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Olgu / Case Report

A Case with Kounis Syndrome After the Administration of Metoclopramide

Metoklopramide Bağlı Gelişen Kounis Sendromu Olgusu

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Abstract

Kounis syndrome is characterized by a symptoms that cause unstable vasospastic or non-vasospastic angina secondary to a hypersensitivity reactions. After identification by Kounis in 1991, this syndrome includes a series of mast cell activation disorders associated with acute coronary syndrome. There are many triggering factors, including reactions to multiple medications, foods such as fish, tomato, fruits, bee stings poison ivy, viper venom, shellfish and coronary stents. We report the case of 71-year-old man with no coronary risk factors or family history of coronary artery disease, who developed Kounis syndrome after the administration of metoclopramide for nausea.

Keywords: Kounis, myocardial infarction, allergy, metoclopramide

Özet

Kounis sendromu, aşırı duyarlılık reaksiyonlarına sekonder kararsız vazospastik veya vazospastik olmayan anjinaya neden olan semptomlarla karakterizedir. Kounis tarafından 1991'de tanımlandıktan sonra bu sendrom, akut koroner sendromla ilişkili bir dizi mast hücresi aktivasyon bozukluğunu içerir. Çoklu ilaçlara verilen reaksiyonlar, balık, domates, meyve, arı sokması zehirli sarmaşık, engerek zehiri, kabuklu deniz ürünleri gibi gıdaları ve koroner stentleri içeren birçok tetikleyici faktör vardır. Olgumuzda, bulantı için metoklopramid uygulandıktan sonra Kounis sendromu gelişen koroner risk faktörü veya aile öyküsünde koroner arter hastalığı bulunmayan 71 yaşında erkek hastayı sunuyoruz.

Anahtar Kelimeler: Kounis, miyokard enfarktüsü, allerji, metoklopramid

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1. Introduction

Kounis syndrome (KS) is defined as the concurrence of acute coronary syndromes (ACS) such as coronary spasm, acute myocardial infarction, and stent thrombosis, with conditions associated with allergic or hypersensitivity or anaphylactic conditions [1]. Chest pain is one of the most frequent complaints in emergency admission. Hence, it is one of the serious life-threatening condition, early diagnosis is very important. KS is not uncommon but is ignored due to the doctor's focus on the main complaint at the time of emergency presentation. This condition, also called allergic angina, may progress to acute myocardial infarction called allergic myocardial infarction [2, 3]. Causes that can elicit KS include many medications, environmental exposure, asthma, idiopathic anaphylaxis, and conditions such as mastocytosis. In the present study, we report the case of 71-year-old man with no coronary risk factors or family history of coronary artery disease and no drug use history, who developed Kounis syndrome after the administration of metoclopramide for nausea and its pathophysiology was described below.

2. Case

A 71-year-old male with a history of allergic disease and hypertension was presented to our emergency department after sudden syncope. Before admission, he was complaining of nausea and vomiting. He presented with a pulse rate 36 beats per minute, sPO2 98% (fiO2 66%), and blood pressure 130/80 mmHg. Due to his confusion state before admission, we take a detailed history one hour after the initial symptoms. From his history, it was revealed that he was taken metoclopramide 10 mg intravenously (i.v.) for nausea. We recorded a 12-lead electrocardiogram (ECG), which showed ST segment elevation in the inferior, anterior and lateral leads and 3. degree AV block (figure 1). Blood tests revealed elevated levels of glucose: 152 mg/dl, creatinine: 1,3 mg/dl, troponin I: 0.05 mg /dl, and CKMB: 1,6 mg/dl.

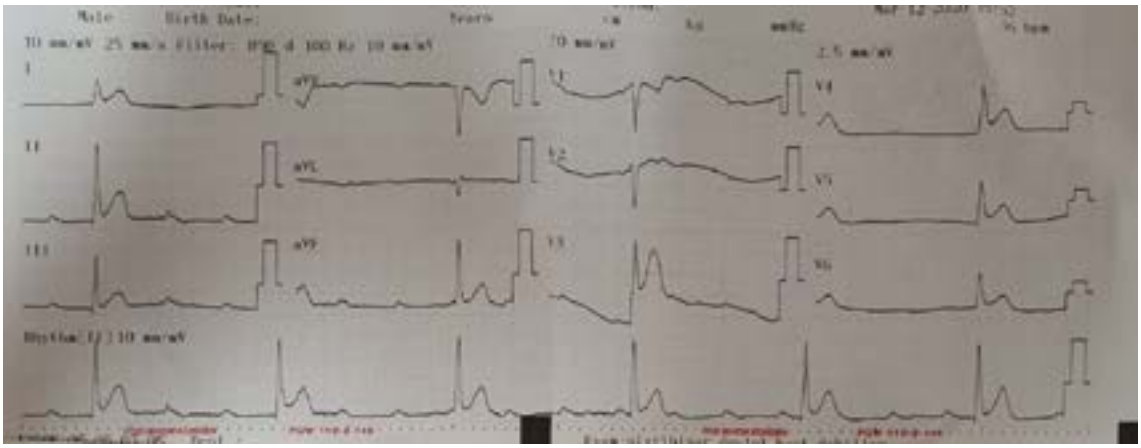

Figure 1. ECG at the time of complaints

Within the first hours of admission, the patient became asymptomatic with normalization of ECG (figure 2). Echocardiography revealed no segmental systolic dysfunction and other abnormalities with a normal physical examination. Patient who does not accept angiography suggestion, was discharged from intensive care unit, 24 hours after the ED admission

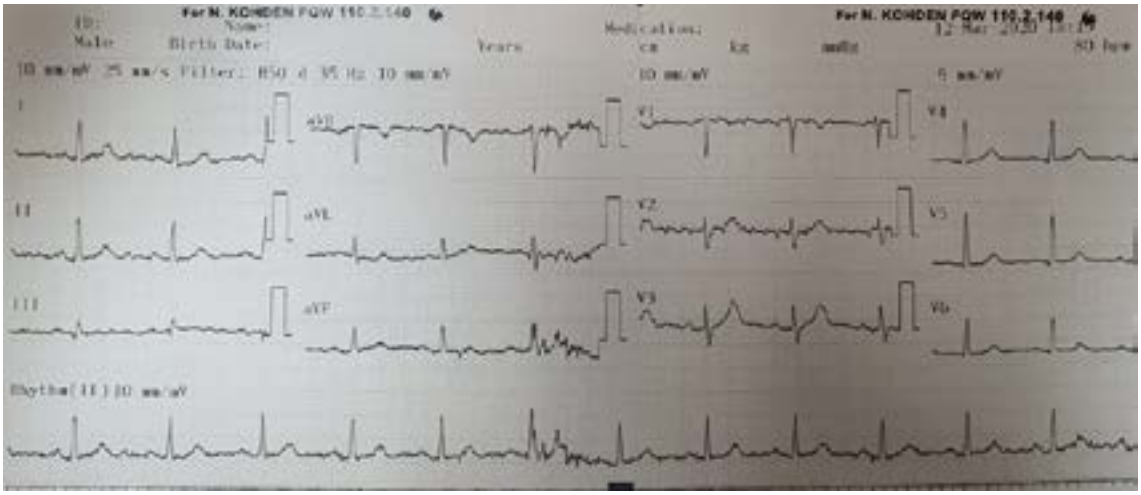

Figure 2. ECG after complaints

3. Discussion

Cardiovascular symptoms and signs associated with allergic, hypersensitivity or anaphylactic reactions began to appear in the medical literature about 70 years ago [4, 5].

KS is classified into 3 variants. Tip 1, includes normal or nearly normal coronary arteries without risk factors for coronary artery disease or coronary artery spasm progressing to acute myocardial infarction with raised cardiac enzymes and troponins also without increased in cardiac enzymes such as troponin I. Type II variant includes culprit but quiescent preexisting atheromatous disease in which the acute release of inflammatory mediators may induce either coronary artery spasm or coronary artery spasm together with plaque erosion or rupture manifesting as acute myocardial infarction. Type III variant includes coronary artery stent thrombosis [1]. Our patient is classified as type I variant. This syndrome is caused by histamine, platelet-activating factors, arachidonic acid products, neutral proteases, and inflammatory mediators such as various cytokines and chemokines released during the allergic process [1]. In recent studies, it has been reported that the effects of Kounis-like syndromes can occur in the mesenteric [6] system and cerebral circulation [7].

KS is not uncommon but has not been frequently reported in the literature. There are many factors that cause KS (table 1) [8]. According to the literature, non-steroidal anti-inflammatory drugs have been reported as one of the most common cause [9]. The incidence of KS was reported as 4.33 cases per 100,000 people [10]. In a study conducted in Turkey, the estimated prevalence of the catheterization laboratory of KS is 0.002 % [11]..

Table 1. Causes associated with Kounis syndrome

Drugs	Conditions	Food	Environmental
Analgesics (aspirine, dipyrone)	Angioedema	Actinidia chinensis	Grass cutting
Anesthetics (etomidate, isoflurane, midazolam,propofol, remifentanil, rocuronium bromide,succinylcholine, suxamethonium, trimethaphan	Bronchial asthma	Canned food (tuna)	Hymenoptera stings
Antibiotics (ampicillin, ampicillin/sulfactam, amoxicillin, amikacin, cefazolin, cefoxitin, cerufoxime, cephradine, cinoxacin, lincomycin, penicillin, sulbactam/cefoperazone, piperacillin/tazobactam,	Churg-Strauss syndrome	Fish	Jellyfish stings

trimethoprimsulfamethoxazole, sulperazon, vancomycin)			
Anticoagulants (heparin, lepirudin)	Exercise-induced anaphylaxis	Fruits	Latex contact
Anti-neoplastics (5-fluorouracil, capecitabine, carboplatin, denileukin, interferons, paclitaxel, vinca alkaloids)	Food allergy	Mushroom poisoning	Millet allergy
Contrast media (Iohexone, loxagate, meglumine diatrizoate, sodium indigotindisulfonate)	Idiopathic anaphylaxis	Shellfish	Poison ivy
Glucocorticoids (betamethasone, hydrocortisone)	Nicotine	Vegetables	Scorpion sting
Nonsteroidal anti-inflammatory drugs (alclofenac, diclofenac, naproxen)	Scombroid syndrome	Tomato salad	Viper venom
Proton pump inhibitors (lansoprazole)	Skin itching		Metals
Thrombolytics (streptokinase, tissue plasminogen activator, urokinase)	Stents (bare metal, drug eluting)		
Others (allopurinol, bupropion, clopidogrel, dextran, enalapril, esmolol, fructose, gelofusin, insulin, iodine, iron, losartan, protamine, tetanus antitoxin, glaphenine, mesalamine)			

Diagnosis of KS is based on clinical symptoms and findings, as well as laboratory, electrocardiographic, echocardiographic and angiographic evidence. The first signs and symptoms of KS in the emergency room are always associated with allergic reactions accompanied by cardiac symptoms. Symptoms observed in this syndrome are chest pain, dyspnea, faintness, malaise, nausea, vomiting, pruritis, skin itching and syncope [8]. Clinical findings are cold extremities, diaphoresis, hypotension, pallor, palpitation, skin rash, sweating and sudden death.

An electrocardiogram is very important in clinical diagnosis. The most common ECG findings are ST-segment elevation, atrial fibrillation, heart block, nodal rhythm, sinus bradycardia, sinus tachycardia, T wave changes, QRS prolongation and ventricular fibrillation [8].

Although it is not infrequent, patients are more often encountered in clinical practice but it is rarely diagnosed and can be easily overlooked by emergency physicians. Many of these findings may accompany allergic symptoms, which helps to make an accurate diagnosis. A high suspect index is very important for diagnosis.

In blood tests, serum tryptase, histamine, cardiac enzymes and cardiac troponins can be especially helpful in diagnosis, early taken of the first blood sample is essentials for the rapid diagnosis [12]. Histamine release from mast cells is fast and short-lived and circulates only 8 minutes after an allergic event, so blood samples should be collected immediately after the onset of chest pain [13]. Cardiac enzymes are valuable in diagnosing cardiac damage. Measurement of cardiac troponins has been recommended in all patients with KS admitted to the emergency department to diagnose and properly manage a potential heart injury in the emergency department [14].

Finally, echocardiography and coronary angiography are required for the diagnosis of cardiac wall abnormalities and identification of coronary anatomy in KS. In diagnosis, dynamic cardiac magnetic resonance imaging (MRI) as well as new techniques such as Thallium-201 single-photon emission computed tomography (SPECT) and 125I-15-3- (R, S) methylpentadinanoic acid (SPECT) can be used to assess cardiac involvement [15, 16].

ACS secondary to allergic reactions can cause morbidity and mortality in these patients. Systemic allergic reactions should be checked early in the treatment. However, the therapeutic management of KS can be difficult because both cardiac and allergic symptoms must be treated together. Drugs

used to treat both conditions can worsen clinics [17]. As in Type 1 variant, only treatment of an allergic event may end symptoms in our patients. The use of i.v. corticosteroids and H1, H2 antihistamines are adequate. Using nitrate as a vasodilator can treat vasospasm due to hypersensitivity. Nitroglycerin can worsens hypotension and tachycardia, which occurs in the anaphylactic reaction therefore oral, sublingual and i.v. nitroglycerin are tolerable if the blood pressure is satisfactory [17].

4. Conclusion

KS is a complex ACS type that requires rapid diagnosis and treatment, so, management in the emergency is a keystone for improvement both morbidity and mortality of this patient population . A detailed history including potential allergen exposure, ECG and cardiac enzymes are mandatory part of the management strategy in all suspected patients for accurate diagnosis and rapid treatment.

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