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### **Journal of Education and Teaching in Emergency Medicine**

#### **Title**

Wellens' Syndrome

#### **Permalink**

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#### **Journal**

Journal of Education and Teaching in Emergency Medicine, 4(1)

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#### **Publication Date**

2019

#### **DOI**

10.5070/M541042371

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## Wellens' Syndrome

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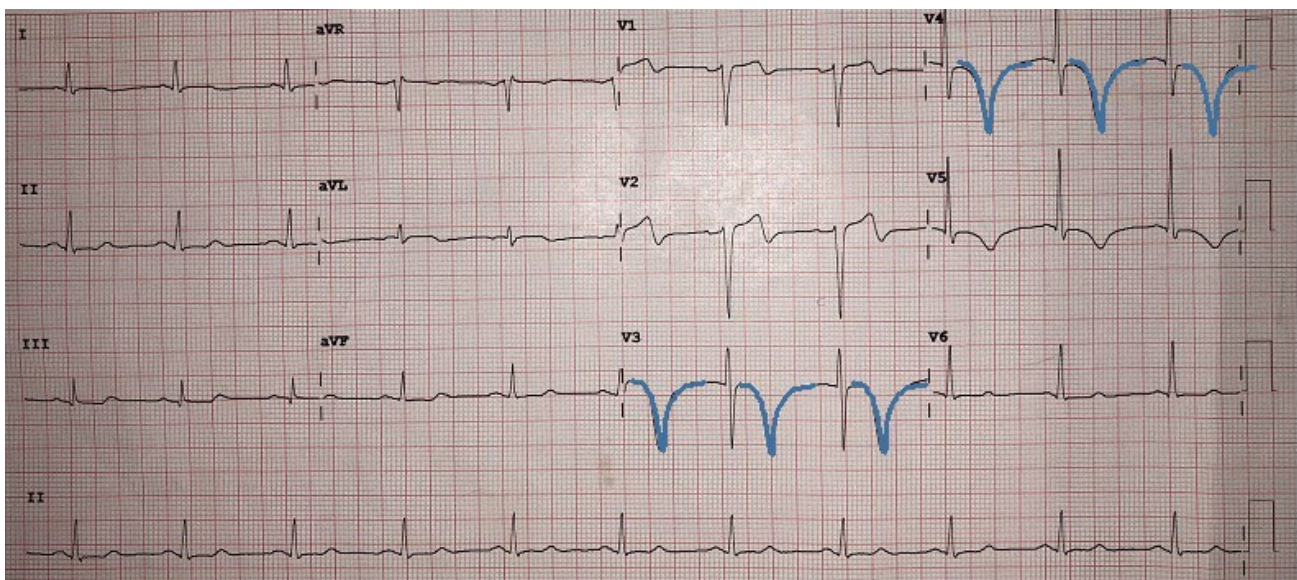
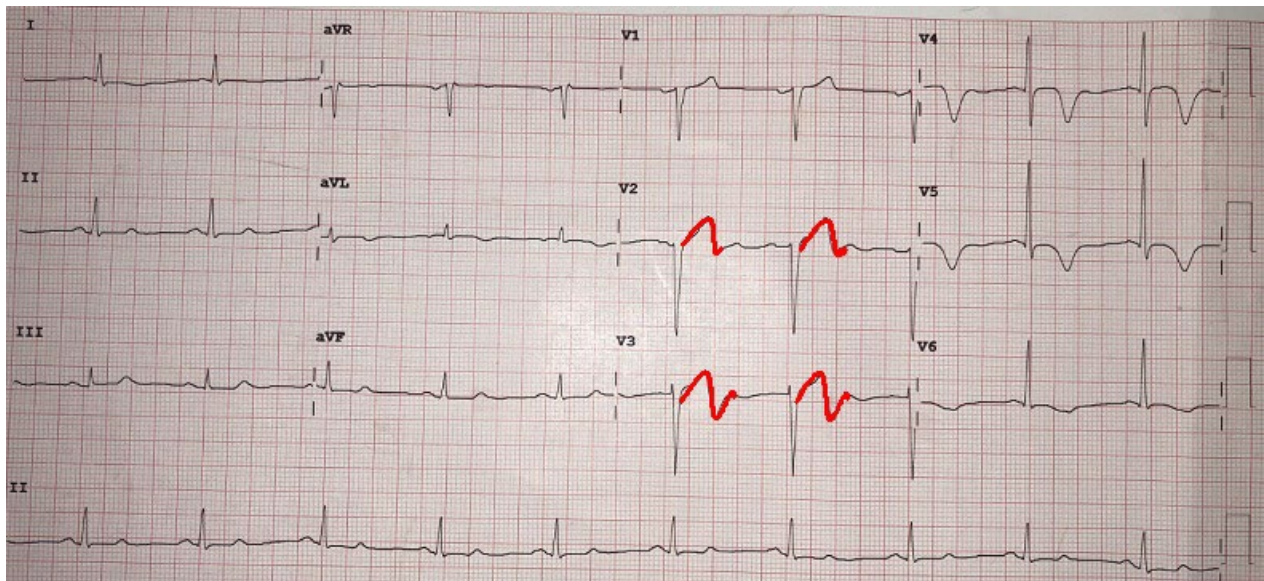
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Submitted: April 26, 2018; Accepted: August 3, 2018; Electronically Published: January 15, 2019; <https://doi.org/10.21980/J8FS8K>

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**History of present illness:** A 59 -year-old male with no past medical history, presented to the emergency department with sharp back pain and left arm numbness that began 3-4 hours prior to arrival while he doing physical activity. One hour prior to arrival, the back pain began to radiate to his chest. The pain was intermittent and 10/10 on a pain scale. He reported that nothing made the pain better or worse. Of note, the patient had a 45 pack-year smoking history. Physical exam was unremarkable.

**Significant findings:** Initial electrocardiogram (ECG) revealed the classic biphasic T waves in V2 and V3 of Wellen's syndrome (see red outlines). A second EKG demonstrated an evolving deeply inverted T wave (see blue outlines).

**Discussion:** Wellen's syndrome refers to specific ECG abnormalities in the precordial T wave segments of V2-V3.<sup>1,2</sup> Recognition of this classic ECG pattern is important because it is highly specific for critical stenosis of the proximal left anterior descending artery.<sup>2,3</sup> There are two patterns that can be seen in Wellen's syndrome. Type A has deeply and symmetrically inverted T waves in V2-V3 (seen in 75% of cases) and Type B has biphasic T waves, with initially positive and terminally negative T waves in V2-V3 (seen in 25% of cases).<sup>4</sup> The T waves can eventually evolve from type B to type A, which occurred in this patient while he was in the emergency department.

Clinically, patients may be pain-free when the pattern is detected. They may have normally or minimally elevated cardiac enzymes. Wellen's syndrome can be the pre-infarction stage of coronary artery disease, meaning that these patients are at high risk for extensive anterior wall myocardial infarction within days to weeks.<sup>3</sup> This patient was taken to the catheterization lab. Angiogram revealed a subtotal proximal left anterior descending artery occlusion for which a drug-eluting stent was placed and the patient was discharged in good condition.

**Topics:** Wellen's, STEMI, electrocardiogram, ECG, coronary artery disease, cardiology.

#### References:

1. Kyaw K, Latt H, Aung SS, Tun TM, Phoo WY, Yin HH. Atypical presentation of acute coronary syndrome and importance of Wellens' syndrome. *Am J Case Rep.* 2018;19:199-202. doi: 10/12659/AJCR.907992
2. Nisbet BC, Zlupko G. Repeat Wellen's syndrome: case report of critical proximal left anterior descending artery restenosis. *J Emerg Med.* 2010;39(3):305-08. doi: 10.1016/j.jemergmed.2007.10.043
3. Rosales-Castillo A, Plaza-Carrera J. Wellen's syndrome. *Rev Clin Esp.* 2017;217(8):491.
4. Hsu YC, Hsu CW, Chen TC. Type B Wellen's syndrome: Electrocardiogram patterns that clinicians should be aware of. *Ci Ji Yi Xue Za Zhi.* 2017;29(2):127-128. doi: 10.4103/tcmj.tcmj\_26\_17