

De Winter Wave with ST Segment Elevation Equivalent with Speech Disorder; A Case Report

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Abstract

Acute coronary syndrome is a clinical condition that may require urgent coronary intervention. The most important is myocardial infarction with ST elevation. Emerging clinical studies now show equivalents of ST elevation myocardial infarction without ST elevation. The de Winter wave has been recognized as the equivalent of the ST-elevation myocardial infarction described since 2008. A 71 year old male patient was admitted to our emergency department with a symptom of speech disorder and later angina. We also detected myocardial infarction with de Winter wave in the patient. In the coronary angiography of the patient, we demonstrated the presence of acute thrombus in the circumflex artery, which is much less common in the literature. Early diagnosis is very important in this acute coronary syndrome that develops without ST elevation. We think that the speech disorder and feeling of worsening in our patient progressed as a result of a vital dysrhythmia that occurred before coming to our emergency department. Widespread ischemic changes in magnetic resonance imaging in the flair phase may be caused by brain hypoperfusion due to this dysrhythmia. Coronary angiography should be planned for these patients.

Key Words: de winter wave, myocardial infarction, speech disorder

Introduction

As an equivalent of ST segment elevation myocardial infarction (STEMI), de-Winter et al. described an electrocardiogram (ECG) pattern in 2008 (1). Symmetrical and high T waves with ST segment depression (STD) in the precordial leads were found to have a positive predictive value of over 95% for acute occlusion of the left anterior descending (LAD) artery (2,3). This sign was found in 2% of acute myocardial infarction (AMI) cases (1,4). This pattern in the ECG may not always indicate LAD occlusion. However, de Winter wave is an important sign for acute coronary syndrome that needs to be diagnosed early and requires immediate percutaneous coronary intervention (PCI) when detected (5).

Our aim in this case report is to emphasize the importance of the de Winter wave, which we view after chest pain in a patient presenting with a neurological symptom.

Case Report

A 71-year-old male patient was admitted to our emergency department with speech disorder and deterioration. Physical examination of the patient was normal. Neurological examination revealed no lateralizing finding and dysarthria. Systolic blood pressure was 110/70 mm/Hg, pulse 73/min, respiratory rate 19/min, and oxygen saturation 95%. Central imaging was

performed in our patient who presented with a neurological symptom. While there was no acute finding in brain computed tomography (BCT), diffusion brain magnetic imaging (Dif MRI) showed acute diffusion restriction of 3-4 mm in the left parietal and diffuse ischemic lesions in the flair phase. (Figure 1) The patient with a known diabetes mellitus (DM) diagnosis said that he felt pressure-like pain in the chest afterwards. In the first ECG (Figure 2) of the patient, there was a prominent T wave in the precordial leads. In the control ECG (Figure 2) of the patient, there were upsloping ST depression and high symmetrical T waves in V2-V6 leads. Segmental wall motion abnormality was viewed on echocardiography (ECHO). Coronary angiography (CAG) was scheduled due to the appearance in accordance with the de-Winter pattern in the ECG. The patient's troponin T resulted as 3100 ng / L. In the CAG, it was observed that the proximal part of the circumflex artery (CX) was occluded with acute thrombus at a rate of 90%. (Figure 3) A 3.0x15 mm stent at 16 atm pressure was placed in the lesion in CX. A 3x0.9 NC balloon was dilated under a pressure of 20 atm inside the stent to provide patency. The patient was discharged home after 4 days of follow-up without any sequelae.

Discussion

In this report, our aim is to emphasize the importance of the de Winter wave, which we view after progressing angi-

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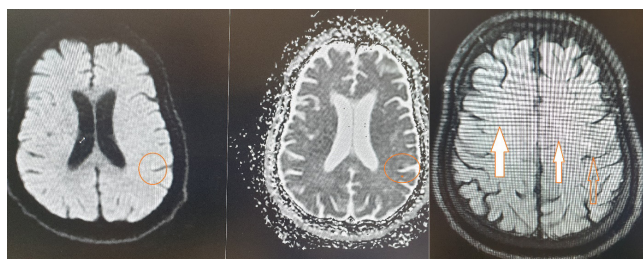


Figure 1. Brain diffusion magnetic imaging: diffusion phase, adc mapping, flair phase

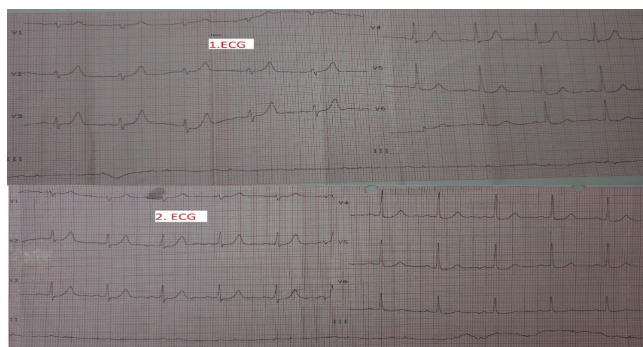


Figure 2. Electrocardiography (ECG) images: 1. The patient's arrival ECG, 2. The ECG taken when chest pain develops.

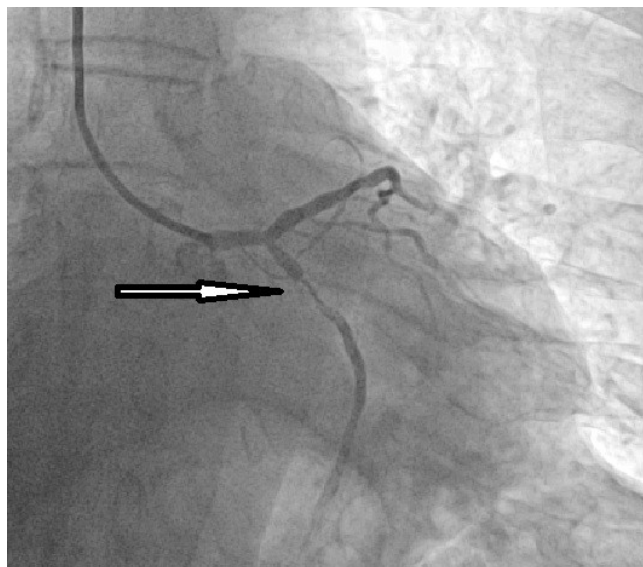


Figure 3. Coronary angiography images: Proximal part of the circumflex artery (CX) was occluded at a rate of 90%.

na in a patient with neurological symptoms, for emergency coronary intervention. In the study conducted by Xu et al. in patients with anterior STEMI, they showed Winter wave pattern in 15 of 441 patients. In these patients, they showed that the vessel responsible for infarction was LAD and its branches. As a result of this study, they stated that the Winter pattern is a symptom of ischemia and can turn into AMI (6). In other case reports, it was observed that a patient with the Winter pattern transformed into STEMI, and a patient with STEMI turned into Winter wave. This situation is thought to

be caused by the thrombus in the artery that does not cause full-thickness occlusion or the thrombus undergoes spontaneous lysis (7,8). In our case, our patient previously had a syncope described as a speech disorder and deterioration. There were markedly high T waves in the first ECG. Pre-cordial upsloping ST depression and high and prominent T waves developed in the control ECG with the description of angina in the following period of our patient. This situation made us think that the patient had a fatal dysrhythmia and syncope before coming to the emergency department. The multiple ischemic focus in the dif MRI flair phase image is an indication of this. In the 2013 American Heart Association (AHA) guideline, Winter recommends coronary interventional treatment within 2 hours in patients with an ECG pattern (9). In our case, PCI was made as a result of this dynamic de Winter view we saw on the ECG. Acute occlusion in CX, elevation in troponin T, indicated that this condition was AMI. Although Winter wave is an important finding for LAD, it can also be seen in CX lesions (10). This is proof that the Winter wave cannot be seen on the first visit of the patients. Alahmad et al. Applied a chemical cardiology in a patient with atrial flutter. Winter's wave was detected due to thrombus in the left atrium that developed on the 2nd day. Acute thrombus was observed in LAD D2 in the patient after PCI (11). In our case, no cardiac thrombus was observed, but it is the first case of Winter in the literature to have central thrombus and coronary thrombus together, albeit minimally.

Conclusion

Although the constution mechanism of the de Winter wave is not known exactly, it should be treated like STEMI due to its consequences. Early interventional coronary artery treatments provide good outcomes.

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