Cardiac metastasis of non-Hodgkin's lymphoma presenting with acute antero-lateral myocardial infarction with ST-segment elevation

Akut anterolateral ST yükselmeli miyokart enfarktüsle sunulan non-Hodgkin lenfoma'nın kardiyak metastazı

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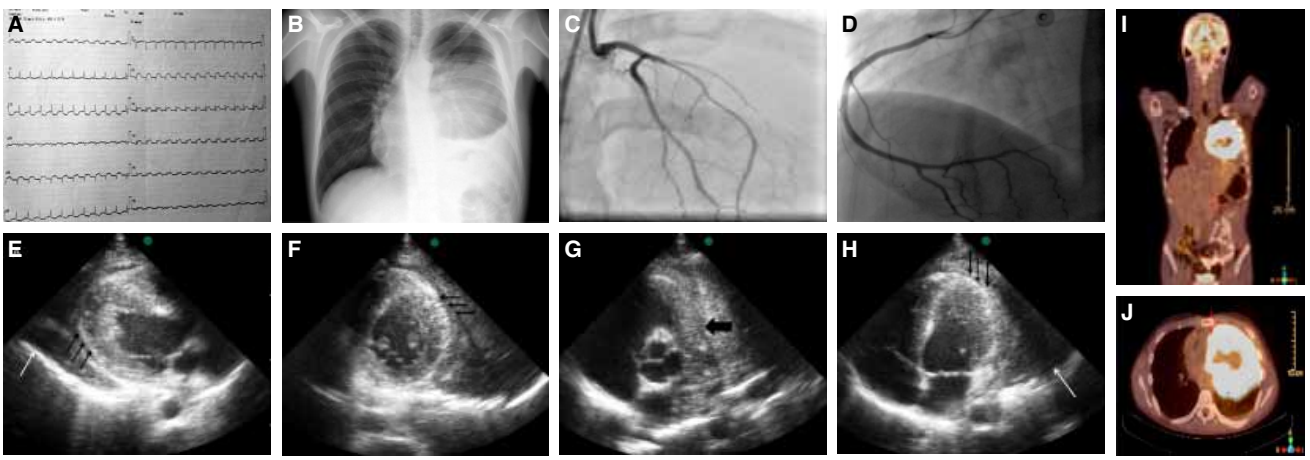
A 21-year-old male, diagnosed as mediastinal non-Hodgkin lymphoma (NHL) one year previously, presented to the emergency department complaining of chest discomfort. On physical examination, the patient's face and conjunctiva were pale. His blood pressure was 95/58 mmHg and the pulse rate was 105 beat/min. Cardiac auscultation revealed an S3 gallop heartbeat and a grade 2/6 systolic murmur at the apex. Chest radiography revealed cardiomegaly, increased soft tissue density in the left lung with obliteration of the left heart border and pleural effusion (Figure A). The emergency department electrocardiogram (ECG) (Figure B) showed marked ST segment elevations in leads I, aVL, and V2-V6 with reciprocal ST depressions in leads II, III, and aVF. Forming the impression of acute myocardial infarction, we initially performed a coronary angiogram. However, there was no significant coronary artery lesion (Figure C, D). Despite intracoronary isosorbide dinitrate administration, the ST-segment elevation did not resolve to baseline. A transthoracic echocardiogram demonstrated a large echogenic mass, involving anterior and lateral walls of the left ventricle (LV) and invading pulmonary artery, accompanied by mild pericardial effusion (Figure E-H, Video 1-2). Moreover, echocardiography also showed hypokinesis where the tumor occupied the myocardial walls. 18F-Fluorodeoxyglucose positron emission tomography showed intense uptake in the walls of the LV, mediastinal area and left lung (Figure I, J). These observations were suggestive of cardiac metastasis of the lymphoma, so the patient was referred to the oncology department. Metastatic cardiac tumors are more common than primary tumors of the heart and they occur comparatively up to 20 to 40 times more frequently than these tumors. Cardiac involvement in lymphoma is rare, but in a recent autopsy study of malignant lymphoma, cardiac metastasis was found in 16% of the cases. Acute myocardial infarction is very rare in patients with cardiac metastases. An ECG study performed by Cates et al revealed that the most common ECG manifestation of cardiac ischemia or injury is nonspecific ST-T–wave changes in 47 patients diagnosed with cardiac metastases at autopsy. It determined ST-segment elevation in only 2 of the 47 patients. The leads with ST-segment elevations seemed to match the location of the LV mass. The mechanisms of persistent ST-segment elevations may be either external compression and/or vasoconstriction of coronary micro vessels by the infiltrative process of the tumor cells, or myocardial injury and necrosis by direct myocardial invasion of the metastatic tumor. In our case, ECG changes and increased troponin I level (maximum:1.5ng/ml) did not resolve to baseline during the patient's hospital stay. Follow-up echocardiography before discharge of the patient was similar to previous findings. However, these changes may return to normal as the metastatic infiltration regresses, if there is no necrosis or fibrosis of leukemic cells after successful chemotherapy. This case report highlights an extremely rare presentation in patients with NHL.



Figures– Electrocardiogram **(A)** at the time of admission demonstrated marked ST-segment elevation in leads I, aVL, and V2-V6 with reciprocal changes in leads II, III, and aVF. Chest radiography **(B)** showing cardiomegaly, increased soft tissue density in the left lung and pleural effusion. Coronary angiographic images **(C, D)** reveal no significant stenosis. Transthoracic parasternal long axis **(E)**, parasternal short-axis mid-ventricle level **(F)** and apical 4-chamber **(G)** views of the heart show a large tumor mass invasion of the anterolateral myocardium, and mild pericardial effusion (black arrows). Parasternal short-axis aortic level view **(H)** also reveals invasion of the pulmonary artery by the mass (thick black arrow). **(I, J)** F18-FDG PET/CT study shows intensely uptake the left lung and in the region of left ventricle. **Supplementary video files associated with this presentation can be found in the online version of the journal.*