

ST-Segment Elevation – Where is the Myocardial Infarction?

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In the emergency department (ED), ST-segment elevation typically prompts immediate investigation for suspected acute myocardial infarction (AMI). However, it is essential to recognize that not all ST-segment changes correspond to Acute Coronary Syndrome (ACS), and a careful, systematic exclusion of life-threatening causes – particularly AMI – remains a clinical priority^[1,2,3].

We report the case of a 60-year-old male with a background of dwarfism, renal lithiasis, and bladder neoplasia, who presented to the ED following a syncopal episode. He denied chest pain or dyspnea but reported months-long hematuria, being under regular urological follow-up. On physical examination, he was hemodynamically stable, afebrile, and eupneic. The admission ECG showed sinus rhythm, ST-segment elevation in leads V1-V4, and hyperacute T waves (Figure 1), leading to immediate transfer to the resuscitation area and initiation of ACS workup.

A bedside transthoracic echocardiogram revealed preserved global systolic function and no segmental wall motion abnormalities, suggesting a low likelihood of AMI. Laboratory tests demonstrated hemoglobin of 11.3 g/dL, acute kidney injury (creatinine

2.84 mg/dL), significant hyperkalemia (7.6 mmol/L), and metabolic acidemia (pH 7.398), with normal cardiac injury biomarkers.

Urgent potassium-lowering therapy led to a partial reduction in serum potassium (6.9 mmol/L), without elevation in cardiac markers. A repeat ECG revealed resolution of the ST-segment elevation but persistence of hyperacute T waves (Figure 2). Abdominopelvic CT identified bilateral ureterohydronephrosis. Following dialysis, ECG abnormalities fully resolved, and the patient was referred to Urology for ongoing management of obstructive nephropathy.

This case illustrates a rare presentation of hyperkalemia with ST-segment elevation and underscores the importance of maintaining a broad differential diagnosis. Nevertheless, it is essential to rigorously exclude Acute Coronary Syndrome (ACS) in the presence of ST-segment changes.

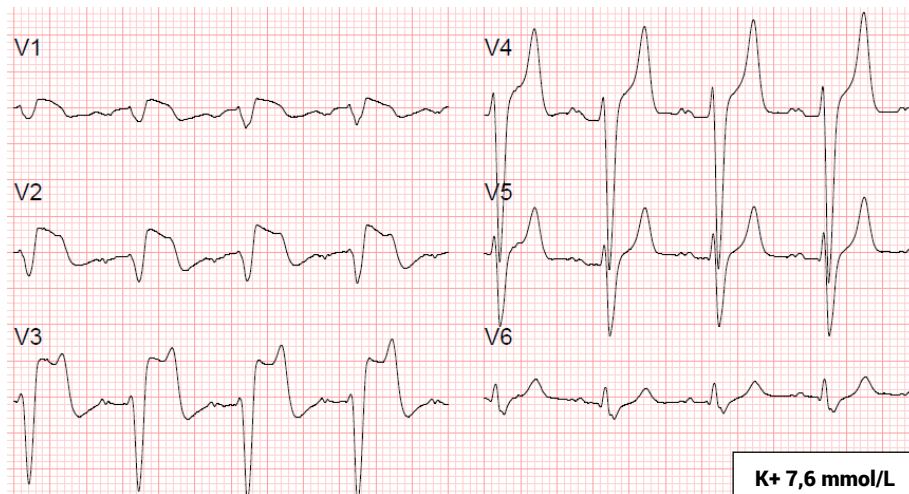


Fig 1. Representation of the precordial leads from the 12-lead electrocardiogram performed at admission to the emergency department, showing ST-segment elevation in leads V1–V4.

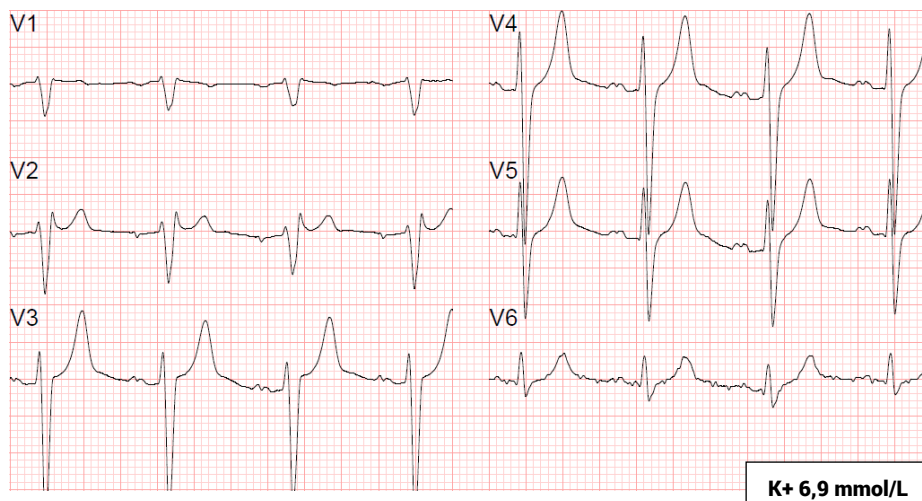


Fig 2. Following emergency potassium-lowering therapy with insulin, hypertonic glucose, and a beta-2 agonist, correction of the ST-segment elevation was observed.

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DISCLOSURE

The authors have no conflict to disclose.