Acute Myocardial Infarction Due to A Bee Sting Manifested with ST Wave Elevation After Hospital Admission

ARI SOKMASINA BAĞLI HASTANE BAŞVURUSU SONRASI ST ELEVASYONLU AKUT MİYOKARD İNFARKTÜSÜ

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Abstract

Acute myocardial infarction following bee sting has been rarely reported previously. Bee venom contains epinephrine, dopamine, leukotrienes and thromboxanes, which cause severe platelet aggregation and direct vasoconstriction, therefore can lead to an acute myocardial infarction. Here, we describe a 44 year old man with acute myocardial infarction with ST-segment elevation after a bee sting treated with primary percutaneous coronary intervention (PCI).

Key Words: Myocardial infarction; bee venoms

Özet

Arı sokmasına bağlı akut miyokard infarktüsü nadir görülmektedir. Arı zehiri, akut miyokard infarktüsüne neden olabilecek ciddi trombosit agregasyonu ve direk vazokonstrüksiyon etkisi olan epinefrin, dopamin, lökotrien ve tromboksanları içeririr. Arı sokması sonrası ST yükselmeli akut miyokard infarktüsü tanısı alan ve primer perkütan koroner girişimle tedavi edilen 44 yaşında erkek hasta olgusu sunulmaktadır.

Anahtar Kelimeler: Miyokard infarktüsü; arı zehiri

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Acute myocardial infarction (AMI) after bee sting has been rarely reported in the literature.[1] Bee venoms can act in promoting acute coronary artery thrombosis via platelet aggregation and hypotension.

We report here a patient who experienced AMI after a bee sting, with typical chest pain, electrocardiographic (ECG) abnormalities, and elevated cardiac enzymes with angiographic coronary artery disease.

A 44 years old male farmer had been stung by a bee on his tongue while drinking water. He experienced immediate tongue paresthesia and a short-lasting episode of near-syncope followed by chest pain. He was admitted to the emergency room two hours after the episode. His chest pain persisted during transport to the hospital. On admission he had dyspnea. Blood pressure was 80/60 mmHg and physical examination revealed mild tachycardia (104 bpm) and tongue edema. Other examination findings were normal. Prompt saline infusion and intravenous administration of methylprednisolone 40 mg/bolus alleviated all symptoms except chest pain. 12 lead ECG demonstrated intermittent RBBB (Figure 1A). The patient's initial total creatine kinase (CK) level was 164 U/L (0-170), CK-MB level was 23 U/L (0-25) and Troponin T level was 0.043 ng/mL (0-0.01). The biochemical result were normal except LDL cholesterol level. Erythrocyte sedimentation rate was 11 mm/h. The hemoglobin, hematocrit, prothrombin time, platelet count were in the normal range. The leukocyte count was 20300/mm^3.

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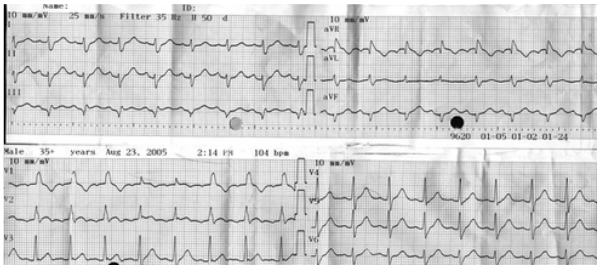

Figure 1A. ECG of the patient on admission.

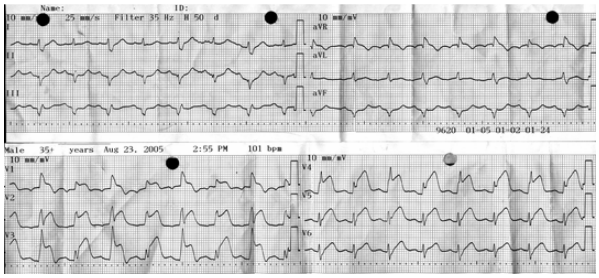

Figure 1B. ECG of one hour after admission and demonstrated ST wave elevation on chest leads.

One hour after admission his chest pain was increased substantially. ECG was repeated and demonstrated ST wave elevation on chest leads (Figure 1B). The diagnosis of acute anterior myocardial infarction was concluded and primary percutaneous coronary intervention (PCI) was decided. Aspirin 300 mg was given. Coronary angiography was performed which revealed total occlusion of proximal left anterior descending artery (LAD) (Figure 2-left panel) and non critical lesions in right coronary artery (RCA). The culprit lesion in the infarct related artery was predilatated with 2.0x20 mm balloon and a 4.0x20 mm Ephesos (Nemed Corp, Istanbul. TURKEY) stent was implanted successfully in the proximal LAD without any complications (Figure 2-right panel). The patient's chest pain relieved completely after PCI and elevated ST waves were restored by 70%. Echocardiographic examination showed anterior hypo kinesis. The ejection fraction of the left ventricle was 50%. In-hospital stay was without any complications and he was discharged on seventh day of admission.

Our report focuses on a case of acute myocardial infarction after a bee sting. Bee venom contains epinephrine, dopamine, leukotrienes and thromboxanes, which cause severe platelet aggregation and direct vasoconstriction, therefore paradoxical vasoconstriction is a possible explanation as an underlying mechanism. Severe coronary arterial spasm or secondary in situ thrombosis may also play role in such cases.[2]

Clinical and pathophysiological background of AMI after bee sting are generally related with three different mechanisms; AMI due to anaphylaxis and shock, a typical AMI occurring in patients with coronary atherosclerosis and an AMI occurring in subjects without significant coronary artery disease in whom coronary thrombosis and vasospasm enhanced by intoxication.[1]

Several cases of AMI were reported after envenomation with different animals such as snakes, wasps and several different insects. One of these cases was a 67-year-old male patient who had a silent AMI after wasp sting.[3] The authors postulated that venom constituents can cause endogenous amine release and vasodilatation leading to endothelial dysfunction. They also postulated that it was possible that adverse effects of therapeutic doses of epinephrine could be responsible for the reaction. This case history does suggest that the episode of hypotension (syncope) could have been a major factor in the pathogenesis of the myocardial infarction as in our case.

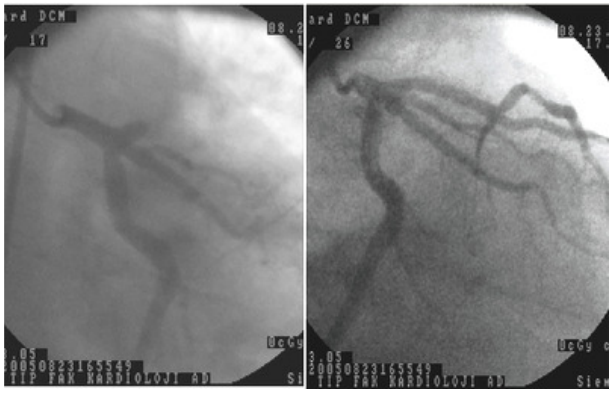

Figure 2. Total occlusion of proximal LAD (left panel) and stent was implanted successfully in the proximal LAD without any complications (right panel).

Primary coronary artery vasospasm (usually associated with chest pain and an ischemic pattern on the ECG) was postulated to be the alternative pathophysiological hypothesis. Matucci et al. also recommend a consequence of an immunoglobulin E-related allergic reaction as another potential mechanism.[4]

Clinical presentation may be quite different in AMI patients after bee stings. It may be completely silent[3] or ECG changes with overt ST wave elevation may take place several hours after admission of the patient, as in our case. Therefore higher grade clinical suspicion is absolutely necessary in order to come up with the correct diagnosis. Also, serial ECG recordings are recommended in every patient who had encountered chest pain regardless of the severity of a patient's reaction to a bee sting.

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