

Complete atrioventricular block caused by mad honey intoxication

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Abstract. – The honey produced by the bees fed on *Rhododendron* family plants containing grayanotoxin is known as mad honey in our country. This intoxication is seen rarely. However, it may lead life-threatening hemoinstability mentioned above and may be confused with various diseases. For these reasons the exact diagnosis and treatment of this intoxication seems very important. We aim to describe a case admitted to the Emergency Department in consequence of mad honey intoxication and treated and discharged after hypotension and complete atrioventricular block development.

Key Words:

Mad honey poisoning, Grayanotoxins, AV block, Emergency medicine.

Introduction

Mad honey is obtained from *Rhododendron Ponticum* and *Luteum* species of *Rhododendron* plant family. These plants are seen in East Black sea Region of Turkey as well as countries such as Spain, Portugal, Japan, Brazil, USA, Nepal. Intoxication of mad honey, also known as “bitter honey” in public¹⁻² was first identified by Xenophon who was an Athenian historian and commander. In the literature it is noted as the first known biological weapon².

Toxic effects of mad honey intoxications result from grayanotoxins (GT). Although, GT I is the main toxin responsible for cardiac effects in mad honey intoxication, GT II suppressed the beat at sinoatriale node. Additionally, the toxic effects of grayanotoxins on cells occur thorough sodium channels³. A previous study examined, the respiratory, cardiac effects of grayanotoxins as well as central nervous system and peripheral effects determined that grayanotoxin caused bradycardia and respiratory depression. In the same study, it was concluded that cardiotoxic effect of grayanotoxin developed through M2-muscarinic receptors⁴.

It was determined that although, many symptoms can occur in mad honey intoxication such as diarrhea, perspiration, dizziness, and changes in consciousness, syncope, diplopia and blurred vision, hypotension and bradycardia are the most common symptoms in mad honey intoxication^{2,5} as well as other intoxication (in more than 90% the cases exposed to intoxication). In recent years, it has been determined that hypotension and bradycardia related to mad honey gives rise to myocardial infarction connected with coronary flow slowing^{6,7}.

In this research, we investigated mad honey intoxication in a patient who, having no heart disease diagnosis and having no medication, had AV complete block and hypotension after mad honey consumption. As far as we know, it is the first case in our region and we have drawn attention to cardiovascular effects of food poisoning caused by mad honey.

Case Report

A 45 year old female patient was admitted to Malatya State Hospital with the complaints of unexpected lightheadedness, cold sweating, dizziness, nausea, asthenia and discomfort in epigastric region. Because of AV block presence in her ECG taken, she was transferred to the Emergency Department of our University. From the anamnesis of the patient who did not have any heart diseases, hypertension and medication in her background it was learnt that the complaints started nearly two hours after she had eaten 2-3 tablespoon of honey sent her as present from East Black sea region. At the admittance to the Emergency Department her general condition was moderate and she was conscious. No pathology was determined in the neurologic examination of the patient.

Arterial blood pressure (ABP) was 70/50 mmHg and with a pulse rate of 44 per minute. On the ECG taken AV complete block was pre-

sent (Figure 1). As the patient had hemodynamic instability, she was monitored and 1 mg atropine was administered as intravenous bolus and quick physiological saline infusion was started. Ten minutes later the pulse rate was measured as 65 per minute and ABP was 110/70 mmHg. The patient was taken under close monitoring in the Emergency Department and physiological saline was administered at a rate of 100 ml/hour. Cardiac enzymes and other biochemical parameters were normal. She was hospitalized in the Intensive Care Unit (ICU) of Internal Diseases Department with the diagnosis of mad honey intoxication. There NaCl infusion i.v. 0.9% was started and she was monitored. After 24 hours monitoring vital findings returned to normal. ABP was 110/70 and the pulse was 68 per minute. The ECG taken: normal sinus rhythm. She was discharged with full recovery.

Discussion

The symptoms of mad honey intoxication may vary from person to person and in some conditions (advanced age, cardiac medicine usage)⁷. Generally, the mad honey intoxication shown with gastrointestinal symptoms, in addition to, bradycardia and hypotension have also been reported in many studies^{2,5,8,9}. Besides, it was declared that this toxication caused life threatening conditions such as syncope, AV complete block, cardiogenic-hypotensive shock^{2,11,12}. In general, all the symptoms reversed normal conditions within the first 24 hours.

Dizziness, nausea, vomiting, malaise, hypersalivation, diplopia and paraesthesias are seen

in mild forms of intoxication. In severe form of intoxication, it was observed cardiovascular complications such as complete AV block, sinus bradycardia and hypotension. For the treatment of symptoms, intravenous atropine (0.5-2 mg) and normal saline infusion (100 ml/h) applications can be beneficial^{2,10}. In mild intoxication, the patient can be released safely after 2-6 hours of cardiac monitoring. On the other hand, in serious intoxication, important symptoms and indications regress no later than 24 hours when it is treated. However, it was claimed in some studies^{2,10,13} that intoxication rarely caused serious arrhythmia which requiring pacemakers.

Özhan et al. study showed hypotension (systolic blood pressure < 90 mmHg) and bradycardia in 15 patients and complete AV block in 4 patients of 19 patients who were admitted to Emergency Department with the complaint of mad honey intoxication¹². In all the cases, the symptoms including nausea, vomiting, dizziness, sweat and malaise developed within hours after eating mad honey. Likewise, in our case observed that detection of hypotension and bradycardia as well as similar complaints within the first two hours was evaluated as serious intoxication indications. Therefore, the case was monitored and atropine and normal saline administration was started without wasting time.

By considering this case, we think that mad honey intoxication should be considered and checked without taking geographical differences into consideration as it can happen not only in places where mad honey is produced commonly but also anywhere because of advanced transportation and trade. As a result a possibility of

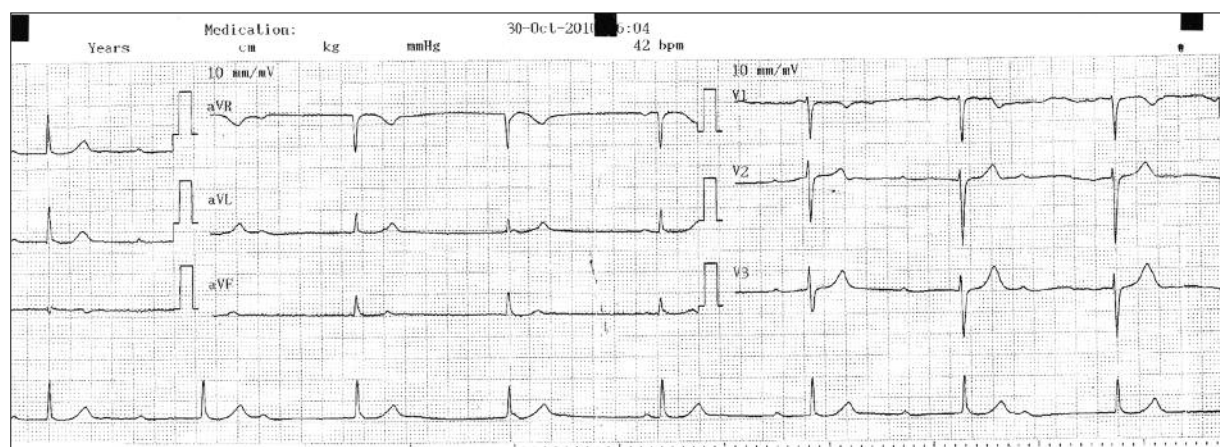


Figure 1. Complete atrioventricular block is evident in the patient's electrocardiogram.

mad honey intoxication should be taken into consideration in etiology for the patients who are admitted with the complaints of nausea and vomiting and having no cardiovascular history for themselves and for their families if dizziness, nausea, symptomatic bradycardia, hypotension and AV block is detected.

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