary vasospasm by activation of platelet aggregation and thrombosis as well. This cascade reaction worsened by thrombosis at the site of spasm also facilitate acute coronary syndrome (ACS).The exact mechanism of Myocardial Infraction followed by Hymenoptera sting is still not clear. The allergic anginal syndrome was initially

explained by Kounis and Zavras in 1991, which could lead to acute myocardial infarction. This syndrome is called "Kounis syndrome", triggered by inflammatory mediators like amines, neutral proteases, as well as tryptase, chymase, and cathepsin-D; arachidonic acid products; platelet-activating factors (PAF) and cytokines and chemokines discharged during the mast-cell activation. Precipitation of Acute myocardial infarction followed by multiple bee stings is very rarely reported in previous literature. ECG changes consistent with acute myocardial ischemia or infarction, including ST elevation or depression and even the appearance of prominent Q waves in these patients. Heart Rate and Rhythm abnormalities also are viewed. In this case report, the patient had symptoms suggestive of myocardial Infraction (ECG changes with S-T elevation). The patient underwent primary PTCA and treated with antihistaminic drugs and steroids. Cardiac medications are optimised, which lead to significant recovery. He called for regular follow-up for better care.

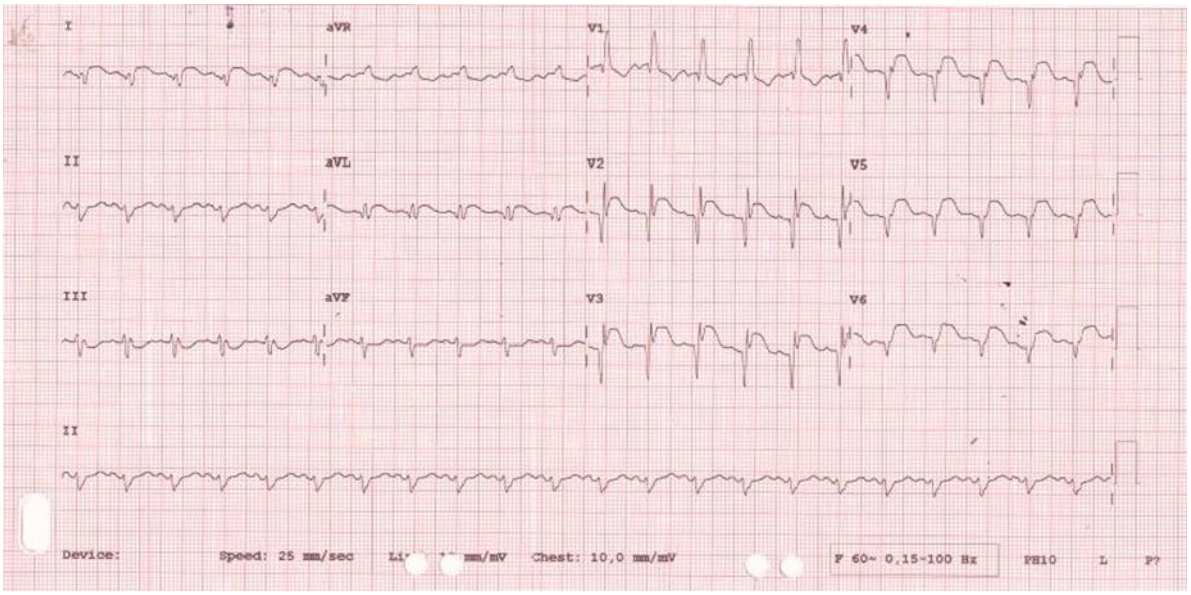

Figure 1: Electrocardiogram showing ST elevation in leads V2-V5 with inversion of T-wave at V3-V5 chest leads

Figure 2: Coronary angiography showing a significant thrombus laden 95% occlusion of the proximal left anterior descending (LAD) artery

Learning points

The precipitation of acute coronary syndrome can be seen following honeybee sting which is due to activation of mast cells stimulation by anaphylactic reactions. The early detection, and appropriate medical management should initiate for effective treatment and better patient care.

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Source of Support: Nil, **Conflict of Interest:** None.