Acute myocardial infarction secondary to direct myocardial infiltration by a malignant neoplasia

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A 24-year-old male, with a previous history of osteosarcoma with cerebral and pulmonary metastasis, presented to the emergency room with severe chest pain, dyspnoea, and diaphoresis. Physical examination revealed an apical S4 gallop, abolition of left breath sounds, and right hemiparesis. On electrocardiogram, persistent lateral ST-segment elevation was noted (Panel A). Echocardiogram showed lateral akinesis with global left ventricular ejection fraction preserved, severe pericardial effusion probably related to the malignant neoplasia, and infiltration of mediastinum by the pulmonary metastasis (arrows, Panel B). He was referred for urgent coronary angiography, which revealed no significant stenosis (Panels C and D). Interestingly, ventriculography showed a great distance between epicardic coronary arteries and left ventricular cavity (Panel E). Magnetic resonance imaging was performed and confirmed the direct infiltration of the neoplasia in the pericardium and myocardium (arrows, Panel F). The patient was treated with anti-ischaemic and opiate analgesic drugs and died a few days later by respiratory failure.

Malignant cardiac neoplasias are an extremely unusual cause of acute myocardial infarction, usually a consequence of an external compression of large coronary arteries by infiltrative processes or coronary tumour embolisms. To the best of our knowledge, this is the first report of an acute myocardial infarction caused by direct myocardial neoplastic infiltration.

Supplementary material
Supplementary material is available at European Heart Journal online.