

Precordial junctional ST-segment depression with tall symmetric T-waves signifying proximal LAD occlusion, case reports of STEMI equivalence

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Abstract

Timely reperfusion therapy by means of primary percutaneous coronary intervention (PCI) is the preferred treatment for patients with ST-segment elevation myocardial infarction. A significant number of patients with large acute myocardial infarction, caused by occlusion of an epicardial coronary artery, do not show ST-elevation on the electrocardiogram. Other ECG abnormalities may be present, the so called STEMI-equivalents. One such STEMI equivalent, junctional ST-segment depression followed by tall symmetrical T-waves in the precordial leads, often in combination with slight ST-elevation in lead AVR, has been associated with proximal occlusion of the left anterior descending coronary artery. Recognition of this ECG pattern by ambulance staff, emergency physicians and interventional cardiologists involved in STEMI networks, is important to ensure timely reperfusion therapy in these patients.

In this paper we present three patients with typical symptoms of acute myocardial infarction and the ECG pattern with slight J-point depression combined with tall, symmetrical T-waves.

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Keywords:

12-Lead electrocardiogram; Acute myocardial infarction; ST-segment; Acute LAD artery occlusion; Primary percutaneous coronary intervention

Introduction

Timely reperfusion therapy by means of primary percutaneous coronary intervention (PCI) is the preferred treatment for patients with ST-segment elevation myocardial infarction [1]. A significant number of patients with large acute myocardial infarction, caused by occlusion of an epicardial coronary artery, do not show ST-elevation on the electrocardiogram [2]. Other ECG abnormalities may be present, the so-called STEMI-equivalents. One such STEMI equivalent, junctional ST-segment depression followed by tall symmetrical T-waves in the precordial leads, often in combination with slight ST-elevation in lead AVR, has been associated with proximal occlusion of the left anterior descending coronary artery [3,4]. Recognition of this ECG pattern by ambulance staff, emergency physicians and interventional cardiologists involved in STEMI networks, is important to ensure timely reperfusion therapy in these patients.

In this paper we present three patients with typical symptoms of acute myocardial infarction and the ECG pattern with slight J-point depression combined with tall, symmetrical T-waves.

Case 1

A 44-year-old Caucasian male, without a cardiac history, was transferred to our center by ambulance with acute chest pain. The patient was hemodynamically stable. The ECG from the ambulance at first medical contact showed prominent T-waves and J-point depression in the precordial leads (Fig. 1A). The patient was treated with aspirin, clopidogrel and unfractionated heparin. On arrival, another ECG was obtained. This ECG showed unchanged J-point depression and prominent symmetrical T-waves. The interventional cardiologist on call recognized the ECG pattern associated with occlusion of the proximal LAD, and the patient was immediately sent to the catheterization laboratory. Cardiac catheterization showed a 100% proximal LAD occlusion (Fig. 1B). Percutaneous coronary intervention was successfully executed and a 3.5 mm × 12 mm Xience™ drug eluting stent was placed (Fig. 1C). The subsequent clinical course was uneventful. Approximately fifteen minutes after successful reperfusion the ECG pattern had returned to normal.

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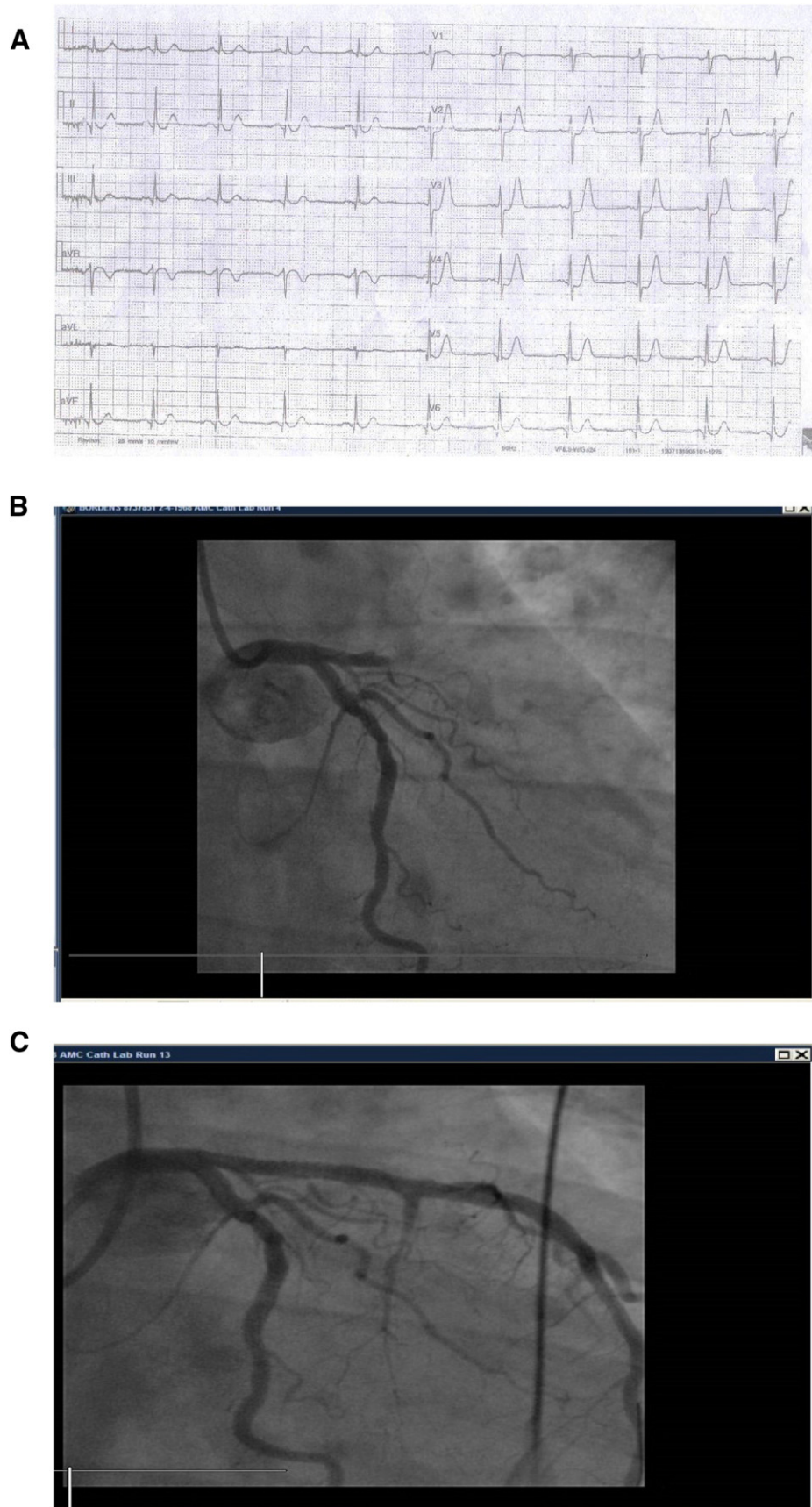


Fig. 1. A. The ECG obtained at 3:05 pm in the ambulance at first medical contact. B. Coronary angiography showing complete proximal LAD occlusion. C. Coronary angiography showing left coronary artery after successful reperfusion of the LAD followed by stent placement.

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