

# Cardiac Metastases From Head and Neck Cancer Mimicking a Myocardial Infarction

Nandini U. Yadav, MD,\* Dipti Gupta, MD, MPH,† Michael S. Baum, MD,‡  
Nancy Roistacher, MD,§ and Richard M. Steingart, MD||

Cardiac metastases from head and neck cancer are rare. We present 2 patients with primary head and neck cancer found to have cardiac metastases. Electrocardiograms showed a persistent acute infarction pattern due to myocardial tumor infiltration. No cardiac symptoms were present. Both patients died of metastatic disease.

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Head and neck cancer rarely metastasizes to the heart. An antemortem diagnosis is difficult, because the patients will usually be asymptomatic or have nonspecific symptoms. We present 2 cases of head and neck cancer metastatic to the heart that presented as ST-segment elevation on the electrocardiogram (ECG) due to myocardial infiltration rather than acute coronary occlusion. 2-Dimensional (2D) contrast-enhanced echocardiography and cardiac magnetic resonance imaging (MRI) confirmed the presence of myocardial involvement in our patients.

## Case Report

Patient 1 was a 58-year-old male, former smoker, who had received cisplatin-based chemotherapy and radiotherapy for stage T3N2B poorly differentiated squamous cell cancer of the right piriform sinus with metastases to the right neck. A myocardial perfusion stress test obtained for cardiovascular risk stratification during cancer therapy showed no ECG or scintigraphic evidence of stress-induced ischemia or previous myocardial infarction. A staging positron emission tomography-computed tomography scan showed pathologic uptake at the apex of the heart, prompting additional cardiac evaluation. An ECG showed inferior and anterolateral ST elevations,

mimicking an acute myocardial infarction, that had not been seen on the previous ECGs (Figs 1, 2). An acute myocardial infarction was ruled out by serial measurement of troponin levels with negative results. He had no cardiac symptoms, and the ST-segment elevation persisted, rather than evolving as would be expected with an acute myocardial infarction. A contrast-enhanced echocardiogram (Figs 3, 4) showed a mass involving the right ventricular apex and distal interventricular septum. Cardiac MRI confirmed an apical cardiac mass involving the right and left ventricular apex and distal interventricular septum (Figs 5, 6). Biopsy of the right ventricular mass showed a poorly differentiated invasive squamous carcinoma consistent with the head and neck primary tumor. He received pemetrexed and gemcitabine for 4 months after the diagnosis of the cardiac metastases and died 2 months later.

Patient 2 was a 76-year-old man first found to have well-differentiated squamous cell carcinoma of the tongue 10 years before the current presentation. He had undergone a partial glossectomy at that time. This was followed by multiple dissections of the tongue and neck and cisplatin-based chemotherapy and radiotherapy for recurrent disease. He was thought to be disease free when he presented to a local hospital with pneumonia. Chest imaging showed

Received from Cardiology Service, Department of Medicine, Memorial Sloan-Kettering Cancer Center, New York, NY.

\*Fellow.

†Assistant Attending Physician.

‡Attending Physician.

§Attending Physician.

||Chief Attending Physician.

Drs Yadav and Gupta share first authorship for this case report.

Address correspondence and reprint requests to Dr Roistacher:  
Cardiology Service, Department of Medicine, Memorial

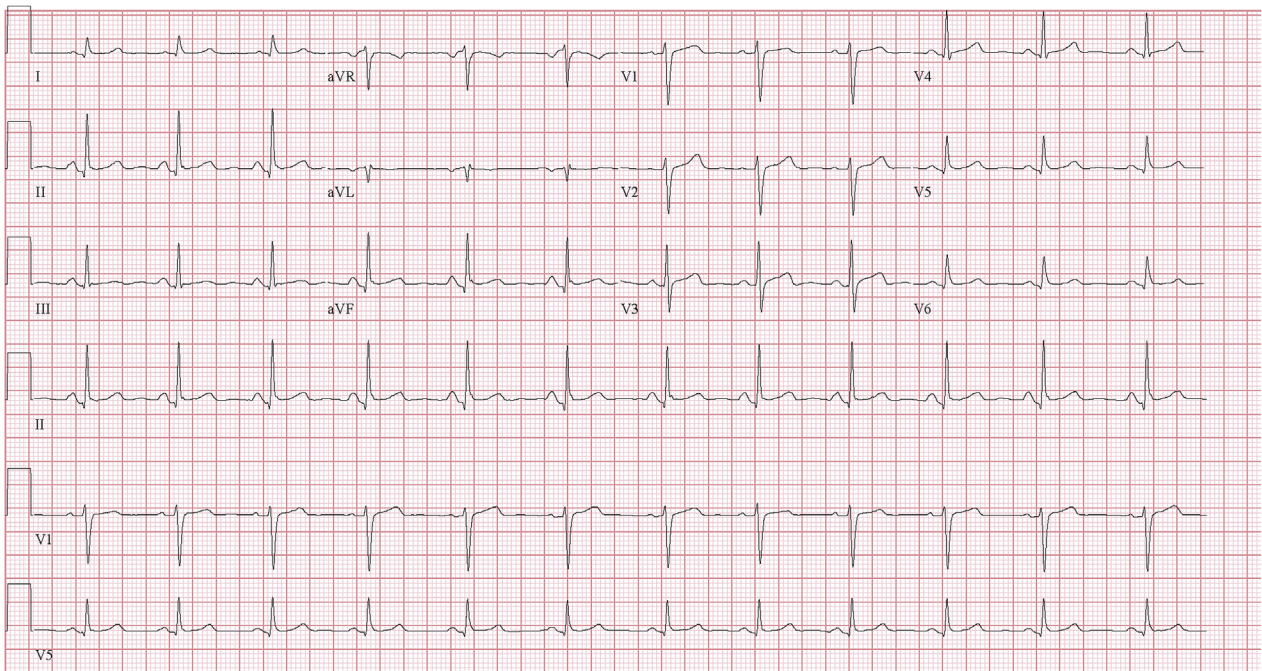
Sloan-Kettering Cancer Center, 1275 York Ave, New York, NY 10065; e-mail: [roista1@mskcc.org](mailto:roista1@mskcc.org)

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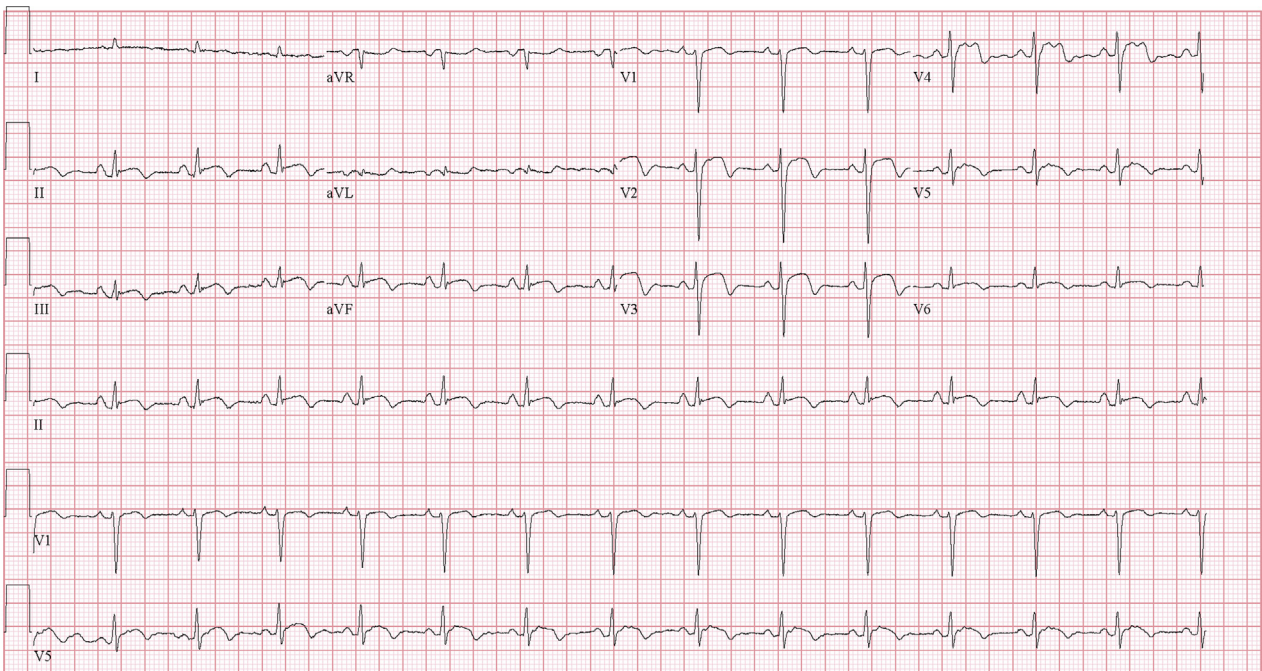
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**FIGURE 1.** Baseline electrocardiogram of the first patient 2 months before the diagnosis showing normal sinus rhythm without ST changes. *Yadav et al. Cardiac Head and Neck Cancer Metastases. J Oral Maxillofac Surg 2014.*

extensive metastases to the lungs, mediastinum, and spine. An echocardiogram showed a 10 × 15-mm mobile echodensity attached to the subvalvular mitral apparatus. Thrombus was suspected. He was trans-

ferred to our institution, where a repeat echocardiogram showed myocardial tumor infiltration of both the left and the right ventricles, with extension from the lateral left ventricle into the chordae tendineae



**FIGURE 2.** Electrocardiogram of patient 1 with a 3-mm ST elevation and T-wave inversions in leads V2 to V5 (anterolateral distribution). A 1.5-mm ST elevation with T-wave inversion was also seen in leads II, III, aVF (inferior distribution).

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