PICTORIAL MEDICINE

Anterior myocardial infarction due to left anterior descending artery occlusion with stand-alone ST elevation in leads I and aVL

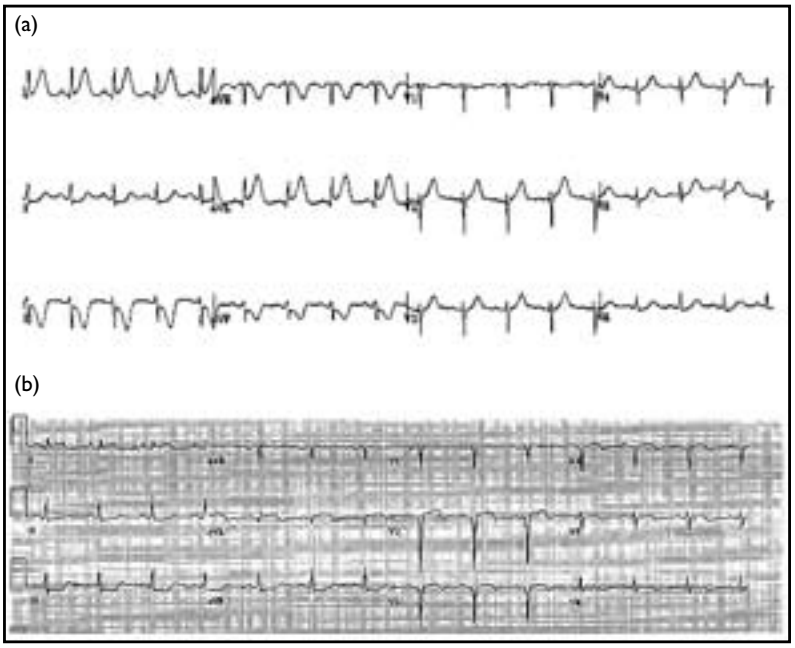

FIG 1. (a) Baseline 12-lead electrocardiogram (ECG) showing ST-elevation involving leads I and aVL, while the anterior precordial leads are unremarkable. (b) Post-procedural ECG showing progressive loss of R waves and the development of pathological Q waves over the anterior precordial leads, indicative of an anterior myocardial infarction

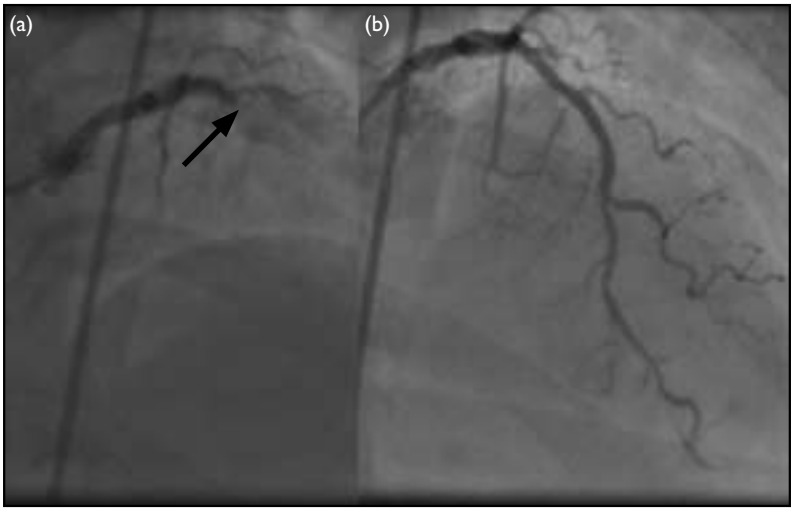

FIG 2. (a) Diagnostic coronary angiography showed a thrombus-laden, totally occluded proximal left anterior descending artery (arrow). (b) A 3.0 x 24 mm stent over the diseased segment was successfully performed

A 52-year-old woman with a history of hypertension and hyperlipidaemia presented to our institution with a 4-hour history of severe, compressing chest pain. A 12-lead electrocardiogram (ECG) showed ST-elevation involving leads I and aVL, while the anterior precordial leads were unremarkable (Fig 1a). The provisional diagnosis was a non–high-risk high-lateral myocardial infarction (MI) due to diagonal artery or left circumflex artery (LCx) occlusion.

The patient was scheduled for an emergency revascularisation. Diagnostic coronary angiography showed a thrombus-laden, totally occluded proximal left anterior descending artery (LAD) [Fig 2a]. Both the LCx and right coronary artery were normal, and there was no collateral to the LAD. A primary coronary revascularisation of the occluded LAD with implantation of a 3.0 x 24 mm stent over the diseased segment was successfully performed (Fig 2b). A postoperative ECG showed progressive loss of R waves and the development of pathological Q waves over the anterior precordial leads, indicative of an anterior MI (Fig 1b).

It is known that stand-alone ST-elevation of leads I and aVL represents a high-lateral MI due to the thrombotic occlusion of either a diagonal artery or LCx. In our case, the angiographic finding and the later appearance of pathological Q waves over the anterior precordial ECG leads confirmed that this was a high-risk anterior MI. To our knowledge, this is the first report of an anterior MI with stand-alone ST elevation in leads I and aVL. We have shown that the ECG can be unreliable for determining the MI site and the affected vessel.

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