A 46-year-old male, ex-smoker, with hypertension and hypercholesterolemia, was attended by the emergency mobile service (EMS) because of retrosternal chest pain lasting for 30 min. The initial electrocardiogram (ECG), with waning symptoms (Panel A), showed sinus tachycardia, anterior ST-segment elevation and J point descent in inferior leads and V5-V6. A second ECG (Panel B) showed no ST changes.

The patient was admitted to our hospital with presumptive diagnosis of acute coronary syndrome with transient ST-segment elevation. He remained asymptomatic under treatment with intravenous nitroglycerin, aspirin, clopidogrel, and enoxaparin. Physical examination was normal. Blood analysis including serial CPK and troponin-T determinations was normal. Repeated ECG and telemetry did not show ST changes. Chest X-ray and transthoracic echocardiogram were normal. Coronary angiography showed non-significant stenosis and intravenous metilergonovine did not promote coronary vasospasm.

Retrospective analysis of ECGs revealed different high-pass filters in ECG with ST-segment elevation (band-pass filters 1–30 Hz) with respect to ECG without ST changes (0.05–40 Hz). New ECG obtained with the same EMS monitor/recorder, in the asymptomatic patient, again displayed marked ST changes. Inadequate high-pass filters programmed for monitor and 3-lead manual strips (1 Hz) reproduced ST-segment elevation that disappeared instantaneously during 12-lead automatic ECG (Panel C) with standard high-pass filters (0.05 Hz).

ST-segment changes are important for the diagnosis of acute ischaemia, pericarditis, Brugada syndrome, and other electrical diseases, but ST-segment configuration can be spuriously changed by electronic means. This case underscores the importance of adequate technical standards in ECG recordings.