



A Case of Variant Angina with Positive Angiography

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Clinical Image

The patient, male, 52 years old, was admitted to hospital for sudden chest pain. He has hypertension and smoking histories for more than 10 years. In the Emergency Department, the electrocardiogram showed ST-segment elevation on the II, III, AVF leads and second degree atrioventricular block (Figure 1). The troponin T and other biochemical indexes were normal. Emergent coronary angiography was performed immediately, and we found an approximately 90% stenosis in the middle segment of right coronary artery (Figure 2). Nitroglycerin was then intracoronarily administered to determine the nature of stenosis, to our surprise, the stenosis was significantly relieved (Figure 3), and the elevated ST segments restored to normal (Figure 4). We

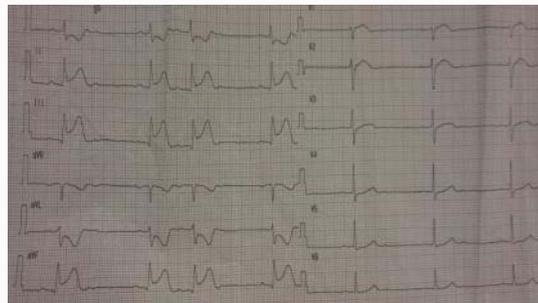


Figure 1: Electrocardiogram on admission.



Figure 2: Right coronary angiography.



Figure 3: Right coronary angiography after nitroglycerin injection.

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Received Date: 07 Oct 2016

Accepted Date: 27 Oct 2016

Published Date: 31 Oct 2016

Citation:

Zhang W, Pan X, Xu W, Wei W, Zhou X.
A Case of Variant Angina with Positive
Angiography. *J Heart Stroke*. 2016;
1(1): 1005.

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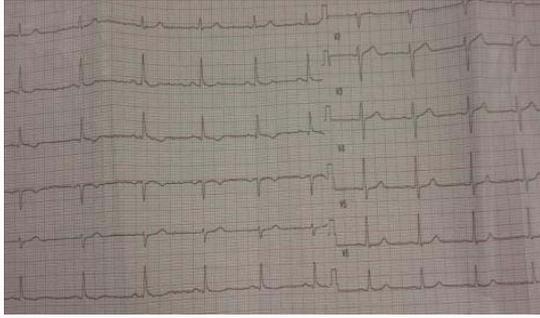


Figure 4: Electrocardiogram after chest pain relief.

finally recognized that the stenosis was caused by coronary artery spasm, also called variant angina.

Variant angina is secondary to reversible coronary artery vasospasm in the context of both diseased and non-diseased coronary arteries. Symptoms typically occur when the patient is at rest, especially in the early morning, it can be triggered by emotional

stress, smoking, or cold weather. The electrocardiogram often shows a transient ST-segment elevation. Although the exact etiology of coronary vasospasm remains unclear, several mechanisms have been hypothesized. A combination of arterial wall dysfunction and vasoactive substances are thought to be involved. Current treatment involves the use of calcium channel blockers, nitrates and beta-blockers. Long-acting calcium channel blockers have been shown to decrease the number of anginal attacks and are considered the mainstay of treatment. In addition to medical treatment, smoking cessation is associated with a reduction in symptoms.

In this case, based on the typical chest pain and electrocardiogram changes, we diagnosed as acute inferior myocardial infarction and carried out coronary angiography immediately. We found a significant stenosis in the middle segment of right coronary artery and planned to implant a stent. However, when the nitroglycerin was intracoronarily injected, the stenosis was relieved. Therefore, injection of nitroglycerin might be an indispensable step before stenting for interventional physicians.