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STUDIUM PRZYPADKU / *CLINICAL VIGNETTE*

Cardiac involvement of lung cancer mimicking myocardial infarction

Przerzuty do serca w raku płuca imitujące zawał serca

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A 58-year-old man (a heavy smoker), without prior medical history, was admitted to the Department of Cardiology in the emergent diagnosis of acute coronary syndrome with ST segment elevation in the third hour of retrosternal pain. The initial ECG revealed sinus rhythm 85/min, left anterior fascicular block, QS pattern in V_1–V_3 with ST-segment elevation in the leads V_2 through V_6 (up to 2 mm in V_2–V_3), with symmetric negative T waves in the leads I, aVL, V_2–V_5 (Fig. 1). Laboratory tests, except for a small leukocytosis (11×10^9/L, N to 10×10^9/L), and elevations of troponin T (30 ng /L, N to 14 ng/L), were within normal limits. Urgent coronary angiography was performed, which showed critical changes in the distal circumflex branch narrow artery (< 2 mm), with no significant haemodynamic atherosclerosis in other arteries. Due to the location of the stenosis and artery calibre, coronary angioplasty was not performed. Despite typical pharmacological treatment, pain relief was not achieved. The subsequent ECG recorded persistent ST-segment elevation with negative T waves in precordial leads, without a change in troponin values (the II. troponin: 27 ng/L and the III: 28 ng/L). Based on radiological images of the chest, a tumour in the left lung with obliteration of the left heart border was suspected. Transthoracic echocardiography demonstrated the presence of a tumour sized $10 \times 7 \times 11$ cm with involvement of the pericardium (without evidence of fluid), and probably the anterior wall of the left ventricle. To differentiate the cardiac mass, we performed cardiac magnetic resonance imaging and confirmed an anterior mediastinal tumour, causing extensive atelectatic changes in the left lung and infiltrating the anterior wall of the left ventricle (Figs. 2, 3). The patient was referred to the oncology centre where metastatic small cell carcinoma of the left lung was diagnosed. Three months after the start of chemotherapy, the patient died.

The most common neoplasms associated with cardiac metastasis are lung cancer, oesophageal cancer, lymphoma, breast cancer, leukaemia, stomach cancer, and melanoma. Their symptomatology is largely dependent on the size of the tumour and its location. Myocardial infiltration by tumour cells may lead to the occurrence of arrhythmias and cardiac conduction, and less non-specific ST segment changes.

In this case, the clinical and ECG changes initially showed a myocardial infarction with ST segment elevation anterior wall. However, subsequent ECGs, serial measurements of cardiac troponin and results of imaging studies did not confirm the initial diagnosis. In the era of invasive treatment of myocardial infarction, it is necessary to consider other causes of ST-T changes in the ECG and increased troponin values. Extended cardiac diagnosis and a multidisciplinary approach are often necessary to determine the correct diagnosis.

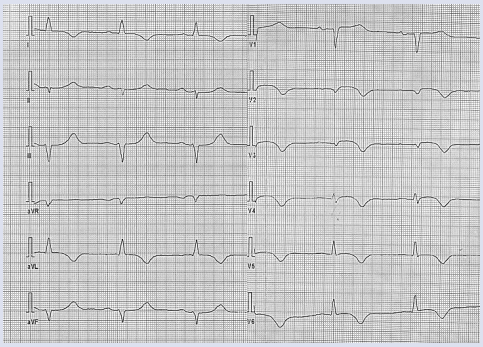

Figure 1. Electrocardiogram during retrosternal pain

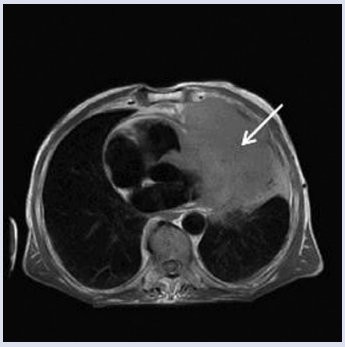

Figure 2. Two-phase magnetic resonance image, showing a large tumour of the left lung (arrow) infiltrating the wall of the left ventricle

Figure 3. Magnetic resonance image, cinematic sequences, two projection chamber, revealed a large tumour of the left lung (arrow)

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Conflict of interest: *none declared*