The importance of recognizing Wellens Sign: How it can save lives

Firas Ashour MD, Michel Juarez MD, Mohammed Abujulaydah MD

Case

A 46-year-old woman presented to the emergency department with a 2-day history of substernal chest pain radiating to her left arm, associated with shortness of breath. The initial electrocardiogram (ECG) revealed sinus rhythm with marked T-wave abnormalities in the anterolateral leads (V2–V3, extending to V4–V6). The initial troponin level was elevated at 112.5 ng/L (reference range: 0–20 ng/L). Wellens sign (Figure 1) was identified, suggesting critical stenosis of the left anterior descending (LAD) coronary artery. The patient underwent urgent left heart catheterization, which confirmed mid-LAD stenosis, and a drug-eluting stent was placed via percutaneous coronary intervention (PCI).

Discussion

Wellens sign is characterized by either biphasic or deeply symmetrical T-wave inversions, most commonly observed in leads V2–V3. These T-wave changes may extend into adjacent leads without the presence of pathological Q waves. Recognizing this ECG pattern is critical, as it reflects a pre-infarction state requiring prompt coronary angiography. Delayed or missed recognition may result in extensive anterior wall myocardial infarction. This finding was first described by de Zwaan and Wellens, and later supported in studies by Rhinehardt et al., which emphasized the diagnostic and prognostic significance of the T-wave changes in patients with critical LAD disease.[1]

Conclusion

Wellens sign is an essential, often under-recognized ECG finding that can guide early intervention and improve outcomes in patients with critical LAD stenosis.

Keywords: Wellens sign, electrocardiography, acute coronary syndrome, left anterior descending artery, T-wave inversion

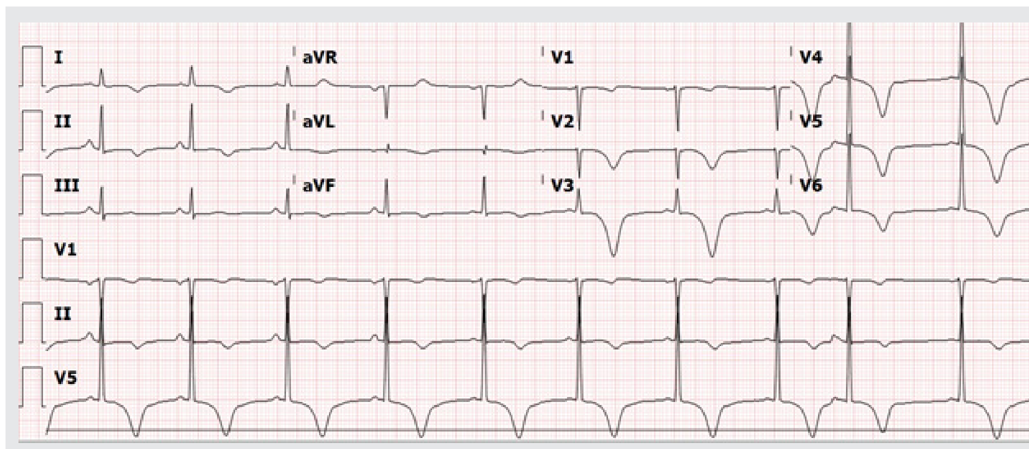

Figure 1. Electrocardiogram showing inverted T waves in leads V2–V3 extending to adjacent precordial leads without pathological Q waves.

Corresponding author: Firas Ashour
Contact Information: Firas.Ashour@ttuhsc.edu
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From: Department of Internal Medicine, Texas Tech University Health Sciences Center, Lubbock, TX (FA, MJ, MA)
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Reference

1. Rhinehardt J, Brady WJ, Perron AD, et al. Electrocardiographic manifestations of Wellens' syndrome. Am J Emerg Med. 2002;20(7):638–43. doi:10.1053/ajem.2002.34800