A rare cause of atrial fibrillation: a European hornet sting

Nadir bir atriyal fibrilasyon nedeni: Avrupa eşek arısı sokması

Serkan Okutucu, Cingiz Şabanov, Enis Abdulhayoğlu*, Nalan Metin Aksu*, Bülent Erbil*, Kudret Aytemir, Hilmi Özkutlu
From Departments of Cardiology and *Emergency, Faculty of Medicine, Hacettepe University, Ankara-Turkey

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 flutter/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).
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

References

4. Law DA, Beto RJ, Dulaney J, Jain AC, Lobban JH, Schmidt SB. Atrial flutter and fibrillation following bee stings. Am J Cardiol 1997; 80: 1255. [CrossRef]

Address for Correspondence/Yaz›şma Adresi: Dr. Sercan Okutucu
Department of Cardiology, Faculty of Medicine, Hacettepe University, Ankara-Turkey
Phone: +90 312 305 17 81 Fax: +90 312 311 40 58 E-mail: sercanokutucu@yahoo.com
Available Online Date/Çevrimiçi Yayın Tarihi: 11.08.2011

© Copyright 2011 by AVES Yayncılık Ltd. - Available on-line at www.anakarder.com