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CLINICAL IMAGE

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Myocardial infarction with simultaneous anterior and inferior ST-segment elevation

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Key Clinical Message

Infarction of the anterior myocardial wall results in anterior ST-elevation. However, ST-deviation may also appear inferiorly and may aid in localizing the culprit lesion.

KEYWORDS

coronary angiography, coronary circulation, electrocardiography, myocardial infarction, ST-elevation myocardial infarction

1 | CASE HISTORY

A 65-year-old man presented with chest pain. 12-lead ECG showed anterior and inferior ST-elevation (Figure 1). On coronary angiography, the right coronary system had mild, non-obstructive disease (Video S1) and the culprit lesion appeared to be an occlusion (with partial recanalization) of the left anterior descending artery (LAD) distal to the first septal (S1) and diagonal (D1) branches (Video S2). Flow was restored during percutaneous coronary intervention (Video S3), leading to significant ST-resolution (Figure 2).

Anterior myocardial wall infarction results in anterior ST-elevation.[1] However, ST-deviation may also appear inferiorly.[1-3] Occlusion proximal to S1 and D1 leads to basal anterior wall infarction, associated with reciprocal ST-depression inferiorly.[1-3] Simultaneous anterior and inferior ST-elevation may occur if the ST-vector points more inferiorly.[1] This could be due to a wrapped LAD reaching the apex to supply the distal inferior wall and/or an occlusion below S1 and D1, the latter suggesting

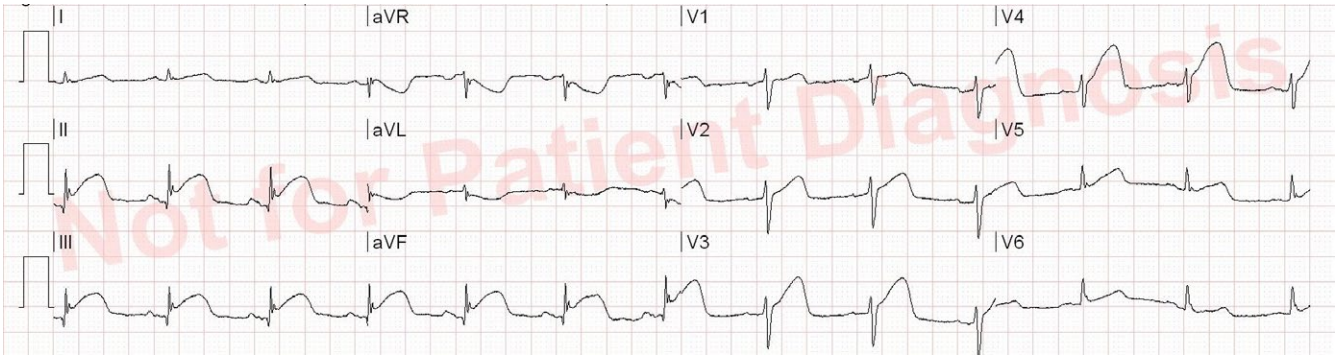

FIGURE 1 Prehospital 12-lead ECG showing ST-segment elevation and hyperacute T-waves in the anterior (mainly V2-V4) and inferior (II, III, aVF) leads

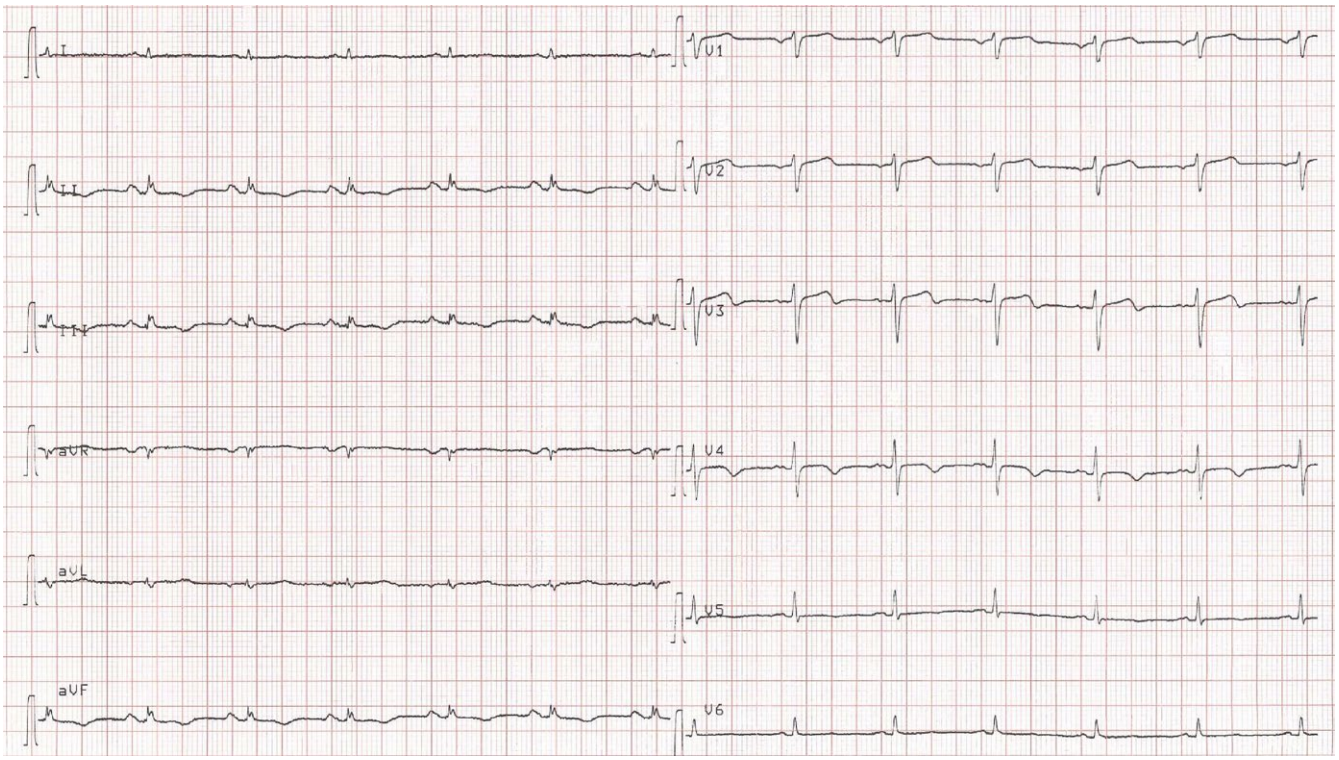

FIGURE 2 12-lead ECG after reperfusion showing significant ST-segment resolution

a smaller ischemic region.[1-3] With an occlusion located between S1 and D1, the ST-segment in the inferior leads is less predictable.[1-3] Interestingly, in the present case, S1 originated distally to D1. Determining the location of the occlusion and the presence of a wrapped LAD is prognostically important.[1]

CONFLICT OF INTEREST

None declared.

AUTHOR CONTRIBUTION

AK and SA: wrote the initial draft. CA and MP: provided expertise in ECG and angiography interpretation. All authors participated in collecting patient data (pictures and clinical history), reviewing the literature, interpretation of clinical findings, critical revision of the manuscript for important intellectual content, and approval of the final version.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

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