Cardiac metastasis

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Cardiac Metastasis
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Abstract
Metastatic cardiac lesions are often clinically silent, and incidence may be determined more accurately upon autopsy. Cardiac metastases have been identified by autopsy in up to 20% of patients who succumbed to cancer. Malignant melanoma, leukemia, and lymphoma are the most common primary cancers to spread to the heart; however, these cases of metastasis have decreased with improved chemotherapy regimens. Few reports of cardiac metastasis due to colon cancer were found in the literature. This exhibit illustrates the case of a 65-year-old female patient with presumed metastatic disease to the heart from a primary colon malignancy.

Literature Review
Neoplasms tend to spread to the heart via one of four pathways: the lymphatic system, direct extension, hematogenous spread, or transvenous extension via the superior and inferior vena cava. Factors that may explain the rarity of cardiac spread due to colorectal cancer include:
• Strong kneading motion of the myocardium.
• Rapid blood flow through the heart.
• Flow of lymphatic drainage, which usually moves away from the heart.
• Peculiar metabolic actions of striated muscle.
Palliative therapy is usually offered to patients who have been diagnosed with heart metastasis. Systemic chemotherapy is most beneficial. Radiation therapy may be administered to relieve symptoms or if other treatment modalities are not feasible.

Discussion
A 65 year old woman was diagnosed with a pT3(m) pN0 cM0, group IIA adenocarcinoma of the colon. A definitive subtotal colonectomy was performed. One year later, she presented with an elevated carcinoembryonic antigen level, a hepatic lesion and a mass in the right ventricle (Image 1).

Palliative radiation therapy was prescribed to decrease tumor size and to reduce the risk of pulmonary emboli or complications from a stroke. Table 1 shows the summary of the treatment prescription. Image 2 illustrates the four field treatment plan with beam orientation and dose distribution.

Figure 1 depicts the dose volume histogram which outlines the dose to the target volume and the normal, surrounding tissue. The patient tolerated the treatment well and the size of the cardiac tumor was decreased due to the treatment. Unfortunately, the patient did pass away prior to her 4 month follow-up due to the advanced disease.

Conclusion
Less than 40% of colorectal cancer patients are diagnosed with early stage disease. Only 33 states have legislation requiring insurance coverage for cancer screening. The incidence of cardiac metastasis from colorectal cancer and other cancers is likely to increase with longer life expectancies. Continued improvements in imaging and treatment regimens may decrease cases of cardiac metastasis and improve overall survival rates.