

# Chest pain and repolarization abnormalities in a patient with coronary artery disease, breast cancer and cancer-related cardiotoxicity

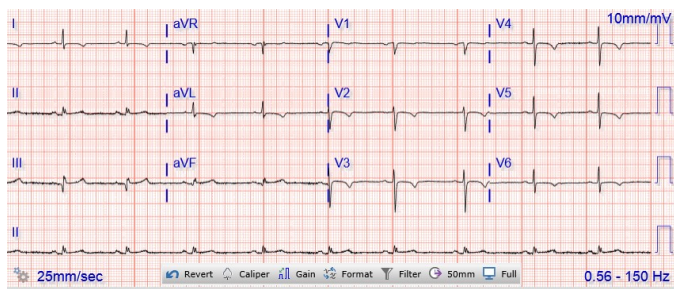
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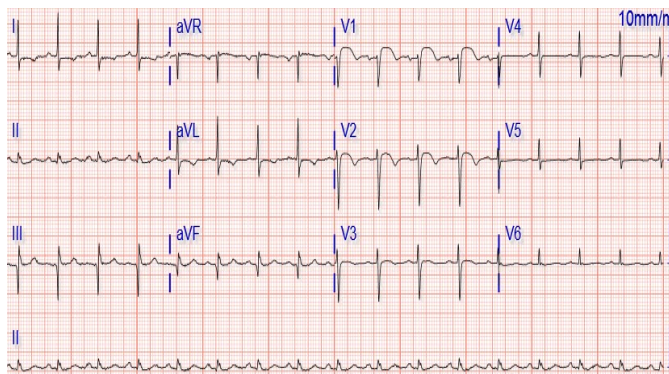
**Background:** A variety of factors may cause left ventricular systolic dysfunction in patients with cancer and coronary artery disease. Differentiation is challenging and is important for proper clinical management.

**Case.** A 71 y.o female initially presented with NSTEMI in 04/2017. She had CABG (LIMA to LAD, SVG to LCx) and was found to have large left breast mass at the same admission, which was eventually diagnosed as locally advanced triple negative breast cancer. She received neoadjuvant chemotherapy with 4 cycles of adriamycin 60 mg/m<sup>2</sup>/ cyclophosphamide (12/2017-01/2018) and 12 weeks of taxol/carboplatin (last treatment 05/2018). She underwent mastectomy in 07/2018, followed by radiotherapy.

Ten months after exposure to doxorubicin on routine ECG she was found to have T-wave inversions in multiple leads. Echo showed LVEF=56% with no wall motion abnormalities.

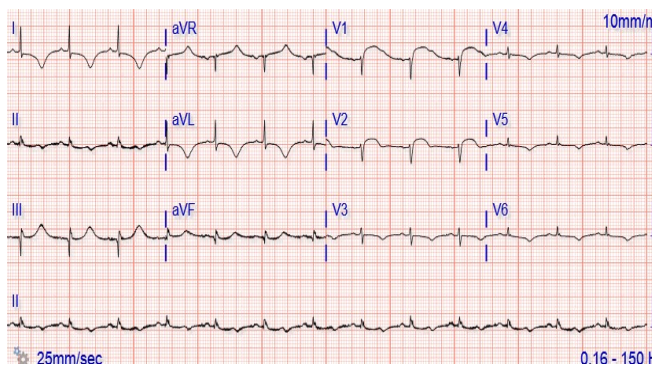


In 07/2019, she presented with worsening left sided chest pain and tenderness to palpation. The ECG showed anterior ST-segment elevation.

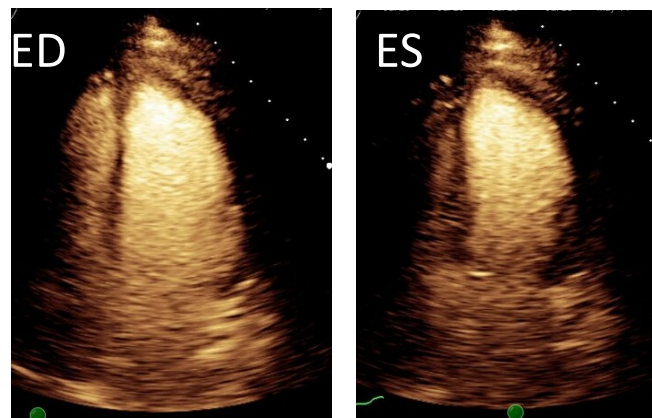


Coronary angiography showed patent grafts and no new coronary lesions, but echo showed reduced LVEF to 35% with apical akinesis. Her LV dysfunction was attributed to progressive anthracycline cardiotoxicity and patient was started on sacubitril/valsartan and carvedilol.

One week later, she presented with acute, severe substernal chest pain and low BP (70/30 mm Hg). The ECG showed anterior ST-elevation, with low precordial voltage, broad, inverted T-waves in antero-lateral leads and prolonged QTc.



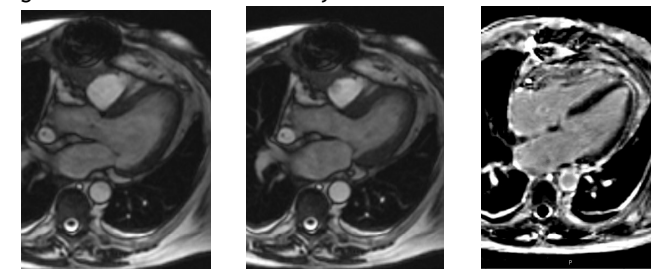
Coronary angiography showed no new changes. Troponin rose to 0.21 ng/mL. Echo showed stable LVEF=35%, but more pronounced apical and midwall akinesis with basal hyperkinesis. She briefly required vasopressor support.



CT chest to evaluate her reproducible chest pain demonstrated metastatic chest wall and anterior mediastinum lesions as well as multiple pulmonary and liver nodules.



Cardiac MRI demonstrated LVEF=31% with no evidence of late gadolinium enhancement or myocardial mass.



Her hospital course was further complicated by transient asystolic cardiac arrest. Echocardiogram showed improved LVEF to 45% with no obvious wall motion abnormalities. Her chest pain and tenderness were attributed to chest wall metastases, the ECG changes, LV dysfunction, troponin release and brief period of asystole to stress cardiomyopathy.

**Conclusion:** Evaluation of chest pain and left ventricular systolic dysfunction in patient with history of cancer and coronary artery disease is challenging and requires high clinical suspicion for non-coronary causes such as tumor effects, adverse effects of chemotherapy and Takotsubo Syndrome related to the stress of the primary illness and its treatment

**Disclosure information:**

Evgeny Shkolnik - nothing to disclose

Craig McPherson - nothing to disclose