

A rare cause of atrial fibrillation: a European hornet sting

Nadir bir atriyal fibrilasyon nedeni: Avrupa eşek arısı sokması

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Introduction

Stings of the bees, hornets and wasps are common. Apart from local cutaneous manifestations or generalized anaphylaxis, they can cause a variety of systemic complications (1). The occurrence of an atrial fibrillation episode after a bee, hornet or wasp sting has been rarely reported in the medical literature (2-4). The European hornet, commonly known as the "hornet", is a member of *Hymenoptera* order, *Apocrita* suborder and *Vespidae* family (1). In this paper, we report a 30 years old man who developed atrial fibrillation after a single European hornet (*Vespa Crabro Linnaeus*) sting.

Case Report

A 30-year-old man was admitted to our Emergency Department (ED) with complaints of palpitations, shortness of breath, dizziness and headache lasting for 2 hours. He had a history of hornet sting on his left shoulder one day before. He had mild pain and tingling sensation at the site of the sting. He did not have any cardiovascular or systemic illnesses and was not taking any medication or herbal products. On arrival to the ED, he had a blood pressure of 111/63 mmHg, respiration - 20 breaths/min, oral temperature of 36.7°C, and oxygen saturation of 99% of room air. Cardiovascular examination was unremarkable except for an irregular tachycardic pulse. He had a small erythematous area on his left shoulder (Fig. 1, Video 1- See corresponding video/movie images at www.anakarder.com) with no barb or venom sac. Electrocardiogram revealed atrial fibrillation with a rapid ventricular response (Fig. 2). Complete blood count and serum biochemistry were normal. Thyroid function tests and cardiac biomarkers were normal too. He was anticoagulated with low-molecular weight heparin. Intravenous propafenone was initiated for pharmacological cardioversion (loading dose of 1 mg/kg over 10 min+ followed by 2 mg/min for 30 min). At the 25th minute of infusion patient returned to normal sinus rhythm (Fig. 3). Transthoracic echocardiography revealed normal left ventricular systolic function and diameters, normal left atrium and normal valves with no evidence of stenosis or regurgitation. The patient was discharged on the second day with oral dose of 150 mg propafenone twice a day for one week then propafenone treatment was stopped. One week later, he brought to us a similar insect that stung him and this insect was European hornet (*Vespa Crabro Linnaeus*) (Fig. 4).

Discussion

Stings from the insect order Hymenoptera (bees, hornets, wasps) are common. Apart from local cutaneous manifestations or generalized anaphylaxis, it can cause a variety of systemic complications including fatal anaphylaxis (1). Reported cardiovascular complications have included acute myocardial infarction in patients with normal and abnormal coronary arteries (5-7). There were 2 reported cases of atrial flut-

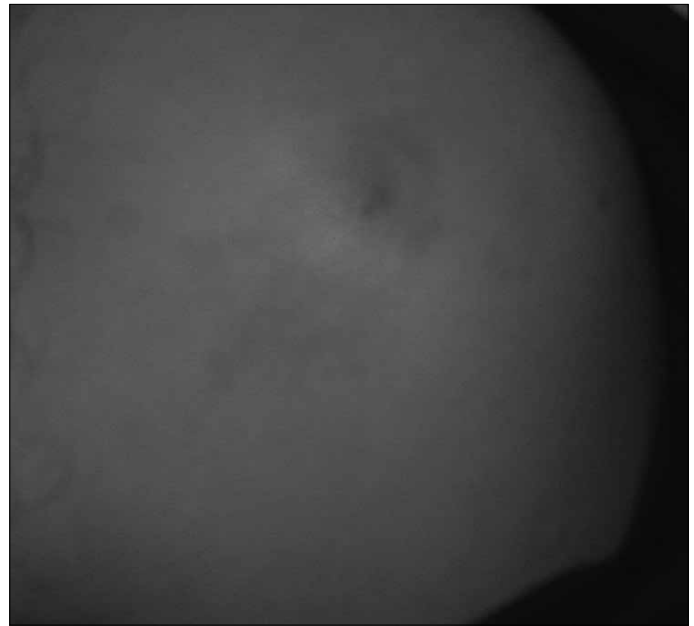


Figure 1. Small erythematous area on the left shoulder of the patient after a hornet sting

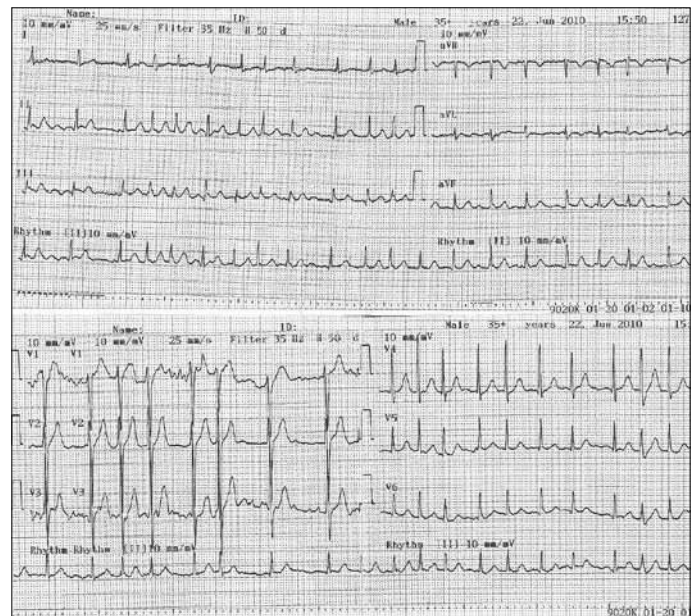


Figure 2. Electrocardiogram at admission revealing atrial fibrillation with a rapid ventricular response

ter/fibrillation after hornet sting; however both patients were older and had associated left atrial abnormalities (2, 4). However, our case was younger and he had neither cardiovascular nor systemic abnormality.

European hornet venom contains many pharmacologically active constituents including melittin, hyaluronidase, apamin, bradykinin, histamine, serotonin, dopamine, noradrenaline and phospholipase A (8). Experimentally, these substances causes atrial and ventricular tachyarrhythmia in animals, but the effect in humans, especially at small doses, is less clear (9). Although the exact mechanism of atrial fibrillation after European hornet sting is unknown, it may involve vagally mediated shortening of atrial refractoriness, the venom itself, and/or the human catecholamine response to bee stings (2, 4). In the all previous reported cases, electrical cardioversion was performed (2, 4).

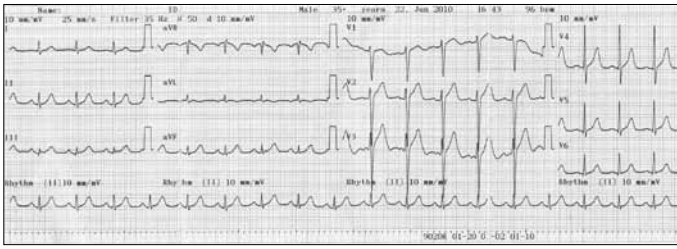


Figure 3. Electrocardiogram after propafenone infusion revealing normal sinus rhythm



Figure 4. A similar insect was a European hornet (*Vespa Crabro Linnaeus*)

Conclusion

Hornet stings have been associated with a wide variety of local and systemic reactions including atrial fibrillation episodes. Clinical condition is usually self-limiting; electrical cardioversion and/or propafenone are successful therapeutic options.

Video 1. A rare cause of atrial fibrillation: a European hornet sting

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Moxifloxacin-dependent *Torsades de Pointes*

Moksifloksasin'e bağlı *Torsades de Pointes*

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Introduction

Prolongation of the QT interval is a rarely seen side effect of moxifloxacin, and in severe cases it may trigger fatal arrhythmias such as *Torsades de Pointes* (TdP) (1, 2).

"QT prolongation" is a finding that is detected in the surface electrocardiogram and occurs because of the prolongation of the repolarization phase. It may be congenital or acquired. Majority of acquired "long QT" cases are caused by drugs (1, 3).

Case Report

A 56-year-old female was consulted at the emergency service with the complaints of fatigue, presyncope, and dyspnea. Complete atrioventricular (AV) block rhythm was present on the electrocardiogram (ECG). The ventricular rate was 42 beats/min. The QT interval was measured as 468 msec (Fig. 1). The corrected QT (cQT), calculated using Bazett's formula, was 390 msec. Blood pressure was measured as 120/60 mmHg. On physical examination, no cervical venous distension was present. No breath sounds could be heard in either of the lower pulmonary zones. Rales were present, especially in the right lung. On the examination of the cardiovascular system, a 2/6 systolic murmur was detected in the mitral focus. No significant abnormalities were observed in the abdominal examination. Peripheral pulses were palpable. The echocardiographic examination revealed that the left ventricular functions were within normal limits, a prolapsus of the posterior mitral valve was present, and a mild mitral insufficiency flow extending to the anterior region existed. Other echocardiographic parameters were normal. Bilateral pleural effusion was present on the postero-anterior chest X-ray. The patient was not receiving any regular medication. The clinical laboratory findings at the time of admission were as follows: the serum aspartate-amino transferase level was 29 U/L, the serum alanine transaminase