CASE REPORT
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Kounis Syndrome Induced by Oral Intake of Diclofenac Potassium

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ABSTRACT

An acute coronary syndrome (ACS) occurring during the course of an allergic reaction is called Kounis syndrome (KS). The second case of KS induced by diclofenac potassium (DP) is presented in this report. A 67-year-old man was brought to our emergency department with the possible diagnosis of anaphylactic shock by the ambulance staff. It emerged that widespread erythema and pruritus developed after taking DP. Then, he lost consciousness. Diffuse urticarial lesions were detected on physical examination at the emergency department. He complained of chest pain during his observation, and progressive ST segment elevation was seen in the inferior leads on serial electrocardiograms. His coronary angiography showed 100% occlusion of the right coronary artery. Then, KS was diagnosed. The patient was discharged on the second day, and he was doing well on the control visit 2 weeks later. All allergic reactions may trigger an ACS so physicians should be aware of KS and always keep that unique clinical entity in mind to recognize it promptly and direct the therapy at suppressing the allergic reaction and improving the coronary circulation simultaneously when encountering a patient with symptoms suggesting an allergic reaction and a concomitant ACS.

Keywords: Acute coronary syndrome, Anaphylaxis, Diclofenac potassium, Kounis syndrome

INTRODUCTION

An acute coronary syndrome (ACS) occurring during the course of an allergic reaction is called Kounis syndrome (KS). It results from contraction of coronary arteries or destabilization of the atherosclerotic plaque.

Both of these processes are the results of a serious allergic reaction and the release of inflammatory mediators.[1] KS is characterized by the appearance of chest pain and clinical and laboratory findings of angina or myocardial infarction following the onset of an allergic reaction.[2] There are lots of triggering factors such as reactions to medications (e.g. non-steroidal anti-inflammatory drugs, antibiotics and antineoplastic agents), exposure to radiological contrast materials, poison ivy, bee stings, shellfish and coronary stents.[3] As far as we know, after carefully searching the current literature, there are just 10 cases of KS triggered by diclofenac, and only 1 of them was specified to be associated with diclofenac potassium (DP).[4] The 2nd one was presented in this paper.

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CASE REPORT

A 67-year-old man, who had a history of previous anaphylaxis after intramuscular injection of DP occurring almost 1 year previously, was brought to our emergency department with possible diagnosis of anaphylactic shock. His past medical history included coronary artery disease (CAD), hypertension and chronic renal failure. It was learned that widespread erythema and pruritus developed after oral intake of DP (Dolorex draje, Mecom Health Products Industry and Trade Inc., Istanbul, Turkey) for arthralgia. Then, he lost consciousness. The ambulance staff diagnosed anaphylaxis due to widespread urticarial lesions accompanied by an undetectable blood pressure. pheniramine maleate and dexamethasone Sodium Phosphate were administered intramuscularly, and intravenous infusion of 0.9% NaCl solution was started by the ambulance staff. When the patient reached to the emergency department he was conscious, cooperative and oriented. His arterial blood pressure was 97/75 mmHg; pulse rate was 108 beats/min. Diffuse urticarial lesions were detected on physical examination. He complained of chest pain during his observation, and progressive ST segment elevation was seen in the inferior leads on serial electrocardiograms (Figures 1 and 2).

KS was considered due to co-existence of signs and symptoms of anaphylaxis and symptoms and ECG findings of ACS. Then, echocardiography was performed, and left ventricular ejection fraction was found 25%. The patient was quickly taken to the coronary angiography laboratory, and coronary angiography showed total occlusion of the right coronary artery by thrombus material. Then, Kounis Syndrome was definitively diagnosed. The occlusion was opened through repeated balloon dilatation however stenting of the lesion site could not be achieved due to ectasia of the artery. The patient was discharged on the second day after his coronary angiography. He was doing well on the control visit 2 weeks later. Informed consent of the patient to share his medical records in a scientific publication was obtained.

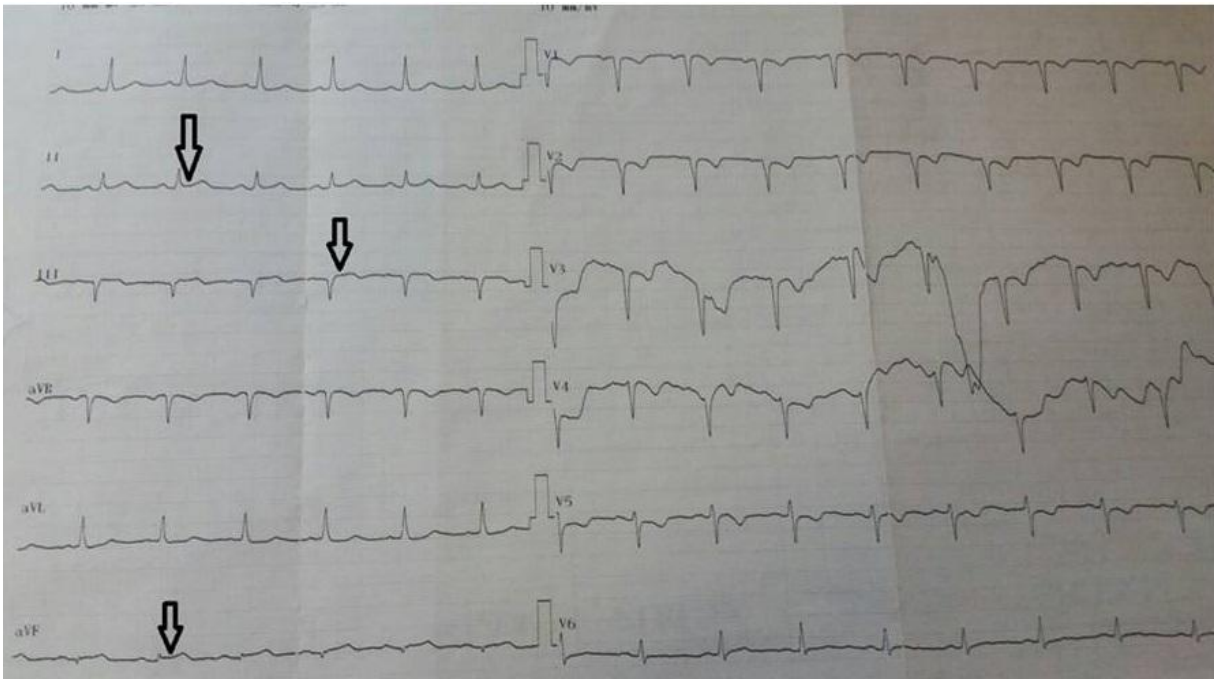

Figure 1. The first electrocardiogram of a patient presenting to emergency department with signs and symptoms of anaphylaxis along with chest pain developing after oral intake of diclofenac potassium, which shows slight ST segment elevation (arrows) in the inferior leads (II, III, aVF) accompanied by slight ST segment depression and negative T waves in the leads V2-V5.

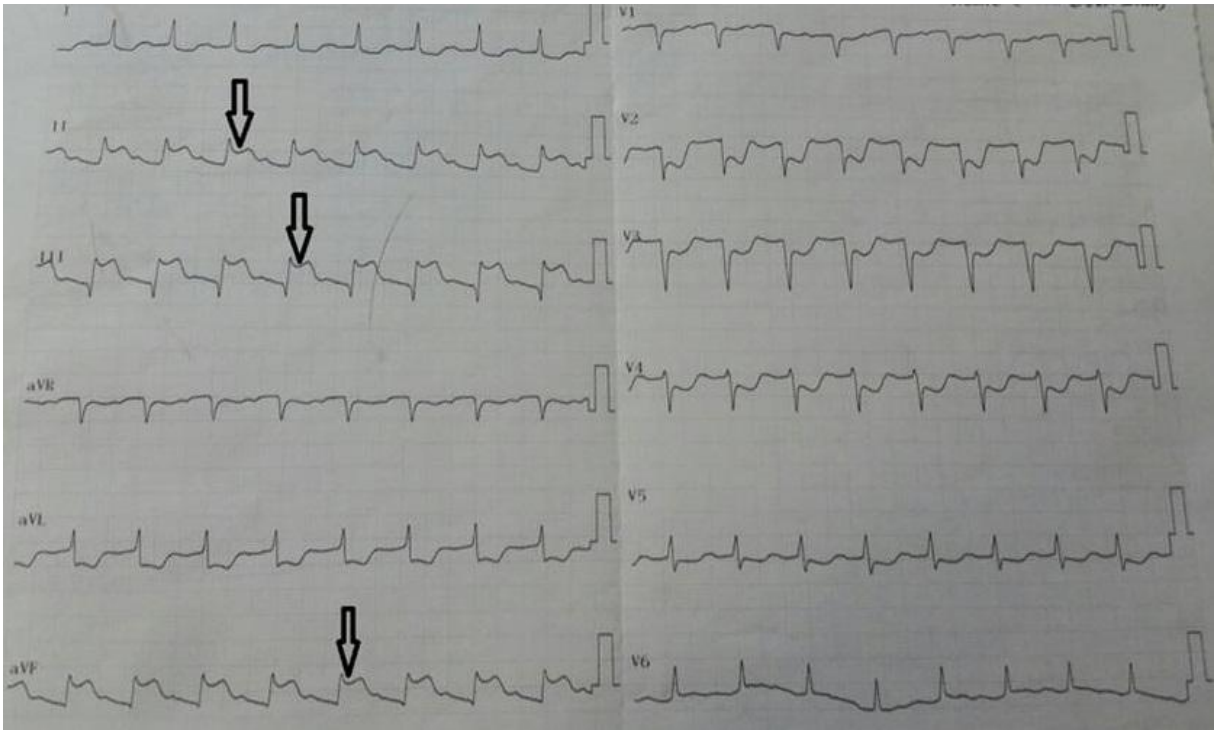

Figure 2. The second electrocardiogram taken about 5 minutes after the onset of chest pain in a patient presenting to emergency department with signs and symptoms of anaphylaxis and the complaint of chest pain after admission. It shows prominent ST segment elevation (arrows) in the inferior leads (II, III, aVF) accompanied by prominent ST segment depression and biphasic T waves in the leads V2-V5.

DISCUSSION

Anaphylaxis and KS were diagnosed in that patient due to the close temporal association between the usage of the related drug, which the patient was known to be allergic to, and appearance of the symptoms. Although the diagnosis of anaphylaxis can be established based solely on the clinical presentation and the treatment protocol can be determined accordingly, because KS without any dermatologic signs or symptoms of an allergic response was also reported, supportive laboratory tests (e.g. serum tryptase level) may be used when the clinical diagnosis of KS is in doubt.[5,6]

Two main sub-types of KS were defined. Type-I includes patients with normal coronary arteries in whom coronary artery spasm is triggered by an acute allergic reaction. Type-II defines the patients with culprit but silent pre-existing atheromatous CAD in whom plaque erosion or rupture is triggered by the acute allergic insult.[7] Recently, a new variant of KS (Type-III) involving coronary stent thrombosis owing to drug allergy has also been defined in patients with pre-existing CAD and drug eluting coronary stent.[8] The present case meets the criteria for Type-II KS because ACS developed shortly after the initiation of an allergic reaction in a patient with pre-existing CAD, and coronary angiography showed occlusion of the right coronary artery by thrombus material.

Although a patient with KS may have mild angina with hives and pruritus only, more serious signs and symptoms including life-threatening anaphylaxis associated with left ventricular dysfunction and cardiogenic shock may also be seen in this group of patients.[9] Atopic patients are at increased risk of developing KS compared to normal individuals, and usually experience worse symptoms as a result of an amplified inflammatory response.[10,11] Prognosis depends on several factors, including allergen concentration, the route of allergen exposure, patient sensitivity, site of antigen-antibody reaction, severity of the initial response and comorbidities.[12] Although KS is mostly seen in adults, cases in pediatric age group have

also been reported.[13,14]

Management of patients with KS is usually challenging since the physician must consider and treat both cardiac and allergic insults simultaneously. No definitive guidelines exist yet, and current strategies for treating KS depend on published case reports.[15] A timely diagnosis of KS in a patient with an allergic reaction is crucial because medications that may be used in the treatment of allergic reactions may lead to harm in a patient with an ACS. For example; epinephrine, the cornerstone of the treatment and the only life-saving drug in the course of anaphylaxis, can aggravate myocardial ischemia, and induce coronary vasospasm, especially when administered intravenously.[16] The other therapies which may be used in the treatment of an allergic reaction include histamine receptor blockers, corticosteroids, and intravascular volume replacement. Medical management of ACSs includes anti-platelet agents, anti-coagulants, and when appropriate, medications that decrease myocardial oxygen demand (nitrates, beta-blockers, calcium channel blockers). However, use of the latter agents may be risky in a patient with KS because these drugs may worsen peripheral vasodilation caused by inflammatory mediators of hypersensitivity reaction. Cardiac catheterization along with intracoronary vasodilator infusion has been reported to be helpful in the treatment of type I KS. Angioplasty and thrombus evacuation may be considered in type II variants.[15]

In conclusion, all allergic reactions may trigger an ACS so physicians should be aware of KS and always keep that unique clinical entity in mind to recognize it promptly and direct the therapy at suppressing the allergic reaction and improving the coronary circulation simultaneously.

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