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Case Report

A case of Kounis syndrome associated with transcatheter arterial chemoembolization for hepatocellular carcinoma



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ABSTRACT

Kounis syndrome, which is known as allergic angina and allergic myocardial infarction today, was described as the coexistence of acute coronary syndrome with allergic reactions in 1991 by Kounis and Zavras. We report a case of a 79-year-old man with hypertension, hepatocellular carcinoma (HCC), and no allergic history. He had received transcatheter arterial chemoembolization (TACE) for treatment of HCC five times without allergic reactions. At the sixth time of TACE, he presented an anaphylactic reaction such as systemic erythema and severe arterial hypotension. Simultaneously, he complained of anterior chest pain and electrocardiogram showed significant ST segment elevation in inferior leads, indicating inferior myocardial infarction. Emergency coronary angiography, however, did not demonstrate any organic stenoses or occluded lesions of the coronary arteries. We made the diagnosis of Kounis syndrome associated with TACE. Although Kounis syndrome is a rare condition, physicians should be aware of possible co-occurrence of anaphylactic reactions and acute coronary syndrome.

<Learning objective: Kounis syndrome refers to acute coronary syndrome associated with allergic or anaphylactic reactions. Physicians have to be aware and keep Kounis syndrome in mind whenever they encounter patients with an anaphylactic reaction. And immediate diagnosis and prompt treatment are needed.>

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Introduction

Simultaneous occurrence of acute coronary syndrome and allergic reactions is known as Kounis Syndrome, which was described by Kounis and Zavras in 1991 [1]. Although the pathophysiology of Kounis syndrome is not completely understood, allergic reaction-induced coronary inflammation and vasospasm are suggested to play a role. Kounis syndrome is caused by various factors, such as foods, drugs, environmental exposures, and medical conditions, all of which induce allergic reactions. Allergens cause mast cell degranulation and several inflammatory mediators such as histamine, tryptase, chymase, neutral proteases, arachidonic acid products, platelet activating factor, and various cytokines and chemokines are released. These mediators cause coronary arterial spasm, plaque rupture, and thrombosis, resulting in acute coronary

syndrome. We report a case of Kounis syndrome that was induced by transcatheter arterial chemoembolization (TACE) for the treatment of hepatocellular carcinoma (HCC). Two similar cases that we experienced are also reviewed.

Case report

A 79-year-old man with a history of HCC treatment by TACE was admitted to our hospital for another TACE. He had been treated with TACE for five times before without allergic reactions. His medical history was unremarkable except for essential hypertension with medication. There was no history of allergic diseases. And he had never complained of anterior chest pain suggestive of angina pectoris. Approximately 30 min after successful TACE with iopamidol, an iodinated contrast media, and ethylester of iodinated poppy-seed oil fatty acid injection, he complained of anterior chest pain and then lost consciousness. His systolic blood pressure was decreased to 40 mmHg, and his heart rate was 50 beats per minute. His spontaneous breathing stopped. We assisted his breathing with bag valve mask ventilation. Intravenous infusion of normal saline and dopamine (3.0 µg/min/kg) was

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instituted. Atropine (0.5 mg) was also administered intravenously. Twelve-lead electrocardiogram showed significant ST segment elevation in II, III, and aVF leads and complete atrioventricular block with junctional escape rhythm (Fig. 1A), indicating inferior myocardial infarction. Depression of ST segment in V₂ through V₄ leads was also observed, which was considered a reciprocal change. Flushing on his extremities and trunk was recognized. Wheeze and stridor were not observed. Emergency coronary angiography was performed after intravenous administration of hydrocortisone (100 mg), D-chlorpheniramine maleate (5 mg), and epinephrine (0.1 mg). When we started coronary angiography, ST segment changes found in the initial electrocardiogram were not observed

(Fig. 1B). Angiography of right coronary artery (RCA) revealed no stenosis or occlusion even without intracoronary administration of nitroglycerin (Fig. 2A). After administering nitroglycerin to RCA, marked dilatation of RCA was observed (Fig. 2B and C), suggesting involvement of coronary spasm. Angiography of left coronary artery revealed no organic stenosis or occlusion. The diagnosis of Kounis syndrome associated with TACE was made, because anaphylactic reactions and acute coronary syndrome occurred simultaneously. The next day, physical examination did not reveal any allergic reactions. Laboratory tests of the blood showed mild leukocytosis (11 330/ μ L, neutrophil 88%, eosinophil 0%) and no change in creatine kinase level (214 U/L,

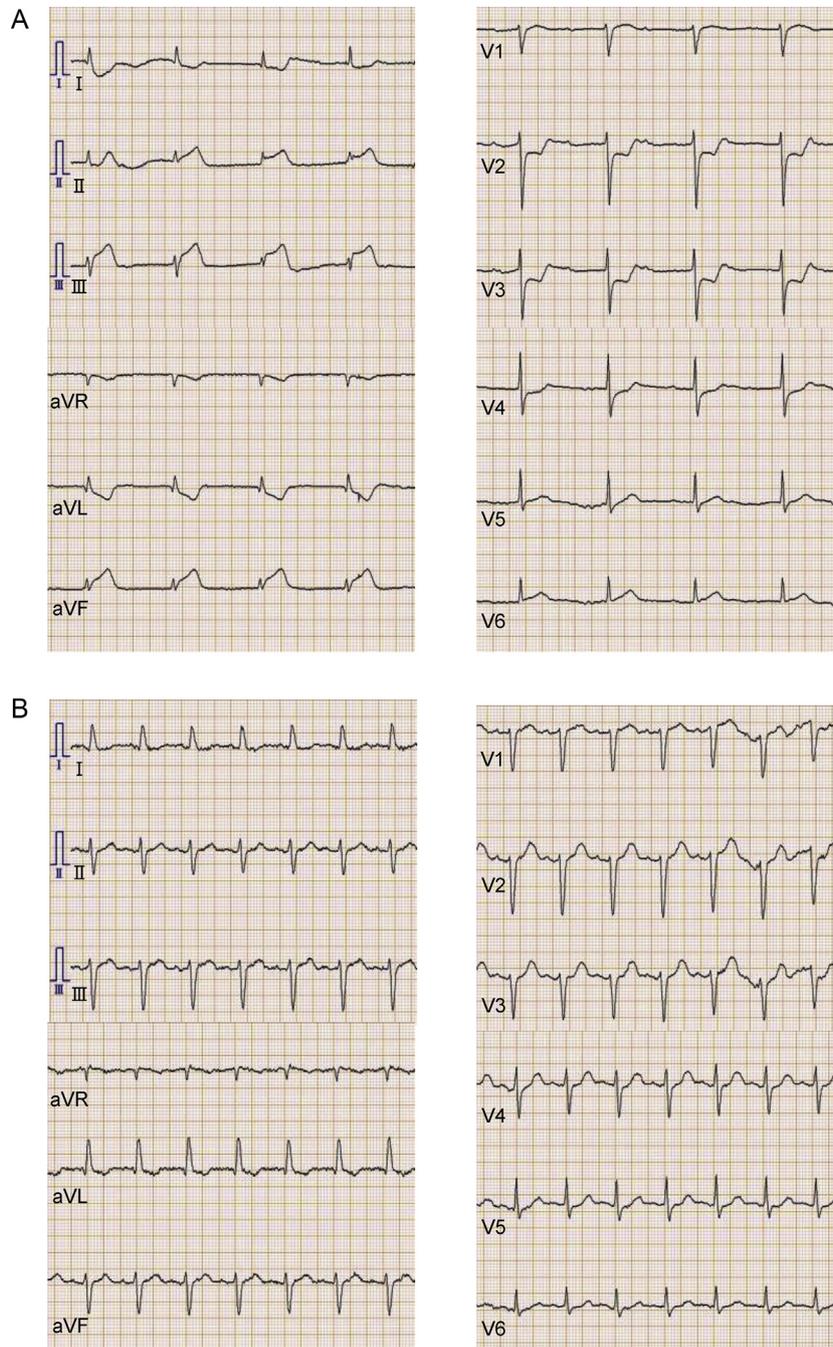


Fig. 1.

Electrocardiogram of the patient on heart attack. Electrocardiogram was taken when the patient complained of anterior chest pain. Electrocardiogram showed ST segment elevation in II, III, aVF leads and complete atrioventricular block with junctional escape rhythm (A). Electrocardiogram showed normalization of ST segment when the patient was referred to cardiac catheterization laboratory (B).

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