

Transient ST Elevation Following a Wasp Sting: A Good Indication for 64-Slice Coronary Angiography Computed Tomography

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The occurrence of an acute myocardial infarction after a bee, wasp or yellow-jacket sting has been reported in the literature [1,2]. The anaphylactic shock and the use of epinephrine can act synergistically and produce acute coronary thrombosis. We report here the case of a 57 year old man who was admitted to our institution after a wasp sting and developed a transient ST-T elevation, as seen on electrocardiography.

Patient Description

A 57 year old man developed anaphylactic shock following a wasp sting. The patient had vomiting, diarrhea, sweating, shock and syncope. He was treated by the attending doctor in a Magen David Adom ambulance (emergency health services) with intravenous epinephrine, solumedrol and pramin. In the ambulance a non-sustained wide QRS tachycardia was observed, after which an ECG showed ST elevation in anterolateral leads with reciprocal changes

in the inferior wall [Figure A]. After arriving at the emergency room, his clinical condition improved. Blood pressure was 140/80. The ECG returned to normal with signs of mild left atrial enlargement. The patient was admitted to the coronary care unit. His clinical condition was stable without chest pain or dyspnea, and cardiac enzymes and troponin were normal. Echocardiogram showed normal left ventricular function, normal valves, and no pericardial effusion. His laboratory examinations were within normal limits, but he had a transient mild elevation of creatinine 1.9 and leukocytosis of 19,100. The patient received corticoids for 3 consecutive days. His history revealed that he did not have diabetes, was taking ramipril for mild arterial hypertension, was a past smoker, and did not have chest pain. A brother of the patient developed anaphylactic shock 10 years previously following a wasp sting.

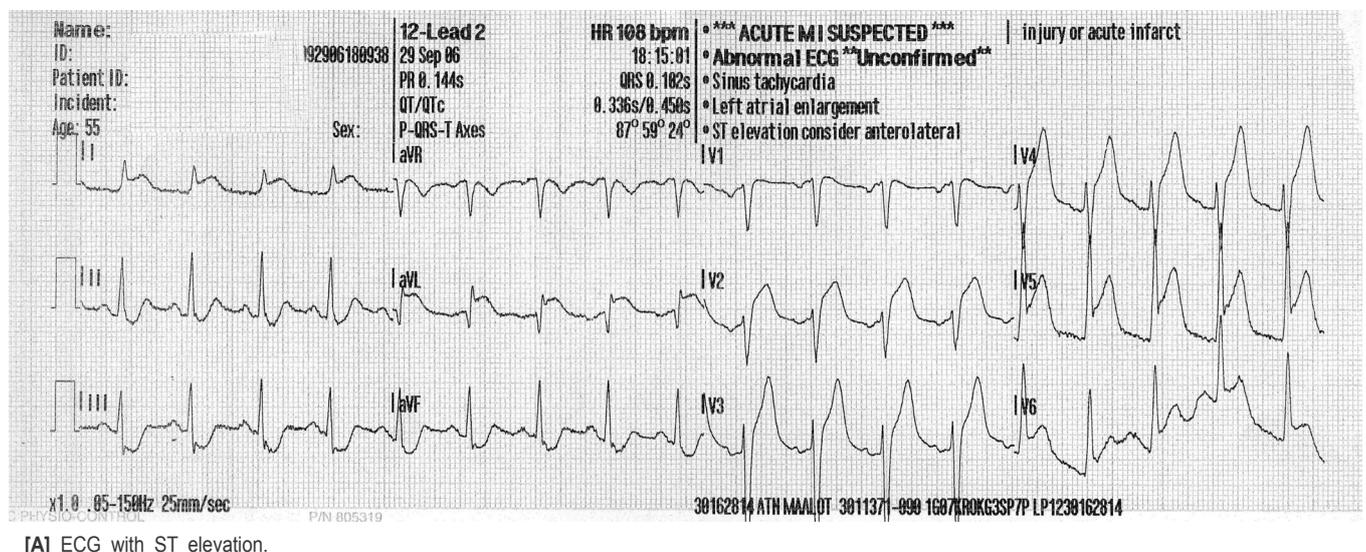
After the creatinine returned to nor-

mal a cardiac coronary angiogram was performed, using a 64-slice multi-detector CT (Brilliance 64, Philips Medical System, Haifa, Israel). Contrast media, 90 ml (Visipaque 320, Amersham Health, UK), was injected at a rate of 5 ml/sec. The calcium score was zero. The coronary arteries were normal.

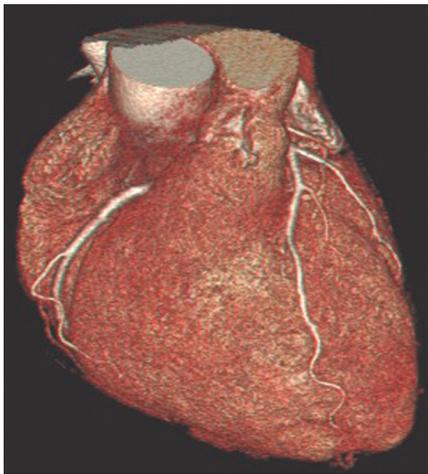
Comment

Our patient developed a transient ST elevation of the anterolateral wall. Myocardial infarction was not demonstrated by cardiac enzymes. Troponin was 0, and the echocardiogram was normal. The few patients described in the literature had cardiac catheterizations showing normal coronary arteries. We performed a 64-slice CT coronary angiogram that showed a calcium score of 0 and normal coronary arteries [Figure B].

Wasp (Hymenoptera) venom contains epinephrine, dopamine, leukotrienes and thromboxanes, which cause severe platelet



[A] ECG with ST elevation.



[B] Volume rendering of the heart shows a superb image of the heart and the left anterior descending, left circumflex and right coronary arteries.

aggregation and direct vasoconstriction [3]. Several additional substances have been identified in the hymenoptera venom: histamine, serotonin, kinins, bradykinin,

acetylcholine and phospholipase. All these components are able to cause endogenous amine release and vasodilatation that can lead to paradoxical coronary vasoconstriction in the presence of endothelial damage or dysfunction.

A similar case was reported in 1974 by Brasher and Sanchez [4]. Shoenfeld and Sclarovsky [5] reported changes in the T-wave of the ECG in patients with urticaria, but it returned to normal with amelioration of the urticaria.

In our case the use of intravenous epinephrine producing a non-sustained wide QRS tachycardia and coronary vasospasm was an important factor in the development of transient ST elevation in the anterolateral wall. The administration of epinephrine, a life-saving agent in cases of anaphylaxis, has been implicated as a cause of acute myocardial infarction in some reports [1]. The use of 64-slice coronary angiography CT obviated the need for invasive cardiac catheterization

and demonstrated a normal coronary anatomy.

References

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He who establishes his argument by noise and command, shows that his reason is weak

Michel de Montaigne (1533-1592), French essayist

Capsule

Viral prefusion conformation revealed

The rhabdoviruses, which include human pathogens like rabies virus, enter the cell through the endocytic pathway. Viral membrane fusion with cellular endosomal membranes is triggered by a pH-dependent structural change of a transmembrane viral glycoprotein (G). Roche et al. have determined the prefusion form of the fusion G protein from vesicular stomatitis virus.

Comparison with the postfusion structure reveals the structural reorganization between these forms and suggests a pathway for the dramatic, but reversible change.

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Eitan Israeli

Capsule

Switching off the extra X

Methylation of DNA sequences typically results in the repression of gene expression. In dosage compensation, the expression of the two X chromosomes in a female cell are reduced to that of the single X in a male cell, often by inactivating the expression from one of the female X chromosomes (Xi), which has been thought to involve methylation at CpG islands (regulatory regions). Hellman and Chess used a genome-wide analysis of DNA methylation to show, surprisingly, that the transcribed

regions of genes on the active human X chromosome (Xa) are hypermethylated, both in females and males. Equivalent regions on the Xi are hypomethylated. Prior to X inactivation, both X chromosomes are methylated, which suggests that methylation is lost from the Xi.

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