An intriguing case of acute coronary syndrome caused by rotten tuna

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Introduction

Kounis and Zavras (1) first described Kounis syndrome (KS) or "syndrome of allergic angina" in 1991, an acute coronary syndrome (ACS) triggered by an anaphylactic or anaphylactoid insult. There are three reported typologies of the disease: coronary vasospasm with no pre-existing coronary artery disease (type I); coronary vasospasm on a pre-existing quiescent plaque, causing its direct erosion or rupture (type II); and stent thrombosis with occluding thrombus (type III). We reported a case of a patient with anaphylactoid type II KS, presenting with acute myocardial infarction because of a distal embolization of a thrombus.

Case Report

A 53-year-old man was admitted to our emergency department due to tongue swelling and syncope following the consumption of fresh tuna fish and clams. He was afebrile and hypotensive, with normal cardiopulmonary results during physical examination. The electrocardiogram (ECG) demonstrated a normofrequent sinus rhythm and 2 mm of ST elevation in inferior leads and ST depression in aVL and V2–V3.

Antihistaminic drugs, aspirin, and volume expansion were administered, during which a quick resolution of symptoms and ST elevation were observed. Laboratory test findings exhibited leukocytosis with neutrophilia and troponin increase (peak value 9.36 ng/mL). Transthoracic echocardiography displayed normal results. The patient was admitted to the cardiology department with the clinical suspect of KS caused by "scombroid syndrome." For myocarditis to be ruled out, a cardiac magnetic resonance (CMR) imaging was conducted, revealing a focal transmural ischemic lesion of mid-distal posterior wall of the left ventricle (Fig. 1).

Further studies with coronary angiography indicated an angiographic "minus" during contrast infusion in the middle portion of the right coronary artery (RCA), suggestive of a thrombus. As

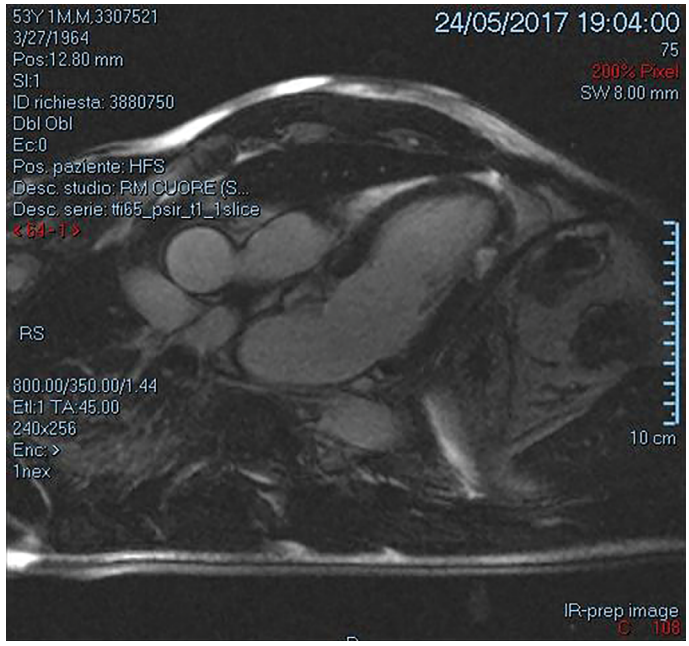

Figure 1. Cardiac magnetic resonance exhibiting a focal transmural ischemic lesion of the mid-distal posterior wall of the left ventricle

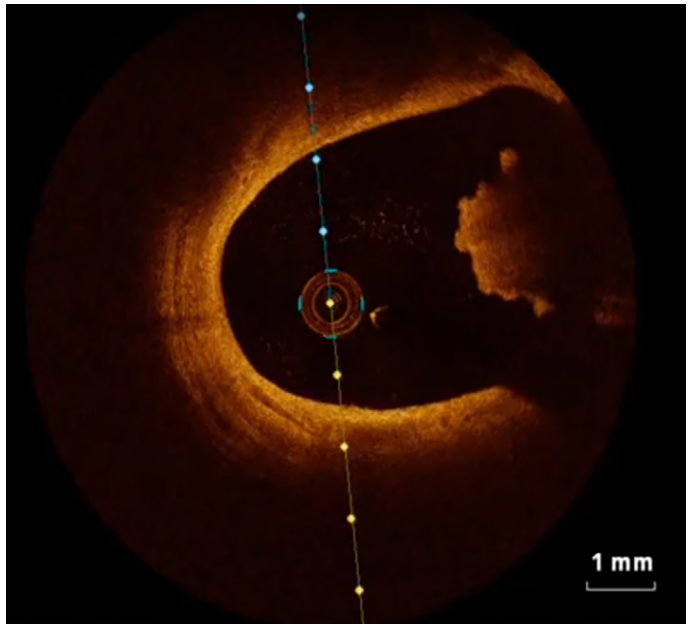

Figure 2. Optical coherence tomography image of the thrombus in the mid-right coronary artery

there were no clear images of a distal embolization, an optical coherence tomography (OCT) was conducted, showing a non-occlusive intraluminal thrombus in the correspondence of the "minus" image in mid-RCA (Fig. 2, Video 1).

Therapeutical management followed the present guidelines on myocardial revascularization in the absence of specific guidelines for KS. Since the thrombus was not occlusive, the case was managed medically.

The patient's clinical course was favorable, as there was no recurrence of symptoms and there was gradual reduction of cardiac biomarkers. The ECG evolution indicated infero-lateral biphasic T waves. He was discharged 6 days following admission while on dual antiplatelet therapy, statin, and angiotensin-converting enzyme inhibitor. Thirty months after the incident, the patient is still asymptomatic and in good health, on single Antiplatelet therapy and statins.

Discussion

As regards the earlier reported case, we propose that an anaphylactoid insult was the triggering factor for a type II KS, due to the amino acid histidine found in fresh fish, which is converted in histamine following an infection by gram-negative bacteria, expressing the enzyme histidine decarboxylase (2). Histamine inside the fish is the direct mediator of the syndrome and has various cardiovascular and systemic effects: induces coronary vasoconstriction, activates platelets, induces intimal thickening, and regulates inflammatory cell reactivity (3).

Our results may propose the following pathophysiologic pathway: histamine in spoiled fish induced a coronary vasospasm in RCA (possibly responsible for the initial ST segment elevation), leading to the rupture of a silent plaque already found in the artery and the subsequent formation of a non-occluding thrombus. Following spasm release and RCA blood flow restoration, a distal embolization probably occurred, causing myocardial necrosis.

To the best of our knowledge, this is the first described case of a scombroid syndrome leading to a type II KS, which presented with a distal coronary embolization. The management of this condition is challenging for the physician, because there are no established guidelines and only a few evidences found in literature.

Conclusion

Our case highlights the importance of non-routinely used cardiovascular imaging technologies in the diagnostic workup of particular forms of ACS. A timely CMR can help in the diagnosis of an ACS due to distal embolization, a condition uneasily discovered by other imaging techniques; a small necrotic area at CMR induced an OCT that discovered traces of a residual thrombus in RCA. In this clinical case, the synergy of CMR and OCT had a critical role in the comprehension of the pathophysiology of the disease.

Informed consent: A written informed consent was acquired from the patient.

Video 1. An optical coherence tomography (OCT) was conducted, showing a non-occlusive intraluminal thrombus in mid right coronary artery.

References

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Failed transcatheter mitral valve-in-ring implantation followed by transapical valve-in-valve within the ring and ad hoc paravalvular leak closure

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Introduction

There is a rapid emergence of transcatheter mitral valve-in-valve (TMVIV) and valve-in-ring (TMVIR) techniques as an alternative to the conventional surgical valve replacement in ineligible patients requiring repeat surgery (1).

The selection of a new transcatheter heart valve (THV) for degenerated surgical valves is relatively simple; however, the selection of valves for mitral rings is more nuanced because the rigid oval or D-shaped rings will not conform to the round shape of the prosthesis, thus posing a high risk of paravalvular leak (PVL).

Although prior reports have described simultaneous TMVIV and percutaneous PVL closure techniques, our case report provides the first description of simultaneous transapical valve-in-valve implantation and the closure of severe PVL after a failed transseptal valve-in-ring procedure (2, 3).

Case Report

A 64-year-old female with a history of insulin-dependent diabetes, chronic kidney disease, and hypertension, as well as a