



An Atypical Presentation of Allergic Myocardial Infarction

Atipik Alerjik Miyokart Enfarktüsü Olgusu

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Abstract

Acute coronary syndromes secondary to hypersensitivity reactions related with allergic factors are defined as Kounis syndrome. Doxycycline is an antibiotic commonly used in clinical practice. In this report, we described an atypical presentation of Kounis syndrome in a patient who was admitted to the emergency service complaining of chest pain, generalized rash and fever. She was taking doxycycline for 3 days because of urinary tract infection. Non specific ST-T changes were seen on electrocardiography, positive troponin levels were detected and global left ventricular wall motion abnormalities were defined by echocardiography. The patient had no conventional risk factor for acute coronary syndrome. Normal coronary angiography results, improved left ventricular functions and symptoms by antihistaminic and steroid treatments were consistent with Kounis syndrome. All patients admitted with the concurrence of chest pain and allergic symptoms should be asked about exposure to allergens. (*The Medical Bulletin of Haseki 2014; 52: 202-4*)

Key Words: Allergic myocardial infarction, Kounis syndrome, hypersensitivity

Özet

Alerjik etmenlerin neden olduğu hipersensivite reaksiyonlarına sekonder oluşan akut koroner sendromlar Kounis sendromu olarak adlandırılır. Doksisisiklin klinik pratikte sık kullanılan bir antibiyotiktir. Bu yazıda, idrar yolu enfeksiyonu nedeniyle üç gündür doksisisiklin tedavisi alan, acil servise son 24 saattir olan göğüs ağrısı, yaygın döküntü ve ateş yakınmaları nedeniyle başvuran atipik prezentasyonlu bir Kounis sendromu olgusu sunduk. Elektrokardiyografide non spesifik ST-T değişikliği, troponin pozitifliği ve ekokardiyografide sol ventrikül global duvar hareket kusuru saptanan hasta akut koroner sendrom etyolojisinde yer tutan geleneksel risk faktörlerine sahip değildi. Koroner anjiyografide normal koroner arterler saptanan, antihistaminik ve steroid tedavisiyle yakınmaları ve sol ventrikül fonksiyon bozukluğu gerileyen hastamız Kounis sendromu olarak değerlendirildi. Acil servise göğüs ağrısı ve eşlik eden alerjik semptomlarla başvuran akut koroner sendrom şüphesi taşıyan her hasta alerjen ajana maruziyet açısından sorgulanmalıdır. (*Haseki Tıp Bülteni 2014; 52: 202-4*)

Anahtar Sözcükler: Alerjik miyokart enfarktüsü, Kounis sendromu, hipersensitivite

Introduction

Allergic myocardial infarction, known as Kounis syndrome, is caused by inflammatory mediators and should be considered in all patients presenting with hypersensitivity reactions. Many factors, such as drugs, foods, environmental exposures (animal stings) and latex contact can trigger this clinical situation. According to our knowledge, this is the first case of Kounis syndrome with its late presentation and being a consequence of doxycycline treatment.

Case

A 24-year-old female patient was admitted to our emergency department with chest pain, generalized rash and fever that began 24 hours ago. She was taking doxycycline for 3 days because of urinary tract infection. Electrocardiography (ECG) was performed and non-specific ST-T changes were seen (Figure 1). Increased troponin levels as 0.56 ng/ml (normal value: <0.05 ng/ml) and mild leukocytosis as $15 \times 10^3/\mu\text{L}$ (normal value: $<10 \times 10^3/\mu\text{L}$) were detected. Transthoracic echocardiography showed global

hypokinesia of the left ventricle and, ejection fraction was calculated as 50%. The patient was hospitalized in the intensive care unit and coronary angiography (CAG) was performed (Figure 2a and 2b). Normal coronary arteries without any culprit lesion were observed on ergotamine provocation test and intravascular ultrasonography (IVUS). The patient was diagnosed with Kounis syndrome. In addition to antihistaminic treatment, parenteral steroid was started. During the 3 days of follow-up, no chest pain developed, rashes disappeared, troponin levels returned to normal range and echocardiographic abnormalities improved completely. The patient was discharged with the suggestion to consult the allergy department for detailed examination about other possible allergens that may cause hypersensitivity reactions such as allergic myocardial infarction.

Discussion

In this case report, we presented a patient diagnosed with allergic myocardial infarction known as Kounis syndrome.



Figure 1. Non specific ST-T changes on ECG

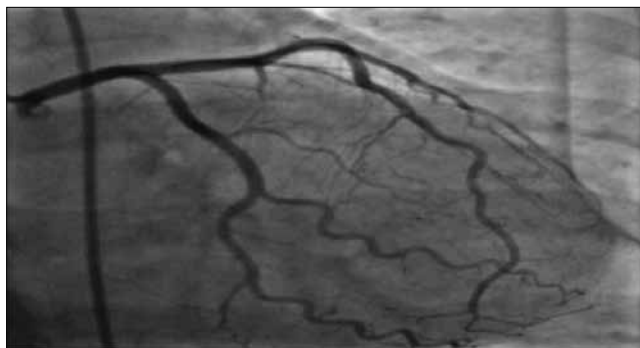


Figure 2a. Right anterior oblique coronary angiographic view with caudal angulation demonstrating normal left anterior descending and circumflex coronary arteries

Our case is interesting in terms of its late presentation and being related with doxycycline treatment. Kounis syndrome is defined as the coincidental occurrence of chest pain and allergic reactions accompanied by clinical and laboratory findings of acute coronary syndrome caused by inflammatory mediators released during the allergic insult (1). The main pathophysiology in Kounis syndrome is coronary artery vasospasm due to release of vasoactive mediators, such as histamine, neutral proteases, arachidonic acid products, platelet activating factor and a variety of cytokines, and chemokines secondary to mast cell activation (2). Two different types of Kounis syndrome has been defined. Type 1 Kounis syndrome is the development of acute allergic reaction in patients without predisposing factors for coronary artery disease as a result of coronary artery spasm by allergic insults. This type can be related with endothelial dysfunction and, cardiac biomarkers are either normal or elevated. Type 2 variant includes patients with culprit but quiescent coronary disease and atherosclerotic plaque erosion or rupture manifesting as acute myocardial infarction (3). In recent years, Biteker et al. have proposed a new classification for Kounis syndrome including Type 3 in relation with drug-eluting stent thrombosis after percutaneous coronary interventions (4). Our case was consistent with Type 1 Kounis syndrome. The patient had normal coronary arteries, elevated troponin levels and a history of antibiotic use which led to an allergic insult. With its late presentation after exposure to an allergic insult and also with its occurrence due to a new type of antibiotic subgroup, such as tetracycline, were the main properties of our case different from other cases.

Multifactorial aetiology of Kounis syndrome usually challenges the diagnosis. Drugs, especially antibiotics, environmental exposures, foods, latex contact, insect stings and many other conditions can cause Kounis syndrome (5). In Type 1, vasodilator agents, such as nitrates and calcium blockers, in addition to antihistaminic and steroid therapy, usually improve symptoms and cardiac functions

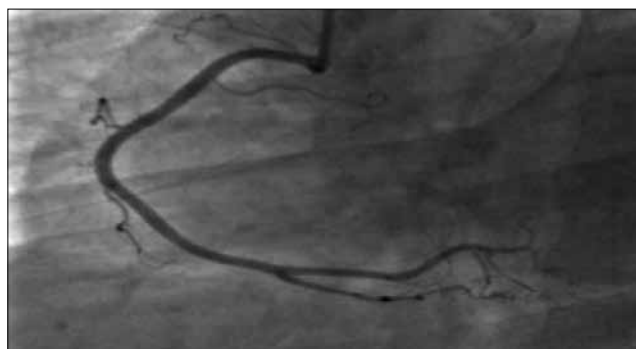


Figure 2b. Left anterior oblique coronary angiographic view showing normal right coronary artery

whereas conventional acute coronary syndrome protocols, including antithrombotic and anticoagulant drugs are required for Type 2 Kounis syndrome (6). Clinicians must be aware of allergic myocardial infarction presenting with chest pain, elevated troponin levels, electrocardiographic and echocardiographic abnormalities concurrent with allergic findings as a result of hypersensitivity reactions.

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