

CASE REPORT

Prolonged Spasm of the Left Anterior Descending Coronary Artery

Mehmed Kulic¹, Elnur Tahirovic¹, Anes Sosevic¹, Ermina Mujicic¹, Nermir Granov¹, Daut Gorani², Muhamed Spuzic¹
Heart Center, Clinical Center University of Sarajevo, Bosnia and Herzegovina¹
Cardiology Clinic, Clinical Center University of Prishtina, Republic of Kosovo²

Coronary artery spasm is one of the well-known causes of anginal chest pain. We presented the case of prolonged spasm of the left anterior descending coronary artery which happened during coronary angiography leading to pulseless state and low blood pressure with syncope and appearing of ventricular fibrillation on ECG. During one hour of successful cardiopulmonary resuscitation, the patient had again normal pulse and blood pressure. Coronary angiography performed immediately after DC's showed normal coronary angiogram. After two days the patient left the hospital without brain disorders. Keywords: coronary artery spasm, cardiopulmonary resuscitation, coronary angiography.

Corresponding author: ass prof. Mehmed Kulic, MD, PhD. E-mail: kulicm@gmail.com

1. INTRODUCTION

Spasm of the coronary arteries is one of the rare dramatic events that may cause mortality during coronary angiography of the heart. Coronary artery vasospasm is defined as a transient total or near total occlusion of blood vessels in normal or diseased blood vessel occlusion which is reversible on use of isosorbiddinitrat (1). In our paper we will describe the case of long-term coronary vasospasm anterior descending coronary artery.

A patient aged 39 years was admitted to our hospital for cardiac catheterization. The first chest pain she had four years before she was admitted to our hospital and she made than an electrocardiogram, sinus rhythm with frequency of 75/minute, with the appearance of negative T wave in D3, AVE, V1-V3 (Figure 1). Blood pressure was 120/80mmHg, and there was not disturbances in laboratory findings. The patient was not a smoker, and that has a positive family history of cardiovascular diseases. Exercise testing was

uneventful and no signs of ischemic heart disease, and an ultrasound of the heart were found in the following parameters: left ventricular ejection fraction of 72% and functional disorders of the heart valves. Due to present and further chest pain patient is advised to perform MSCT (Multi-slice computer tomography) heart or coronary angiography, a patient decides to do a coronary angiography to the radial approach. During coronary angiography patient get severe chest pain,

followed by loss of consciousness, hemodynamic instability, pressure drop, and the electrocardiogram can lead to the heart rhythm disturbances in the form of bradycardia, ventricular fibrillation and ventricular tachycardia (Figure 2). The resuscitation was done for arounde one hour, the patient was defibrilated, and finally the normal sinus rhythm was established. The coronary angiography was made again, and we found coronary spasm of left anterior descending coronary artery and we had gave intracoronary nitroglycerin.



FIGURE 2. Patient ECG during the coronary angiography

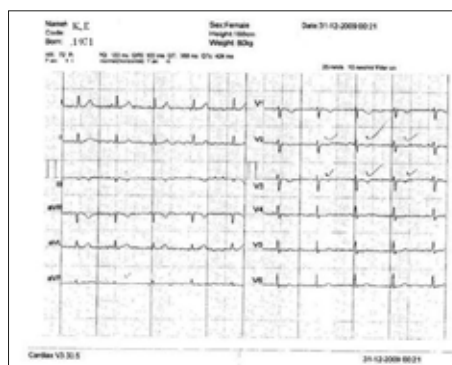


FIGURE 1. Patient ECG before the procedure.

2. DISCUSSION

Coronary artery vasospasm can cause a transient, abrupt, and marked decrease in the diameter of an epicardial coronary artery (6). The aetiological mechanisms is not fully known but it has been implicated that is probably related to an exaggerated contractile response of the vascular smooth muscle in the atherosclerosis affected coronary vessels. Coronary artery vasospasm during coronary angiography may be due to several factors among

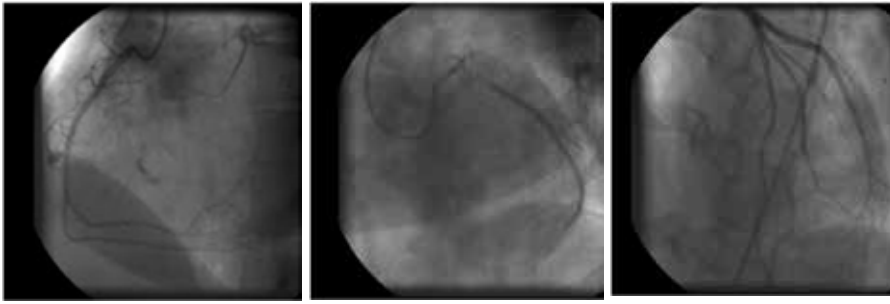


FIGURE 3. Coronary vasospasm anterior descending artery during the procedure and normal flow through the blood vessel after coronary spasm: a) normal blood flow through right coronary artery LAO25 Cran 0; b) no appearance of LAD artery, Plegic Cx artery with contrast from previous scene (LAO 25 Caud 25); c) normal blood flow through left coronary system LAO25 Cran 25 (after CPR)

them are increased vasomotor tone and myogenic reflex triggered by mechanical stimulation of the catheter type (2). It is a spasm of smooth muscle fibers of the coronary arteries. Incidence of coronary vasospasm in patients who underwent coronary angiography of the heart in the U.S. is up to 4% (4). Sometimes a spasm of coronary arteries can not be distinguished in relation to total occlusion of coronary arteries due to atherosclerotic disease and it usually occurs in vasospasm, which are present in the distal segments of the vessel. The appearance of blood vessel spasm may be accompanied by various symptoms such as chest pain, heart rhythm disturbances, hemodynamical insta-

bility, myocardial ischemia and sudden cardiac death. During angiography of the heart due to different handling of catheters can cause coronary vasospasm which is described in several cases (5). Treatment of coronary vasospasm is based on the use of drugs that made vasodilation of blood vessels, and there are primarily used calcium channel blockers as monotherapy or in combination with long-acting nitrates. If the coronary artery spasm appears during coronarography of the heart it is considered that the use of intracoronary nitrate drugs of choice in treatment of spasm (2, 3). The invasive cardiologists should always be prepared for the possibility of coronary vasospasm during

angiography and its emergency treatment. Also vasospasm should therefore always be included in the differential diagnosis in suggestive presentations of acute coronary syndrome (6).

Conflict of interests: The authors declare that they have no conflict of interest. This study was not sponsored by any external organization.

REFERENCES

1. Ozaki Y, Keane D, Serruys PW. Progression and regression of coronary stenosis in the long-term follow-up of vasospastic angina. *Circulation*. 1995;92(9):2446–2456.
2. Perera D, Patel SJ, Redwood SR. Catheter induced spasm: a trap for the unwary. *Heart*. 2003 May;89(5):511.
3. Sarfraz AN, Sheraz N, Sanjay K, Charles I. Multifocal Severe Coronary Artery Vasospasm Mistaken for Diffuse Atherosclerosis: A Case Report. *Case Report Med*. 2010; 2010: 202156.
4. Coronary Artery Vasospasm <http://emedicine.medscape.com/article/153943-overview>
5. Persin GA, Matthai WH Jr. Catheter-induced spasm of the left main coronary artery. *JInvasive Cardiol*. 2000 Mar;12(3):158-61
6. Nazir SA, Nazir S, Kumar S, Ilsley C. Multifocal severe coronary artery vasospasm mistaken for diffuse atherosclerosis: a case report. *Case Report Med*. 2010;2010. pii: 202156. Epub 2010 Sep 1.