

Letter to the Editor

Kounis syndrome: Report of 3 cases



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Kounis syndrome has been established as hypersensitivity coronary disorder induced by environmental exposures, drugs, conditions and stents [1]. Allergic, hypersensitivity, anaphylactic and anaphylactoid reactions could be associated with this syndrome [2]. It manifests as coronary spasm, acute myocardial infarction and stent thrombosis that constitute type I, II and III variants respectively. Although this syndrome is infrequently recognized and is not a rare disease, failure to diagnose and treat it could lead to very dangerous sequelae. We report 3 cases of Kounis syndrome that were admitted to our peripheral hospital. The first had recurrent attacks of Kounis syndrome and the other 2 had occurred following bee stings.

The first patient was a 54-year-old female who was brought to the emergency department because of urticarial exanthema covering the whole body 1 h after Mugil cephalus fish consumption. While in the emergency room she developed severe retrosternal pain with typical ischemic character accompanied by sweating, nausea and vomiting. From her past history the patient reported diabetes mellitus on oral treatment, arterial hypertension, osteoporosis, hysterectomy, house dust allergy and anaphylactic shock of unclear origin before 27 years. The electrocardiogram revealed sinus rhythm and signs of myocardial injury with ST segment depression in infero-lateral wall and ST segment elevation on leads I and aVL. By suspicion of Kounis syndrome the patient was admitted to our intensive care unit. Echocardiography revealed the minor presence of pericardial fluid and mild mitral regurgitation. The patient remained stable during her hospital stay.

The angiography, conducted in the neighboring university hospital, revealed no pathological findings. A Kounis syndrome type I variant progressing to acute myocardial infarction was diagnosed and treated accordingly. On discharge, she was advised to abstain from eating this kind of fish and was put on dual antiplatelet therapy. However, 3 years later the same patient brought again to our emergency department with skin exanthema and retrosternal pain radiating to the back of one hour duration. The patient described similar episode the previous day. She has been taking antibiotics amoxil and clavulanic acid together with the anti-inflammatory agent dexibuprofen the previous 24 h for tooth inflammation. Electrocardiogram revealed negative T waves in I, aVL, q waves in V1–V3 and ST depression V4–V6 leads (Fig. 1A). High sensitivity troponin was found raised to 0.92 (normal values 0.00–0.005). The patient was treated as recurrent Kounis syndrome with antihistamines and myocardial infarction protocol. Coronary angiography revealed normal coronary arteries.

The second patient was a 67-year-old male atopic farmer with previous history of allergies who was transferred to the first aid center following several bee stings in both arms and face. While in the center, he suddenly felt itchy, complained of dizziness and presented hemodynamic collapse with unrecorded blood pressure. Immediately, he was given adrenaline intramuscularly, hydrocortisone intravenously, ranitidine intravenously and desloratadine orally. Following this treatment the patient regained consciousness but complained of chest pain with malaise and vomiting. Electrocardiogram revealed right bundle branch block and signs of inferior infarction with ST segment elevation in II, III and AVF leads (Fig. 1B). Bee-sting-induced Kounis syndrome was diagnosed and was transferred to our hospital where the high sensitivity cardiac troponin, 6 h after admission, was found to be 1.02 (normal values 0.00–0.005). He was treated with 4 tablets of clopidogrel 75 mg and 5000 IU of heparin intravenously. His symptoms were gradually improved and the electrocardiogram reverted to normal. Two days later the patient submitted to coronary angiography which revealed normal coronary arteries.

The third patient was a 50-year-old male farmer, hypertensive and ex-smoker who was brought to the emergency room complaining for epigastric discomfort of 2 hour duration. He described that he was stung several times in the left arm and fingers by several bees while working in his field. A formication feeling together with skin exanthema developed in his arm that forced him to discontinue work. Half an hour later, he developed severe retrosternal pain radiating to his left arm together with epigastric discomfort. The electrocardiogram showed S-T depression in III, AVF with flat T wave in II and V6 (Fig. 1C). Blood samples revealed elevated high sensitivity cardiac troponin to 0.99 and elevated creatinine phosphokinase MB. A diagnosis of Kounis syndrome was made and he was treated

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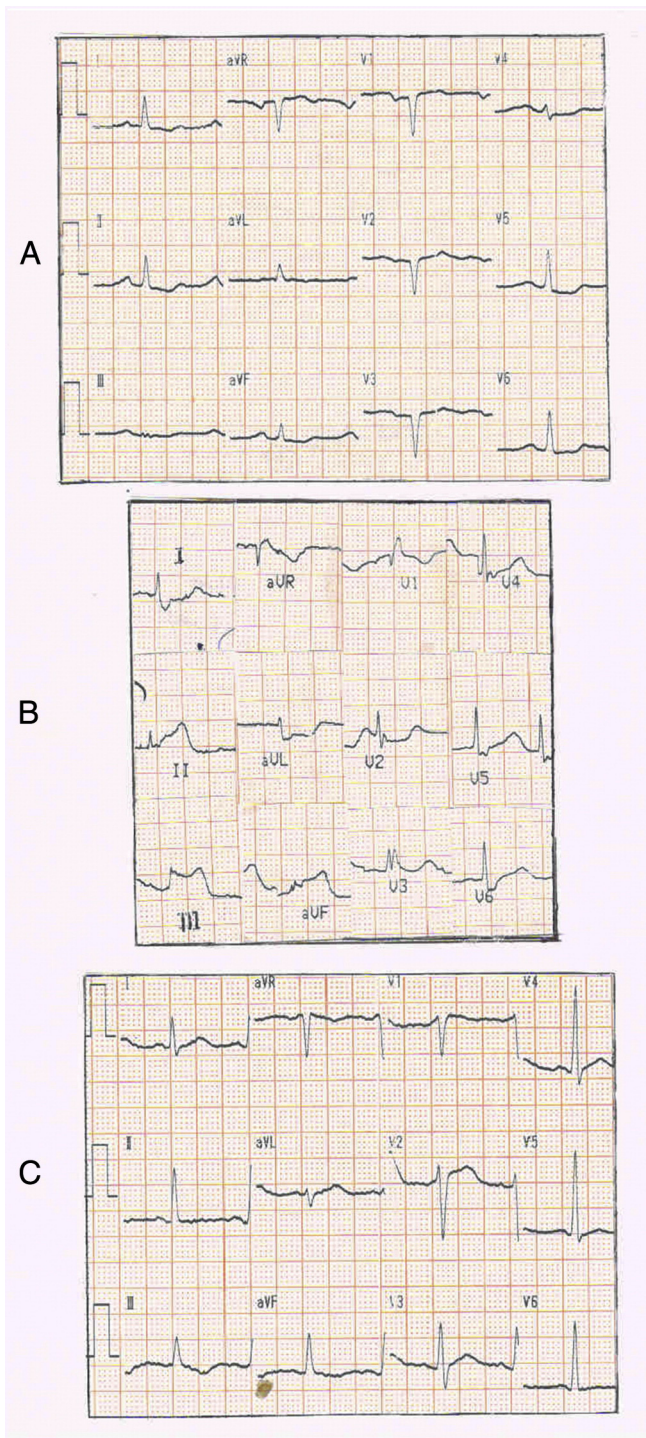


Fig. 1. Electrocardiogram following amoxil-clavulanic acid, dexibuprofen ingestion (A) and bee stings (B, C).

with ranitidine, hydrocortizone and dual antiplatelet therapy. His symptoms and laboratory findings reverted gradually to normal. Coronary angiography conducted in the neighboring university hospital and revealed a 30% occlusion at the circumflex artery.

These 3 patients developed acute myocardial injury, manifesting as Kounis syndrome, confirmed by increased levels of high sensitivity cardiac troponin, associated with allergic symptoms, following fish eating, amoxil and dexibuprofen administration as well as bee stings. Such concurrence has been attributed to mast cell mediators released during the allergic process. There are several causes that have been reported as capable of inducing Kounis syndrome. These include several drugs, a number of conditions and a variety of environmental exposures. The latter include stings by ants, bees, wasps, jellyfishes, fish, as well as grass cutting, poison ivy, latex contact, limpet ingestion, millet allergy, shellfish eating and viper venom poisoning [2–5]. Today Kounis syndrome seems to be not a rare disease, but it is infrequently reported in the literature and recognized in clinical practice. Therefore, increased awareness about its existence and conduction of large prospective trials will help in true estimation of its incidence. Indeed, recent reports have shown that Kounis syndrome has been observed in every race, age group (from 2 to 90-year-olds) and geographic location. Missed and/or undiagnosed cases of Kounis syndrome and a lack of awareness and of large prospective trials, determining the prevalence and exact incidence contribute to under-reported cases. However, in the district of Achaia, Greece with a population of 300,000 inhabitants, and with increased awareness for the existence of Kounis syndrome, 52 cases of this syndrome have been encountered in the last 4 years caused by environmental exposures, drug allergies and stent implantation. Based on this, the annual incidence of Kounis syndrome in this district is estimated of 4.33 cases per 100,000 inhabitants [6]. Therefore, we urge the research community to be aware of this disease and report any case encountered in clinical practice especially in rural and peripheral areas.

Conflict of interest

The authors report no relationships that could be construed as a conflict of interest.

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