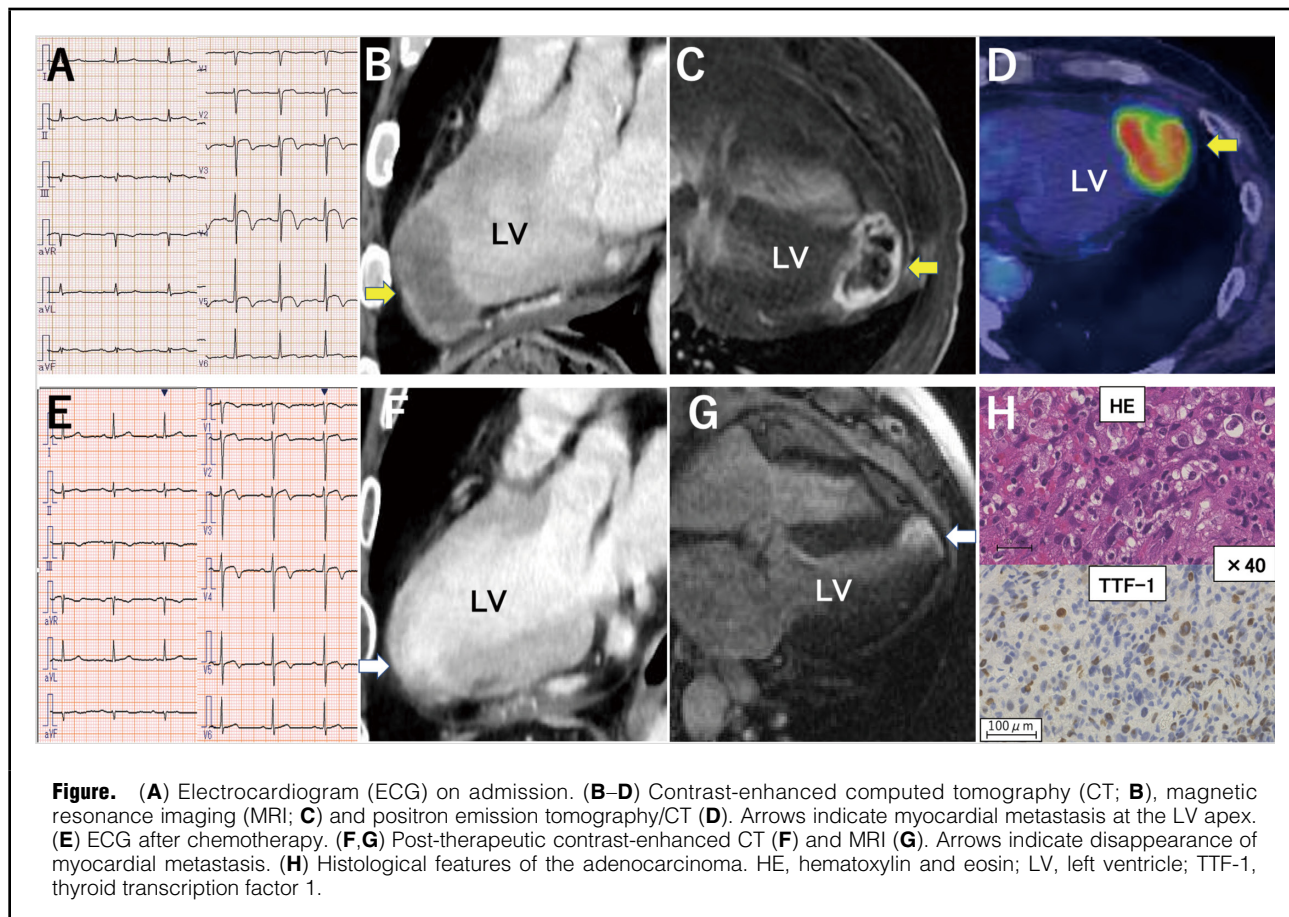


## Reversal of Myocardial Metastasis From Primary Lung Cancer After Successful Chemotherapy

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**Figure.** (A) Electrocardiogram (ECG) on admission. (B–D) Contrast-enhanced computed tomography (CT; B), magnetic resonance imaging (MRI; C) and positron emission tomography/CT (D). Arrows indicate myocardial metastasis at the LV apex. (E) ECG after chemotherapy. (F, G) Post-therapeutic contrast-enhanced CT (F) and MRI (G). Arrows indicate disappearance of myocardial metastasis. (H) Histological features of the adenocarcinoma. HE, hematoxylin and eosin; LV, left ventricle; TTF-1, thyroid transcription factor 1.

**A** 65-year-old man presented with chest pain. An electrocardiogram (ECG) showed broad ST-segment elevation in the left precordial and inferior leads (Figure A). Coronary angiography revealed no coronary obstructive lesions. A chest radiograph showed a

mass shadow in the right upper lung field (Supplementary Figure) that was later diagnosed as adenocarcinoma (Figure H). Contrast-enhanced computed tomography (CT) revealed a large mass at the left ventricular (LV) apex (Figure B). Magnetic resonance imaging (MRI) and posi-

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tron emission tomography/CT confirmed the diagnosis of myocardial metastasis involving apical portion of the LV wall (**Figure C,D**). The patient was put on multi-agent chemotherapy with pembrolizumab (anti-PD-L1), carboplatin and pemetrexed. Four months after starting chemotherapy, ST-segment elevation on the ECG subsided (**Figure E**). Repeat contrast-enhanced CT revealed that the mass lesion at the LV apex had almost disappeared (**Figure F**). MRI showed residual delayed contrast, suggestive of apical myocardial scarring (**Figure G**).

Cardiac metastasis is a rare phenomenon, with a reported incidence in the general population between 0.7% and 3.5%.<sup>1</sup> Moreover, myocardial metastasis with ST-segment elevation on the ECG is extremely unusual.<sup>2</sup> Although several cases of cardiac metastasis in lung cancer that showed improvement following chemotherapy have been reported previously, the documentation of imaging show-

ing reversal of myocardial metastasis after multi-agent chemotherapy has rarely been provided.

#### Disclosures / IRB Information

None.

#### References

1. Maleszewski JJ, Bois MC, Bois JP, Young PM, Stulak JM, Klarich KW. Neoplasia and the heart: Pathological review of effects with clinical and radiological correlation. *J Am Coll Cardiol* 2018; **72**: 202–227.
2. Zhou J, Zhan C, Zhou J, Wei C, Zou C. Case report: Persistent ST-segment elevation due to cardiac metastasis from lung cancer. *Front Cardiovasc Med* 2023; **10**: 1001527.

#### Supplementary Files

Please find supplementary file(s);  
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