

Case report

Rare ECG Dynamics in Acute Coronary syndrome: Co-occurrence of De Winter and Wellens' Signs in proximal LAD occlusion

Abstract

The present study explores about rare ECG Dynamics in Acute Coronary syndrome. De Winter sign and Wellens sign are two electrocardiogram patterns which have been described in acute coronary syndrome due to acute occlusion of left anterior descending coronary artery. A 69-year-old male with cardiovascular risk factors including hypertension, diabetes mellitus and a sedentary lifestyle presented with typical rest angina lasting more than 20 minutes. Initial ECG taken at nearby hospital showed de Winter's pattern. Wellens' syndrome has been described as occurring in 14% to 18% of patients with unstable angina^{3,4}, while the de Winter pattern is known to be in 2% of patients admitted with anterior wall infarction⁵. The coexistence of the De Winter and Wellens patterns in the same patient is an extremely rare finding.

Keywords: Wellens' syndrome; ECG Dynamics; Acute Coronary syndrome; myocardial infarction

INTRODUCTION

De Winter sign and Wellens sign are two electrocardiogram patterns which have been described in acute coronary syndrome due to acute occlusion of left anterior descending coronary artery. It is indeed rare to get both patterns in same patient. Here, we describe a patient who has presented to our Institute with rest angina and initial Electrocardiogram showing ST segment depression in precordial leads, accompanied by an ascending ST segment with a symmetrical positive T wave and reciprocal ST elevation in aVR, identified as a de Winter pattern [7-10]. During Hospital stay, his chest pain was resolved and Electrocardiogram was showing Biphasic T waves in Lead V2, V3, Identified as Type A Wellens' syndrome, suggesting an anterior ST-segment elevation myocardial infarction. It is an extremely rare event and only very few case reports have been described of this unusual finding describing both patterns coexisting in the same patient.

CASE PRESENTATION

A 69-year-old male with cardiovascular risk factors including hypertension, diabetes mellitus and a sedentary lifestyle presented with typical rest angina lasting more than 20 minutes. Initial ECG taken at nearby hospital showed de Winter's pattern (Figure 1) and troponin I of 0.071 ng/mL (Normal value <0.04 ng/ml). Patient was loaded with Dual antiplatelets and atorvastatin and transferred to our centre for further management. Upon arrival, electrocardiogram at our centre showed Wellens' syndrome type A pattern (Figure 2), suggesting critical stenosis of Proximal LAD.

Patient remained hemodynamically stable, taken for emergency angiogram which showed grade IV thrombus in proximal Left Anterior Descending Coronary Artery. (Figure 3, Video 1), Right Coronary Artery injection showed no significant coronary artery disease. (Figure 4, Video 2). Patient underwent percutaneous coronary intervention with drug-eluting stent implantation, with final result (Figure 5, Video 3) demonstrating TIMI-3 flow.

The electrocardiographic behaviour of this case corresponds to an impending total occlusion of the LAD, with the manifestation of a de Winter pattern in the initial ECG, while he was having ongoing chest pain. When his chest pain subsided, Electrocardiogram was suggestive of Wellens' syndrome type A pattern.

DISCUSSION

We believe knowledge of these particular electrocardiographic patterns is extremely important, since patients do get benefit from early revascularization as part of the STEMI therapeutic algorithm^{1,2}.

Wellens' syndrome has been described as occurring in 14% to 18% of patients with unstable angina^{3,4}, while the de Winter pattern is known to be in 2% of patients admitted with anterior wall infarction⁵. The coexistence of the De Winter and Wellens patterns in the same patient is an extremely rare finding.

CONCLUSION:

It is important for Cardiologists and emergency care physicians to recognise this distinct ECG pattern, so they can triage patients for immediate reperfusion. Also this case merits the importance of serial Electrocardiogram monitoring in patients admitted for chest pain evaluation⁶.

Consent

As per international standards or university standards, patient(s) written consent has been collected and preserved by the author(s).

Ethical Approval:

As per international standards or university standards written ethical approval has been collected and preserved by the author(s).

Disclaimer (Artificial intelligence)

Option 1: No Artificial intelligence has been used.

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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Figure 1 ECG taken at nearby hospital showed de Winter's pattern

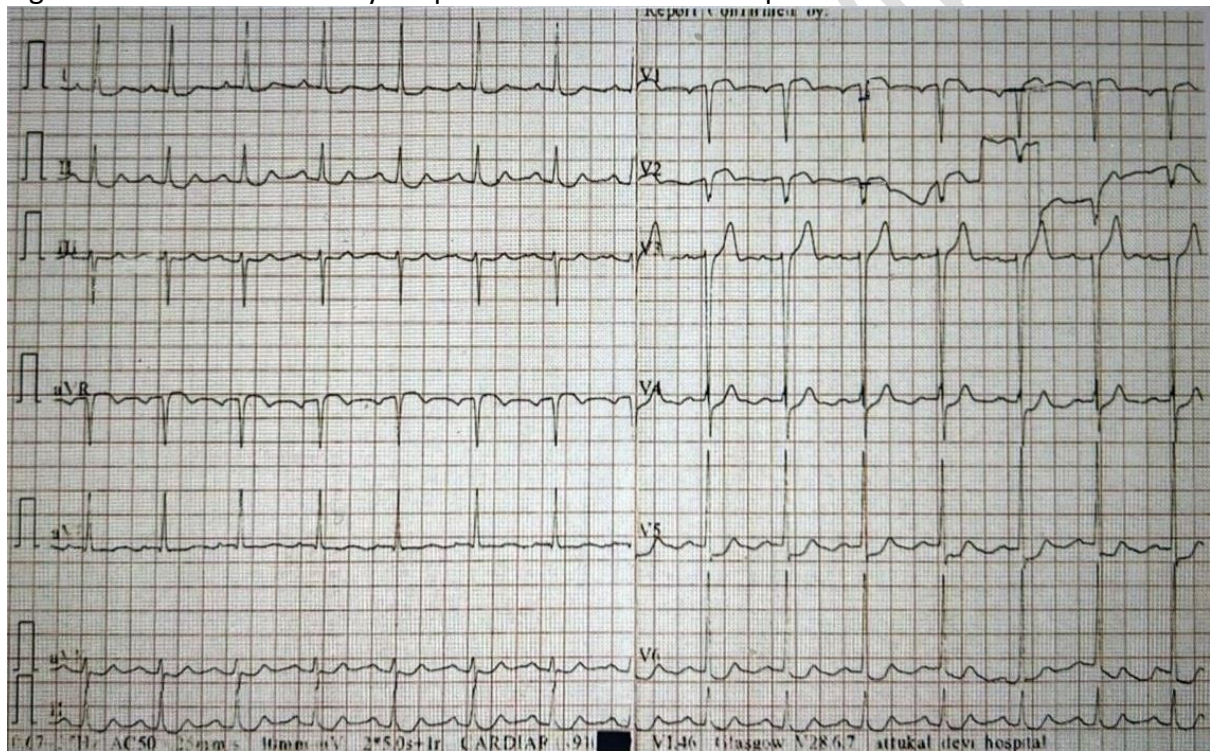


Figure 2 ECG shows Wellens' syndrome type A pattern

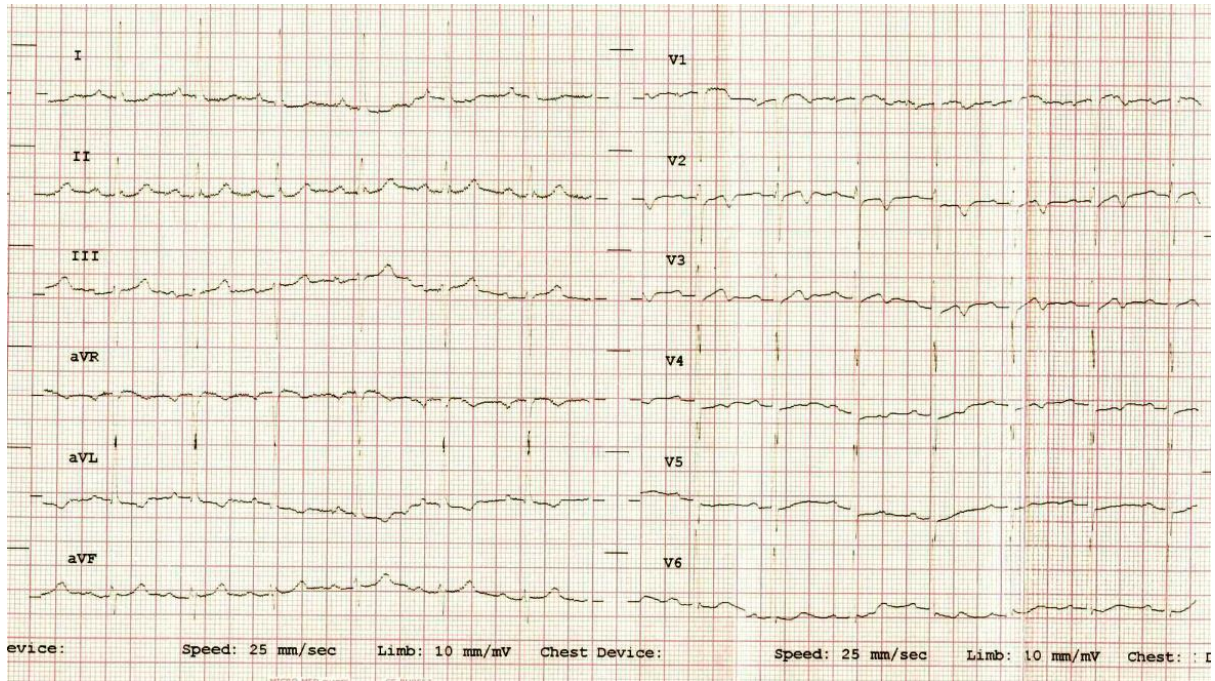


Figure 3 Grade IV thrombus in proximal Left Anterior Descending Coronary Artery



Figure 4 Right Coronary Artery injection showed no significant coronary artery disease

UNDER PEER REVIEW



Figure 5 TIMI-3 flow



Video 1



VID-20241117-WA00
01.mp4

Video 2



VID-20241204-WA00
26.mp4

Video 3



VID-20241119-WA00
01.mp4