

Wellens' syndrome

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A 42-year-old man with no significant previous medical history was referred to the emergency department (ED) based on intermittent oppressive thoracic pain that had persisted for 24 h, and was associated with diaphoresis and nausea. Anti-ischemic medication was initiated prior to his arrival, and his pain resolved itself. The patient's physical examination was unremarkable.

An electrocardiogram (ECG) revealed sinus rhythm with biphasic T-wave inversions in leads V1–V5 and isoelectric ST segment (Fig. 1a). These findings suggested a Wellens' syndrome.

The patient exhibited a recurrence of severe pain in his midchest accompanied by diaphoresis. A new ECG revealed pseudo-normalization of T waves, a sign of hyperacute ST elevation myocardial infarction (Fig. 1b).

General treatment measures—including sublingual nitroglycerin, anticoagulant with unfractionated heparin and dual antiplatelet therapy—were initiated.

An emergent coronary angiography revealed critical proximal L.A.D artery occlusion; a successful primary percutaneous coronary intervention with a drug-eluting stent implantation was accordingly performed (Fig. 1c, d).

Wellens' syndrome is a preinfarction stage of coronary artery disease. It consists of T-wave abnormalities in the anterior chest leads, symmetric and deeply inverted T waves in leads V2 and V3 and occasionally in leads V1, V4, V5, and V6, or biphasic T wave in leads V2 and V3 with isoelectric or minimally elevated (1 mm) ST segment.

These changes are associated with critical obstruction in the proximal L.A.D coronary artery [1, 2].

Wellens' syndrome is not always an acute process. The pattern may manifest itself persistently over a period of weeks, and its natural history is an imminent anterior wall acute myocardial infarction. T-wave changes in Wellens' syndrome are typically observed in asymptomatic patients. Although these patients may initially respond well to medical management, they ultimately fare poorly with conservative therapy and require revascularization strategies [1].

Occasionally, due to insidious evolution and pain-free intervals, provocative cardiac stress tests are performed in these patients with the implicit risk of developing acute myocardial infarction or sudden death [1, 3].

Increased awareness of Wellens' syndrome facilitates communication between emergency physicians and cardiologists, and significantly improves patient outcomes. Once Wellens' syndrome has been recognized, general treatment measures for non-ST-segment elevation coronary syndrome—including anti-ischemic therapy such as nitrates and beta blockers in the absence of contraindications such as hypotension or risk of developing cardiogenic shock, anticoagulant with fondaparinux and dual antiplatelet therapy with P2Y12 receptor inhibitors—must be initiated in the ED, and a cardiology consultation for invasive coronary angiography, followed by coronary revascularization as necessary to further evaluate the patient [3, 4].

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Statement of human and animal rights All procedures performed in studies involving human participants were in accordance with the

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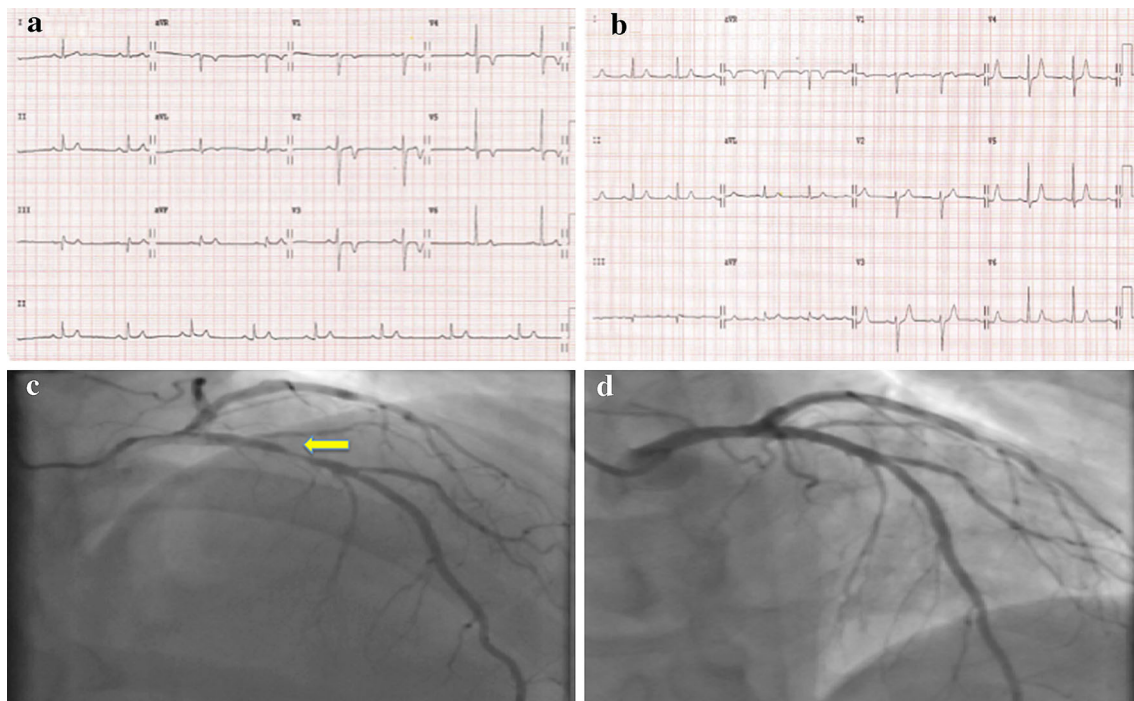


Fig. 1 **a** 12 lead electrocardiogram showing sinus rhythm with biphasic T-wave inversions in leads *V1–V5* and isoelectric ST segment due to Wellens' syndrome in an asymptomatic patient. **b** ECG revealing pseudo-normalization of T waves, a sign of hyperacute ST elevation myocardial infarction, in the same patient.

c Left coronary angiogram (AP cranial view) showing a critical occlusion of the proximal portion of the left anterior descending artery (*arrow*). **d** Coronary blood flow successfully restored with balloon angioplasty followed by placement of a drug-eluting stent

ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

Informed consent Informed consent was obtained from all individual participants included in the study.

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