Case Study DOI: 10.22114/ajem.v0i0.155

Intermittent Typical Angina: Remember Wellens' Syndrome

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Published online: 2019-06-09

Abstract

Introduction: We describe a patient without a history of cardiovascular diseases as an example of Wellens' syndrome (WS).

Case Report: A 65-year-old man presented to emergency department due to intermittent chest pain. Physical examination and chest x-ray were unremarkable. Electrocardiogram (ECG) showed biphasic T-wave in precordial leads V1-V4. Primary cardiac serum biomarkers including high-sensitive cardiac troponin T (hs-cTnT) and CK-MB were slightly elevated, that further assessment did not show any increases; while ECG recorded during a pain period revealed T-wave pseudo-normalization. The patient underwent coronary angiography that revealed a proximal left anterior descending artery lesion.

Conclusion: WS is a diagnostic and management challenge and serial ECG evaluation is still essential for a possible acute coronary syndrome. Having knowledge of all subtle features of this syndrome, could avoid improper discharge of high-risk patients. Definitely, accurate risk stratification, and prompting these patients to an early coronary angiogram and treatment are mandatory to avoid development of a massive anterior myocardial infarction.

Key words: Case Reports; Chest Pain; Coronary Angiography; Electrocardiography; Wellens' Syndrome

Cite this article as: Nastasi M. Intermittent Typical Angina: Remember Wellens' Syndrome. Adv J Emerg Med. 2019;3(3):e30.

Introduction

Wellens' syndrome (WS) is an electrocardiogram (ECG) pattern for proximal left anterior descending (LAD) artery lesion. ECG abnormalities present at the emergency department (ED) in patients admitted with angina during pain free periods. Cardiac biomarkers are usually normal or only slightly elevated, which increases the risk of discharge without further investigation. WS requires coronary angiography and lesion treatment to avoid the development of extensive anterior myocardial infarction (MI) (1). We describe a patient without a history of cardiovascular diseases as a good example of WS pattern A.

Case Presentation

A 65-year-old man, hypertensive, smoker and without a history of cardiovascular diseases presented to ED due to intermittent chest pain, radiating to both arms, of 6-hour duration. The patient was asymptomatic at admission with vital signs of BP 152/83 mmHg, O2-saturation 97% on room air, oral temperature 36.4 °C, heart rate 73 bpm. Physical examination and chest x-ray were unremarkable. ECG showed biphasic T-wave in precordial leads V1-V4 (figure 1).

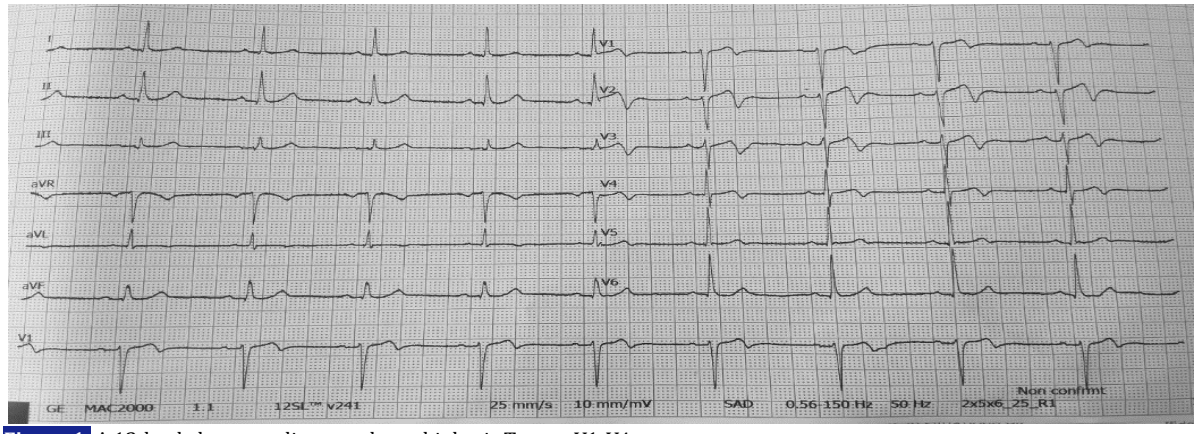

Figure 1: A 12-lead electrocardiogram shows biphasic T wave V1-V4

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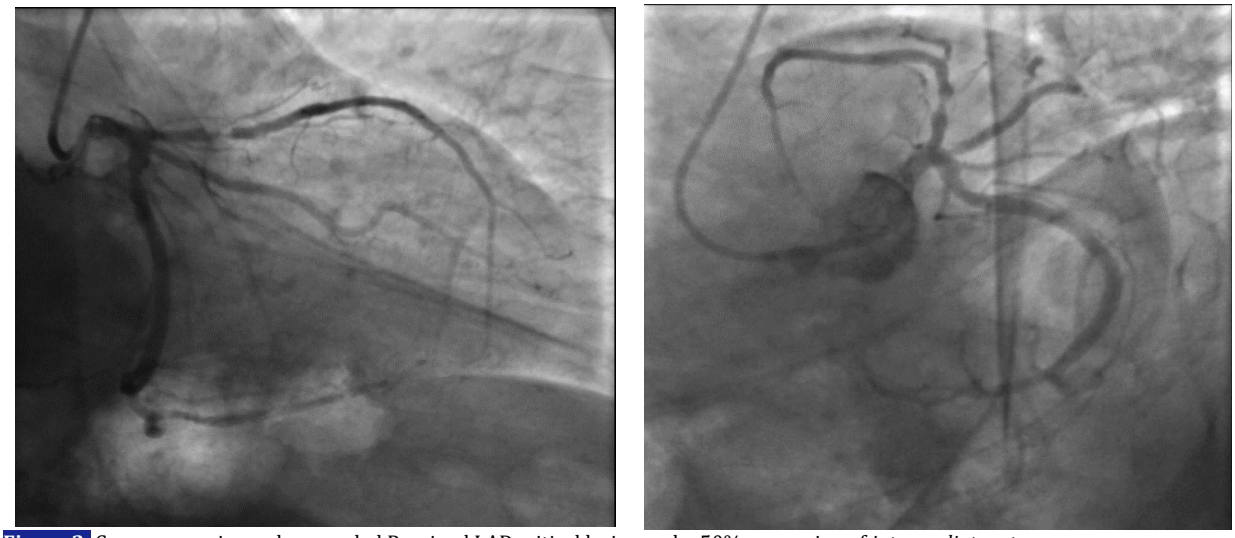

Figure 2: Coronary angiography revealed Proximal LAD critical lesion and <50% narrowing of *intermediate* artery

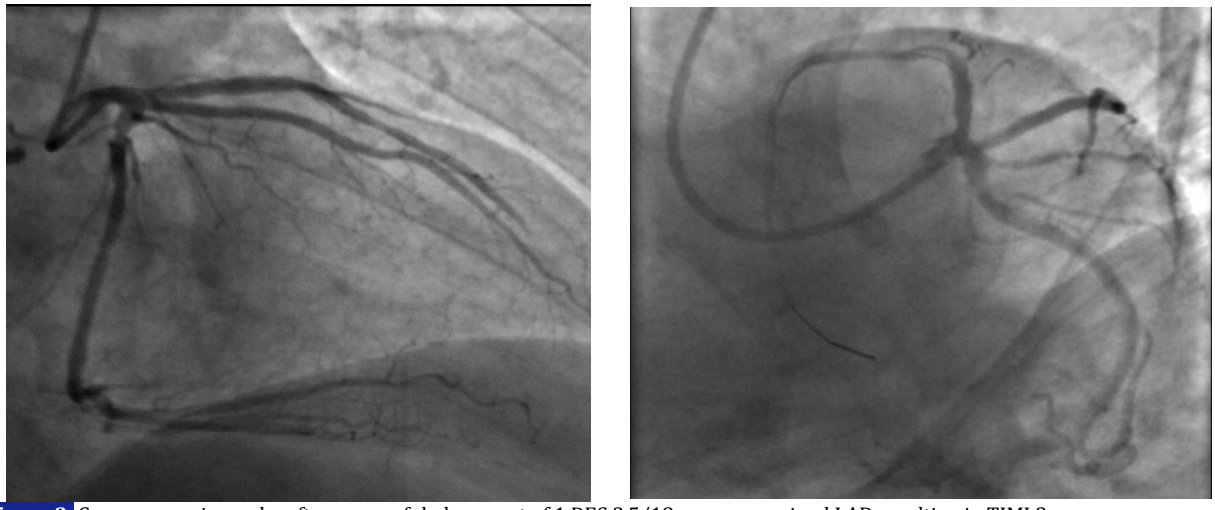

Figure 3: Coronary angiography after successful placement of 1 DES 3.5/18 mm on proximal LAD resulting in TIMI 3

Two-dimensional (2D) echocardiography revealed hypokinetic mid-distal anterior wall and apex with mildly depressed left ventricular ejection fraction (LVEF). As WS was suspected, the patient was pre-treated with aspirin, ticagrelor and enoxaparin. First, cardiac serum biomarkers were slightly elevated: high-sensitive cardiac troponin T (hs-cTnT) (161 ng/mL, n.r. 0-40 ng/mL) and CK-MB (6.6 mg/dl n.r. 0-6.5 mg/dl). Blood assessment every 3 hours did not show any increases while ECG recorded during a pain period revealed T-wave pseudo-normalization. Patient history, positive hs-cTn, wax and wane symptoms nitrate responder, push the patient to underwent coronary angiography that revealed a proximal LAD critical lesion (figure 2) that was stented with one Drug Eluting Stent 3.5/18 mm (figure 3).

The patient was discharged in good condition two days later, with the recommendation to maintain double antiplatelet therapy for 12 months. The patient was still pain free at one-month follow-up.

Discussions

RChest pain is a common reason for ED access. A cardiovascular disease may be present in up to 20%, but only 5.5% represent an acute life-threatening condition. Shallow risk stratification could lead to ED overload by improper hospitalization, or worse, inappropriate early discharge of suspected acute myocardial infarction (MI) may double the risk of mortality compared to hospitalized patients (2, 3).

Introduction of hs-cTnT sampling, and a continuous increase in fast protocol for its assessment give us important steer to allow early discharge and rule out improper admission (4).

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Nevertheless, hs-cTnT is not enough for some conditions, therefore, serial ECG and patient history still remain the workhorse if acute coronary syndrome is suspected.

In 1980's Wellens and ca. described typical ECG abnormalities in 26 of 145 patients admitted to ED for unstable angina and their angiograms showed LAD narrowing more than >70% (1, 5). WS can be found in 14%-18% of ED access due to unstable angina. A soft approach, meaning only medical management without invasive investigation, leads to a massive extensive anterior MI in 75% of cases (1, 5). ECG features are recorded at painless intervals. There are two ECG patterns with difference incidence: Pattern A with biphasic T wave in V2-V3n and pattern B with deep T wave in V2-V3. Pattern B is more frequent than pattern A (76% vs. 24%) (6). Other abnormalities could affect V1, V4 and sporadically V5 and V6. Precordial leads R progression is maintained, there are not Q waves, neither significate ST elevation (<1 mm). Furthermore, during pain episodes, ECG reveals T-wave pseudo-normalization. Definitively, a typical patient profile is made by a history of angina, no pain at rest, normal or slightly elevated cardiac serum biomarkers, biphasic T wave V2-V3 or deep T wave during pain-free interval, pseudornomalization of T wave during pain episode. ECG abnormalities of WS show sensitivity of 69%, specificity of 89%, giving us an important support in suspecting an underlying coronary disease (7). Given high suspicion for LAD critical lesion, stress test must be avoided for the risk to precipitate extensive anterior MI (8). However, if WS is considered, invasive assessment is mandatory to evaluate the need for treatment.

Conclusions

WS is a diagnostic and management challenge and serial ECG evaluation is still essential for a possible acute coronary syndrome. Having knowledge of all subtle features of this panel, could avoid improper discharge of high-risk patients. Definitely, accurate risk stratification, and prompting these patients to an early coronary angiogram and treatment are mandatory to avoid development of a massive anterior MI.

Acknowledgments

None.

Authors' contribution

The author passed four criteria for authorship contribution based on recommendations of the International Committee of Medical Journal Editors.

Conflicts of interest

None declared.

Funding

None declared.

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