



Wellen's Syndrome –A Rare Case Report

Authors

Dr Darshankumar M Raval¹, Dr Rahulkumar Hamirbhai Humbal², Dr Nitish Topno³

¹Intern Doctor, Department of Emergency Medicine, SSGH, Vadodara

^{2,3}Resident Doctor, Department of Emergency Medicine, SSGH, Vadodara

Abstract

Wellens' Syndrome first described by de Zwaan in 1982 is the characteristic T wave inversions indicating left anterior descending arterial (LAD) occlusion determined at chest derivations. Identifying the syndrome carries significant diagnostic any prognostic value. Because typical electrocardiographic (ECG) symptoms refer to critical occlusion of LAD and the patients with Wellens' Syndrome generally have acute myocardial infarction (MI) in a week and the risk of sudden cardiac arrest is respectively high.

Keywords: *T inversion, wellen's syndrome, myocardial infarction.*

Background

Wellens' Syndrome is a pattern of electrocardiographic T-wave changes associated with critical, proximal left anterior descending (LAD) artery stenosis. Diagnostic criteria of Wellens' Syndrome are history of chest pain, no cardiac enzyme elevation, no ST-segment elevation, no loss of precordial R waves, no pathologic precordial Q waves and typical T-wave changes. Wellens' Syndrome refers to the two different types of T wave pattern that are seen at the painless period. In Type A, which is the commonest form (75%), there are deep negative T waves in leads V₂ and V₃. In type B (25%), there are biphasic T waves typically observed in V₂ and V₃. Angiography to diagnose LAD occlusion is necessary. cardiac catheterization is important to prevent myocardial necrosis. In this case report we are presenting the case of 45 year old man presented with history of chest pain since 2 hour and T inversion

Case Details

A 45 year old male patient admitted to emergency department with the complaint of typical, pressure like chest pain lasting for about 2 h. Pain was radiating to back. He also had breathlessness at rest since 2 hours. He had hypertension (HT). Physical examination and ECG results were interpreted as normal. She was expressing that the severity of the pain was gradually decreasing after giving sublingual nitroglycerate. On ECG which was taken two hours later, in the painless period, T wave inversions were seen in the leads V₂ and V₃. Troponin I and CKMB level was normal. The echocardiography (ECHO) demonstrated normal heart function with ejection fraction was about 55%. The patient was brought to angiography laboratory immediately and 90–95% LAD occlusion was observed. The patient was discharged from the hospital without any complication after angiographic intervention with aspirine 150mg OD for 7 day with follow up then after.



Figure 1-characteristic ECG finding of wellen's syndrome type A

Discussion

T wave inversion is the most common ECG finding on the patients who are evaluated for the possible acute coronary syndrome in the emergency department (30%) and generally interpreted as nonspecific ST-T deviations.

MI (with or without ST elevation), myocarditis, pulmonary embolism, left ventricular hypertrophy, Wolf-Parkinson-White Syndrome, Juvenile T wave pattern and digitalis effect can also lead to T inversion. T inversion due to ischemia are symmetric and deep. Biphasic T wave is such a wave that has two components starting with a positive wave which is then passing below the isoelectric line. It is more specific for MI. de Zwann and colleagues 1 examined the ECG results of the 145 patients who were excepted as unstable angina patients in 1982. They described the T wave deviations which were observed in the 26 of the patients (18%) as characteristic for the syndrome. Among these patients 16 were decided to be followed up conservatively only with medication. They discovered anterior MI in a few weeks in 12 of these 16 patients. They concluded that the patients who had typical ECG findings described above should necessitate an immediate invasive treatment. In 1983 Haines and colleagues found out similar results in another study. In 1980 Gerson and Mc Henry studied the ECG findings of 760 patients who underwent angiography. They defined the similar findings in the leads DI, AVL and V_{4-6} as negative U waves. There were 27 patients with the defined negative U wave in their study. Eighty nine percent of these 27 patients had

critical occlusions in LAD or left main artery similar to the lesions described in the de Zwann's study. They also reported 80% of the patients had also left ventricular dysfunction. Stress tests were not recommended for the patients with typical Wellens' Syndrome due to the possibility of a critical occlusion in the emergency department. Medical treatment was shown to be unsatisfactory for the prevention of the mortality and morbidity. Invasive angiographic intervention is advised for definitive treatment

Conclusion

There is no current guidelines for clinical diagnosis and treatment of wellen's syndrome. Physician should know the characteristic ECG finding of type A and type B wellen's syndrome and if present then urgent angiographic intervention within 1 week should be done.

References

1. Wellens' Syndrome – Report of two case Serdar Ozdemir, Turk J Emerg Med. 2015 Dec; 15(4): 179–181. Published 2016 Mar 11. doi: 10.1016/j.tjem.2014.07.002 PMID: PMC488220
2. de Zwaan C., Bär F.W., Wellens H.J. Characteristic electrocardiographic pattern indicating a critical stenosis high in left anterior descending coronary artery in patients admitted because of impending myocardial infarction. Am Heart J. 1982;103:730–736. [PubMed]
3. Mead N.E., O'Keefe K.P. Wellen's Syndrome: an ominous EKG pattern. J Emerg Trauma Shock. 2009;2:206–208 [PubMed]
4. Rhinehardt J., Brady W.J., Perron A.D., Mattu A. Electrocardiographic manifestations of Wellens' Syndrome. Am J Emerg Med. 2002;20:638–643
5. Tandy T.K., Bottomy D.P., Lewis J.G. Wellens' Syndrome. Ann Emerg Med. 1999;33:347–351.[PubMed]
6. Brady W.J., Harrigan R.A., Chan T.C. Acute coronary syndrome. In: John A.,

Marx M.D., editors. Rosen's Emergency Medicine Concepts and Clinical Practice. 7th ed. Mosby; Philadelphia: 2010. pp. 947–983.

7. Tatli E., Aktoz M. Wellens' Syndrome: the electrocardiographic finding that is seen as unimportant. *Cardiol J.* 2009;16:73–75. [PubMed]