



Wellen's Warning

AKA Wellen's Sign

AKA Wellen's Syndrome

AKA Ominous T Wave Syndrome

ECG diagnosis in patients presenting with critical LAD stenosis is of utmost importance. T wave changes in acute ischemia is well described. According to Henry J Marriott, MD the phenomenon of sudden T wave inversion was first noticed and described in the late 1970's by ICU nurses who noticed that shortly after the "ekg finding" the patients often deteriorated. Dr. Wellen became aware of this and an article published the first account under his name.

THE SYNDROME

A. EKG pattern of T waves in the precordial leads that are associated with a critical stenosis of the proximal left anterior descending coronary artery

B. Criteria for Wellen's Syndrome

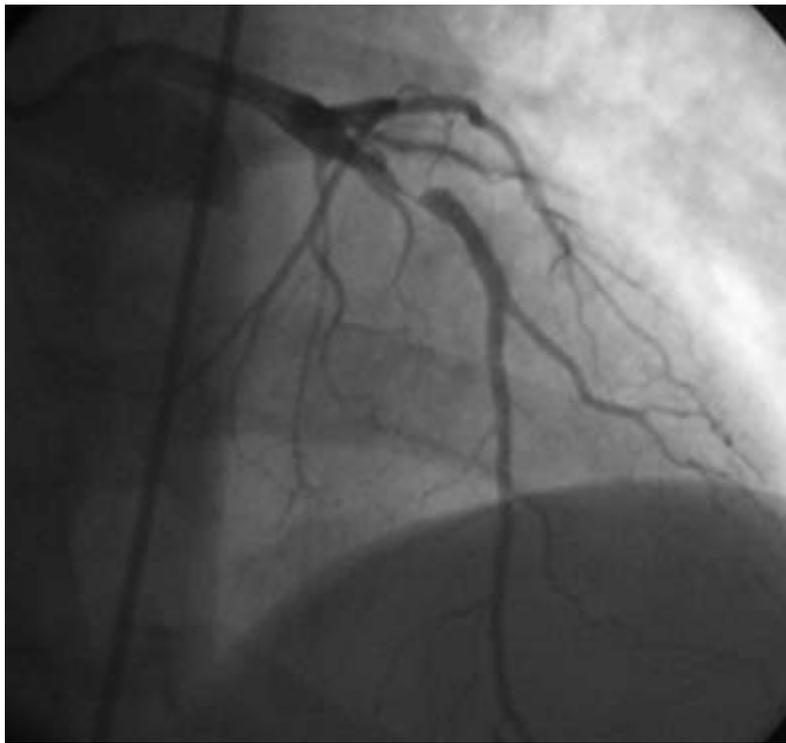
- Prior history of chest discomfort usually recent and of the unstable angina type.
- Little or no cardiac enzyme elevation.
- No pathologic precordial Q waves.
- Little or no ST-segment elevation.
- No loss of precordial R waves.
- Biphasic T waves in leads V_2 and V_3 (Wellen's Type 1) or symmetric, often deeply inverted T waves in leads V_2 and V_3 (Wellen's Type 2).
- In V_2 and V_3 isoelectric or minimally elevated (1 mm) takeoff of the ST segment. A concave or straight ST segment passing into a negative T Wave at an angle of 60 to 90 degrees and a symmetrically inverted T wave
- NOTE: During the chest discomfort the EKG is usually normal. A Wellen's Warning EKG usually shows these changes during the pain-free interval when other evidence of ischemia would normally be absent. Occasionally increased ST elevation can be noticed during the unstable anginal discomfort in leads V_2 and V_3

C. So why is it important to know about Wellen's Syndrome?

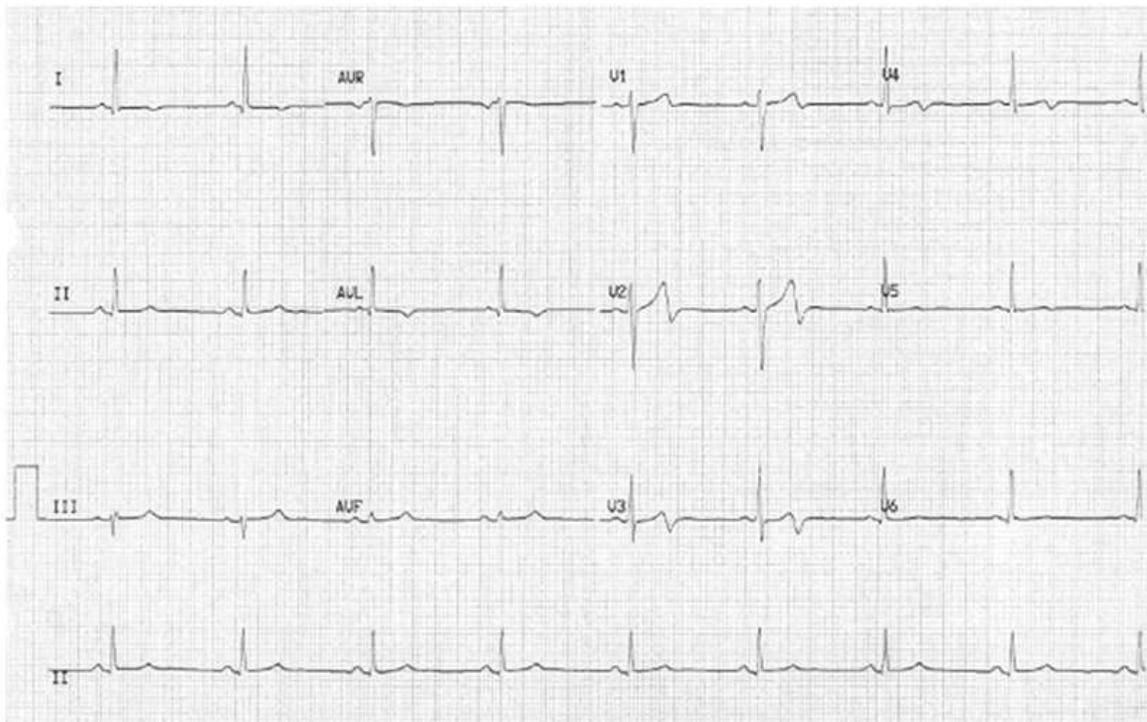
- It is highly specific for left anterior descending coronary artery lesions.
- These patients are at risk for an extensive anterior wall myocardial infarction, bilateral bundle branch block, septal rupture and/or sudden death.
- Early cardiac catheterization with subsequent Stenting or CABG is now recommended for these patients.

D. Diagnostic Pitfalls

- Diagnosing the biphasic T-wave pattern as "nonspecific" EKG changes, which they are not.
- Diagnosing the EKG changes as nontransmural or subendocardial ischemia/infarction and treating them with conservative therapy.
- In EDs with chest pain centers, placing these patients in the "nonspecific" EKG protocol and doing an exercise stress test on them. (Exercise stress tests are contraindicated in the presence of suspected left main lesions.)
- LVH and or large U waves can cause both false positive and false negative results



Coronary Angiogram- Notice that the proximal LAD has a 96 % obstruction



Example of Wellen's Warning Type 1

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Reference: Wellens Syndrome, Annals of Emergency Medicine, March 1999, Vol.33, No. 3, pp347-351.

Am Heart J 103:730, 1982

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Dysrhythmia Recognition and Management 2nd edition p. 142. Saunders 1993