

Wellens Syndrome without chest pain, is it possible?

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Abstract. – OBJECTIVE: Wellens syndrome is a typical electrocardiographic and clinical pattern that correlates with a severe proximal stenosis of the left anterior descending artery (LAD). It is associated with previous angina, no or slightly increased cardiac markers, and two ECG patterns: diphasic T wave in V2-V3 (Type A) or deep negative T waves from V1 to V4 (type B). In this paper, we described two cases with asymptomatic Wellens patterns.

PATIENTS AND METHODS: We describe two cases of Wellens syndrome ECG pattern that we observed in our Emergency Department not accompanied by chest pain or angina equivalents.

RESULTS: Both patients presented significant stenosis of LAD at the coronary angiography.

CONCLUSIONS: Asymptomatic patients presenting with Wellens ECG pattern should perform a coronary arteriography cause of the risk of a severe LAD stenosis. We need further studies to confirm if all “silent” Wellens syndromes deserve angiographic study.

Key Words:

Wellens syndrome, Coronary arteriography.

Introduction

Wellens syndrome is a peculiar electrocardiographic and clinical pattern that correlates with a severe proximal stenosis of the left anterior descending artery (LAD)^{1,2}. It is associated to previous angina, no or slightly increased cardiac markers and two ECG patterns: type A shows diphasic T wave in precordial derivations (V2-V3) and type B is characterized by deep negative symmetric T waves from V1 to V4 with the absence of ST elevation, preservation of precordial R-wave progression and no precordial Q-wave³. Patients with Wellens syndrome need early revascularization to avoid myocardial infarction^{1,2}.

In 1979, Gerson et al³ described a syndrome related to the alteration of the T wave of the ECG and correlated to the stenosis of the LAD.

De Zwaan et al¹ in 1982 found a correlation between a precise ECG pattern in patients with unstable angina and the stenosis of the anterior descending artery; 75% of these patients developed extensive infarction of the anterior wall if untreated.

Later in 1989 the same group analyzed 1260 cases of angina pectoris, 180 of which showed typical ECG patterns for LAD occlusion: at coronary angiography all patients presenting with the typical ECG pattern had a LAD stenosis superior to 50%⁴.

For this reason, it is important to recognize these ECG patterns and start the correct therapeutic procedure in the emergency department.

First Case

A 75-year-old man was referred to our Emergency Medicine Department after an occasional finding of an altered ECG pattern during a pre-hospitalization visit for circumcision surgery. The patient was affected by type 2 diabetes mellitus, essential hypertension, and peripheral vascular disease. He had no history of coronary heart disease. The ECG showed precordial diphasic T waves from V1 to V4 (Figure 1). The patient had never experienced chest pain or angina equivalents. He was asymptomatic; cardiac, thoracic, and general clinical examination were normal. He presented with stable parameters: blood pressure 130/70 mmHg, heart rate 59 bpm, oxygen saturation 97% without oxygen supplementation. Blood samples were collected to evaluate routine and specific laboratory parameters. All tests were within the normal ranges, except for creatinine 1.20 mg/dl and urea nitrogen 32 mg/dl. High sensitivity troponin I

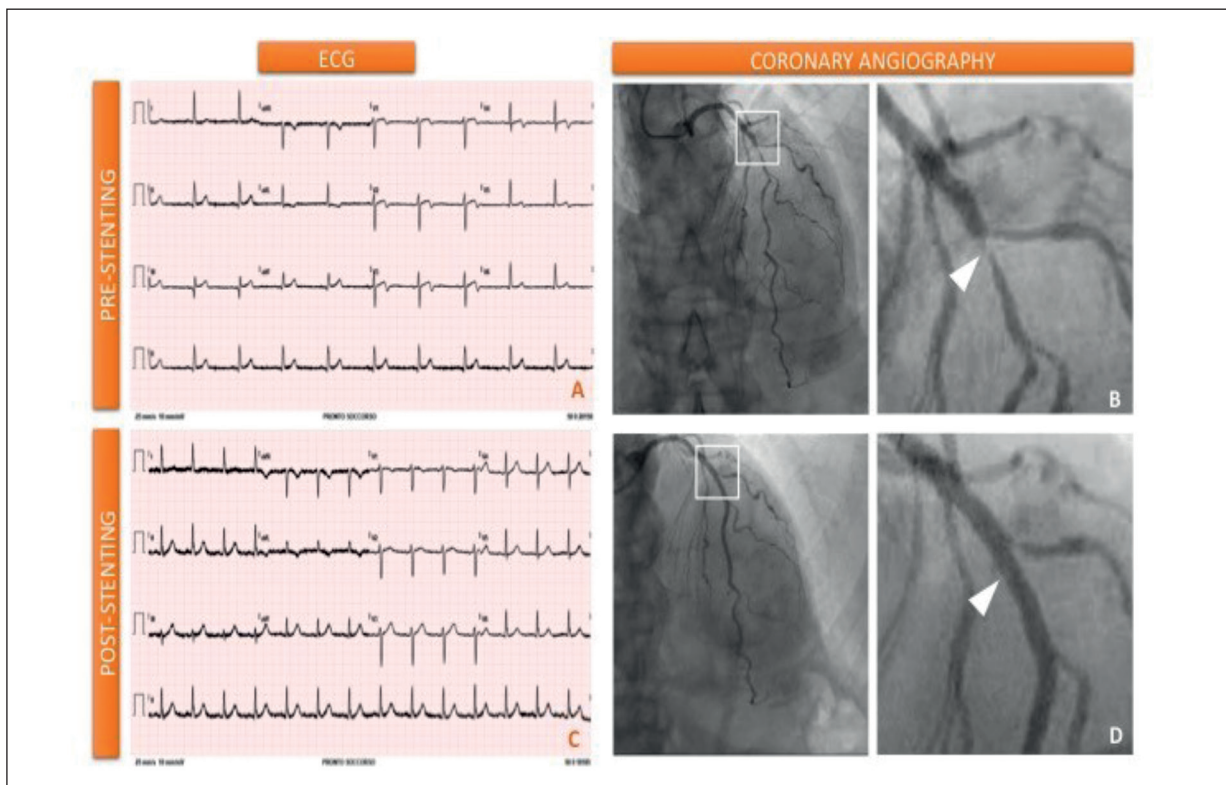


Figure 1. A, ECG pre-stenting. B, Image of pre-stenting coronary angiography with LAD detail. C, Post-stenting ECG. D, Image of post stenting coronary angiography with LAD detail.

(HSTI) resulted within the normal range (0.014 ng/ml; normal values <0.04 ng/ml). A chest X-ray showed no pathological alteration. A previous ECG performed some months before was normal. Then, it was diagnosed with a “silent” Wellens Syndrome and the patient was admitted to the Cardiology Department. The following day he underwent a new assay of HSTI that was normal. The coronary angiography showed diffuse coronary atherosclerosis with significant stenosis of the LAD involving the origin of first diagonal, significant stenosis of the circumflex artery (Cx) and significant stenosis of the posterolateral branch of the right coronary artery. Three drug-eluting stents were placed on the LAD, one on the first diagonal and one on the Cx (Figure 2). After the PCI the patient underwent an echocardiographic examination which showed a conserved ejection fraction (64%) with normal global kinetics. The patient was finally discharged in good clinical condition.

After about two months the patient was re-evaluated. He did not develop chest pain or angina equivalents, we performed a new ECG, which did not show ischemic alterations (Figure 1).

Second Case

A patient with an occasional finding of electrocardiographic alterations was sent to our Emergency Department; the 57-year-old male patient was on a pre-hospitalization visit for a suppurative hidradenitis. The cardiologist who performed the ECG for pre-hospitalization detected electrocardiographic abnormalities of ventricular repolarization (not present at a previous electrocardiogram). The patient was affected by essential hypertension; in 2008, he had an acute myocardial infarction treated with angioplasty of the LAD. He used as pharmacological therapy ARB, beta-blocker, statin, cardioaspirin, and proton pump inhibitors. The ECG showed precordial diphasic T waves from V1 to V4 and in aVf and negative T waves in V5-V6-D3 (Figure 2); a bedside echocardiogram showed apical-septal and apical-inferior akinesia, slight dilation and hypertrophy of the left ventricle. The patient had never experienced chest pain after the 2008 myocardial infarction. He was asymptomatic; cardiac, thoracic, and general clinical examination were normal. He presented with stable parameters. Blood samples

were collected to evaluate routine and specific laboratory parameters. All tests were within the normal ranges, except for hemoglobin that was 12.3 g/dl. High sensitivity troponin I (HSTI) resulted normal (< 0.006 ng/ml). The patient was admitted to the intensive short observation department to carry out further investigations. The following days he underwent some new assay of HSTI that were all in the normal range. During admission the patient underwent myocardial scintigraphy which showed moderate residual myocardial ischemia from strain on the anterior apical wall and the inferior-posterior wall of the left ventricle at 58% of the maximum theoretical heart rate; there were no significant signs of left ventricular dysfunction due to stress (missed increase in FE after exertion). The global left ventricular function was at the lower limits of the norm. Given the result of the scintigraphy, the patient underwent coronary angiography that showed diffuse coronary atherosclerosis with a 90% stenosis of the proximal LAD. The stent previously implanted resulted pervious with slight proliferation on LAD middle-distal, so a medicated stent was placed on proximal-average LAD (Figure 2).

Discussion

These are, at our knowledge, the first two cases of significant LAD stenosis with the ECG pattern of Wellens Syndrome in asymptomatic (not associated with chest pain, palpitation, shortness of breath, or syncope) patients. The absence of pain in the first patient could be due to the long history of diabetes^{5,6} and the presence of cardiac autonomic neuropathy.

Conclusions

The Emergency Medicine team should take into account that in case of typical Wellens ECG pattern, the absence of chest pain and normal values of myocardial enzymes do not rule out the diagnosis of Wellens syndrome and the need for early revascularization.

Conflict of Interest

The Authors declare that they have no conflict of interests.

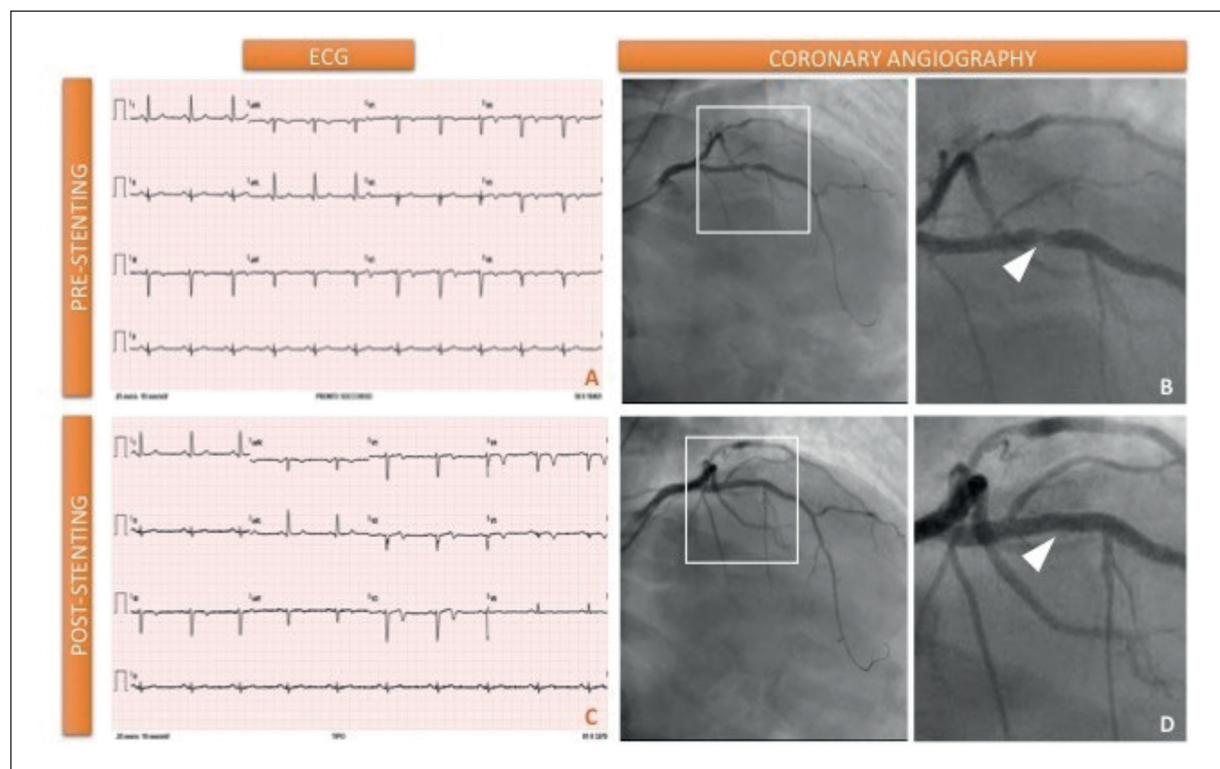


Figure 2. A, ECG pre-stenting. B, Image of pre-stenting coronary angiography with LAD detail. C, Post-stenting ECG. D, Image of post stenting coronary angiography with LAD detail.

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