

Case Report

Wellens Syndrome the Previous Room to A Large Previous Myocardial Infarction. Report of A Case.

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Abstract:

Wellens syndrome or also called anterior descending T wave syndrome, described for the first time in 1982 by Wellens and Zwaan, as a subtype of high-risk unstable angina that progresses to myocardial infarction in the anterior face, which can be massive and fatal; Documentation of this pattern on the ECG would be essential to initiate pharmacological treatment and priority referral to the hemodynamics room; A case of a 74-year-old male patient is described who begins symptoms in the early morning with typical chest pain and adrenergic discharge that progressively disappears. The patient is sent to a High Specialty Medical Center for Catheterization, which correlates injury in a rare anatomical site of the middle segment of the anterior descending artery. Knowledge of Wellens Syndrome in the emergency room is of utmost importance to reduce morbidity in patients and avoid its consequences, as well as the importance of primary referral for cardiac catheterization.

Keywords: Wellens syndrome. Anterior descending artery. Acute myocardial infarction. Cardiological emergencies.

Introduction:

Wellens syndrome corresponds to a pattern of electrocardiographic changes on the T wave, of two types, biphasic or inverted in precordial leads V2-V3, specific for stenosis of the left coronary artery in its anterior descending portion, frequently proximal and rarely in the average.^{1,3} This electrocardiographic pattern is key in the prevention of a myocardial infarction of the anterior wall that can become extensive.⁴ For the emergency doctor, becoming familiar with this type of electrocardiographic patterns requires adequate categorization and timely treatment, since when the patient with WS, the person goes to the emergency department, the chest pain is mild or subsides, the cardiac biomarkers are normal or slightly elevated. This case attempts to represent the appropriate action to avoid delays in care, avoid associated morbidity and mortality; the importance of cardiac catheterization not only diagnostic but also therapeutic in adequate time.

Case Report:

74-year-old man who has a significant cardiovascular history Gender, Age, Sedentary lifestyle, Overweight, without chronic pathologies; He was admitted to the emergency department of HGZ 29 IMSS, due to acute oppressive pain that began at rest and woke him up, followed by dyspnea and diaphoresis; He goes to a private medical service where they perform an electrocardiogram with an inverted T wave pattern and decide to send him to a second level unit; Upon admission to the emergency room, the patient is asymptomatic. An

electrocardiogram was performed (Figure 1) which shows symmetric inversion of T waves in precordials V1-V6; Admission biomarkers and 2 subsequent measurements within normal limits (CPK, CKMB).

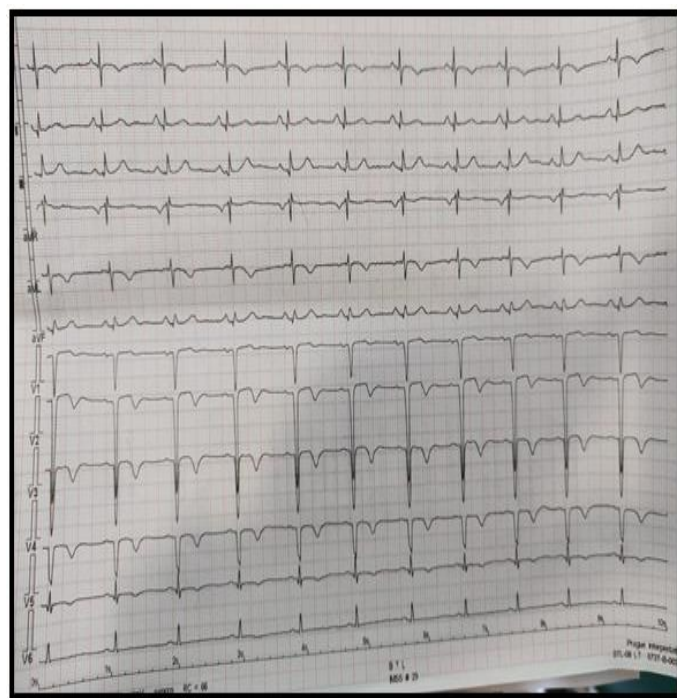


Figure 1. Electrocardiogram upon admission to the Emergency Room with an asymptomatic patient showing Wellens Syndrome Type 2.

After 6 days of stay in the unit, he is sent to the third level for evaluation by interventional cardiology, due to the persistence of the electrocardiographic pattern; Upon arrival at the National Medical Center, cardiac biomarkers are performed that show elevation, deciding to complement the diagnosis with transthoracic echocardiography that shows inferoseptal, anterolateral apical and anteroseptal dyskinesia, with which it is decided to perform a nuclear study (Figure 2) prior to intervention to determine myocardial viability. , concluding transmural apex infarction with viable tissue.

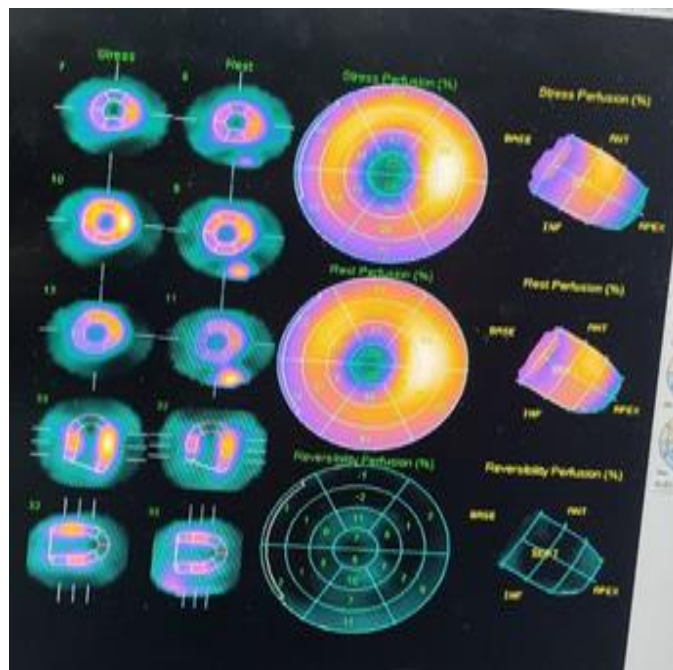
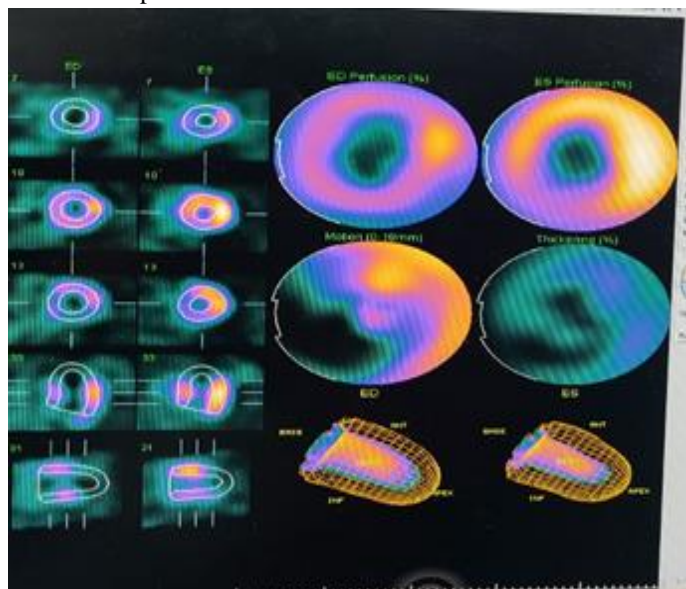


Figure 2: Thallium chloride scan, which concludes transmural infarction of the apex, without myocardial tissue, viable residual myocardial tissue. Rest of walls with abundant myocardial tissue.

He entered the interventional procedure (Figure 3) which showed single vessel mid-segment AD (Anterior Descending) disease with an eccentric tubular plate which was resolved with a 2.75 x 29mm architect stent.

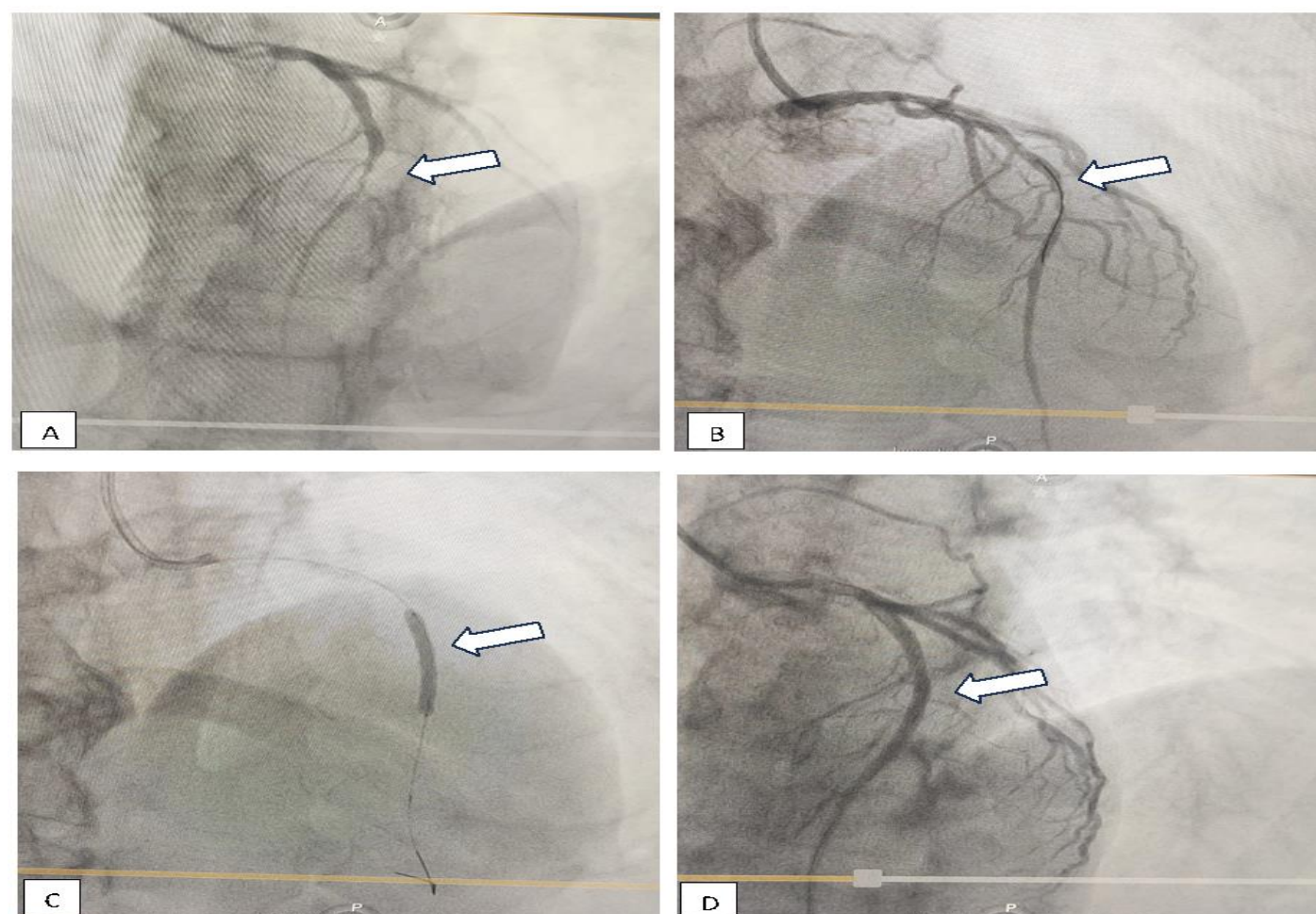


Figure 3: A) Coronary angiography shows mid-segment AD stenosis. B) Guide and stent entry to the injury site. C) Successful stent placement. D) Coronary angiography with restoration of flow after stent.

Discussion:

Wellens Syndrome, first described in 1982 by the research of Dr. Wellens and Zwaan, characterized electrocardiographic patterns that were usually the prelude to an acute inferior wall or apex myocardial infarction; found that at least 75% of patients with the described electrocardiographic pattern reached a catastrophic myocardial outcome.^{2,3}

The development of this entity has as risk factors the equivalent of cardiovascular diseases as it presents with lesions in the left coronary artery in its anterior descending portion, thus listing obesity, dyslipidemia, type II diabetes mellitus and high blood pressure.^{4,5}

In terms of physiopathology, the graphic representation of Wellens syndrome is believed to be due to intermittent stenosis or spasm of the anterior descending artery, frequently in its proximal portion; however, in exceptional cases, ischemia produced is described in the middle region. In short periods of time, it causes the clinical presentation of intermittent angina-type pain, which responds adequately to medical treatment. However, the edema that occurs due to the limitation of oxygen in the tissue can result in a myocardial infarction.^{5,6}

Wellens syndrome can be represented by two electrocardiographic variants type A and Type B, in which the first biphasic T waves of V2–V3 are observed, and the second negative T waves usually in the same precordial leads but on some occasions observed in all leads V1-V6; This electrocardiographic finding may or may not be accompanied by symptoms of chest pain, the cardiac biomarkers are normal or slightly elevated, and there are no signs of ST segment elevation or infarction in the electrocardiogram.^{3,5,7}

Patients with this entity should be treated pharmacologically as an acute myocardial infarction until they have an interventional cardiology evaluation, since a high percentage of patients will develop this entity within 7 days after clinical presentation, even without symptoms. characteristic, in cardiac catheterization not only the concentric plaques of the vessels are the cause of stenosis, cases of anomalous muscle fascicles on the artery have been reported, which cause the same clinical picture and the same outcome.^{3,8}

The importance of taking into account this electrocardiographic pattern and the possible short-term consequence makes the emergency department adopt the skills in timely diagnosis and send primary intervention for these patients.

Conclusion:

As soon as the diagnosis of Wellens Syndrome is suspected, it is necessary to send him to third level care to perform a complete myocardial viability protocol to determine whether or not percutaneous coronary intervention is required since this pattern correlates with critical stenosis. of the proximal or middle segment of the anterior descending artery, with T wave

inversion in the right precordials having a sensitivity of 69%, specificity of 89% and a positive predictive value of 86% for the finding of a significant stenosis of this artery⁸. Performing a cardiac stress test is contraindicated because it increases oxygen demand in the myocardium and can lead to fatal outcomes for the patient. Knowledge of the electrocardiographic characteristics is essential for the emergency clinician to suspect and promptly diagnose patients who require management by interventional cardiology, to avoid fatal outcomes.

Bibliography:

1. Singh D, Suliman I, Chyshkevych I, Dabage N. A Pathognomonic Electrocardiogram That Requires Urgent Percutaneous Intervention: A Case of Wellens Syndrome in a Previously Healthy 55-Year-Old Male. *Am J Case Rep.* 2019 Jan 28;20:117-120.
2. Al-assaf O, Abdulghani M, Musa A, AlJallaf M. Wellen's syndrome: The life-threatening diagnosis. *Circulation* [Internet]. 2019;140(22):1851–2. Available at: <http://dx.doi.org/10.1161/circulationaha.119.043780>
3. Vallelonga F, Diella FA, Smith SW. High-risk Electrocardiogram Patterns. *JAMA Intern Med.* 2022;182(12):1313–1314. doi:10.1001/jamainternmed.2022.4704
4. Mathew R, Zhang Y, Izzo C, Reddy P. Wellens' syndrome: A sign of impending myocardial infarction. *Cureus* [Internet]. 2022; Available at: <http://dx.doi.org/10.7759/cureus.26084>
5. Cardona-Vélez J, Ceballos-Naranjo L, Torres-Soto S. Wellens syndrome: much more than a T wave. *Arch Cardiol Mex* [Internet]. 2018;88(1):64–7. Available at: <http://dx.doi.org/10.1016/j.acmx.2017.07.002>.
6. Ramanathan S, Soaly E, Cherian A, Heidous MA. 'T' twist: Wellens syndrome. *QJM.* 2019 May 01;112(5):373-374.
7. Wang X, Sun J, Feng Z, Gao Y, Sun C, Li G. Two case reports of Wellens' syndrome. *J Int Med Res.* 2018 Nov;46(11):4845-4851.
8. Ashraf, F. (2017). Wellens syndrome, a predictor of critical left anterior descending artery stenosis. *Postgraduate Medical Journal*, 93(1095), 53–53. <https://doi.org/10.1136/postgradmedj-2016-134260>

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