

Cardiac Tamponade As the Initial Manifestation of Metastatic Adenocarcinoma from the Colon: A Case Report

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ABSTRACT

Metastatic cardiac malignancies mainly come from the lung, breast, and the lymphoreticular system by direct invasion or hematogenous or lymphatic spread. Metastasis from colorectal cancer to the heart or pericardium is seldom reported and only sporadic antemortem cases have been reported. We report an unusual case of malignant pericardial effusion caused by metastatic adenocarcinoma of colon. Malignant pericardial effusion and subsequent tamponade was the earliest manifestation without any other confirmed clinical metastases. Pericardiectomy was performed to relieve the life-threatening cardiac tamponade. We report this rare case and review the literature.

CASE REPORT

A 42-year-old man was diagnosed with adenocarcinoma of the ascending colon and no metastases of liver, lung bone, or lymph nodes were detected. The tumor markers such as carcinoembryonic antigen and CA 19-9 were within normal range. He underwent right hemicolectomy and the surgical stage was TisN₀M₀. After an 18-month period of well-being, he developed progressive shortness of breath and dyspnea some days before admission. In the emergency room, massive pericardial effusion with a heterogenous lesion was noted by transthoracic echocardiography (Figure 1). Emergent pericardial window was performed to relieve the subsequent cardiac tamponade. The histology of the specimen of pericardiectomy showed metastatic adenocarcinoma with individualized tumor cells and tumor emboli (Figure 2). Immunohistochemical stains revealed positive reactions of cytokeratin-7 and carcinoembryonic antigen, confirming that the pericardial metastases came from colonic adenocarcinoma. The rechecked carcinoembryonic antigen level was 13.3 ng/mL. In the evaluations of metastases, no remarkable metastases was

noted, including chest x-ray, computed tomography of abdomen, and bone scan. Whole body PET scan was suggested, but the patient refused because of the expense. Salvage chemotherapy with 4 courses of weekly irinotecan was unresponsive and the patient died 2 months later after the pericardiectomy because of the malignant progression.

DISCUSSION

Both primary and secondary malignancies of the heart or pericardium are rare. Incidence of 0.056% for primary and 1.23% for secondary cardiac tumors have been reported by Lam et al on a review of 12,485 consecutive unselected

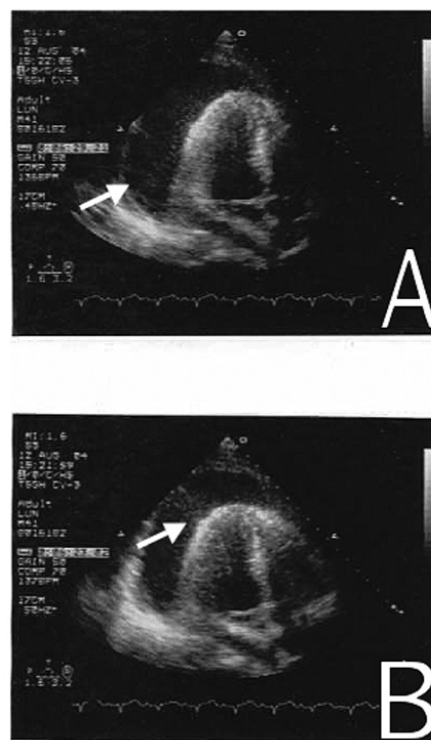


Figure 1. Echocardiography showed massive pericardial effusion (A, arrow) and a heterogenous lesion (B, arrow).

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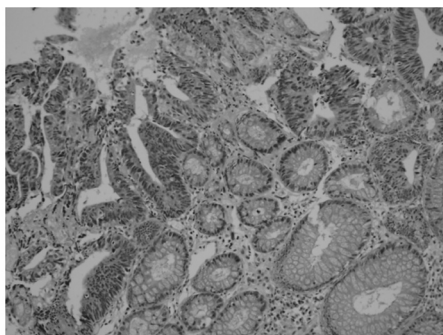


Figure 2. The pathology showed metastatic adenocarcinoma with individualized tumor cells.

autopsies [Lam 1993]. The pericardium is the main part of the heart affected by metastatic lesions, involved alone or associated elsewhere in the heart. In autopsies at which a malignant neoplasm was diagnosed, cardiac metastases were found in 10% to 12% of cases [Abraham 1990; Klatt 1990]. Lung cancer is the most common primary tumor associated with cardiac metastases and other common primary sites include breast cancers, lymphoma, leukemia, and melanoma [Thurber 1962]. However, pericardial metastases arising from colorectal origins are rare, with an incidence less than 10% [Thurber 1962; Reynen 2004]. When pericardial metastases is diagnosed in colorectal cancer, a terminal stage with multiple metastases is usually present. Pericardial effusion is seldom discovered in the early stage because the symptoms are nonspecific and are easily attributed to the tumor progression. In our case, we indeed believed there must be other microscopic metastases in this patient, but the earliest manifestation was massive pericardial effusion with subsequent tamponade and without other proven metastases.

The most commonly seen clinical manifestations of metastatic heart diseases are dyspnea, cough, and pleural effusion rather than the direct effects of the tumor on the heart itself [Reynen 2004]. The antemortem diagnosis of the cancer in the heart or pericardium is very uncommon in colorectal cancer. Malignant pericardial effusion may be the

result of the tumor spreading to the visceral pericardium that increased production of the fluid to pericardial space, or the accumulation of the fluid due to the obstruction of venous and lymphatic outflow by the tumor emboli. A diagnosis of malignant pericardial effusion is usually not suspected until the symptoms of cardiac tamponade develop. Diagnosis is usually confirmed by echocardiography since the physical examination, electrocardiogram, or chest radiography are generally nonspecific. Pericardial metastases should be highly suspected if cytology of the pericardial fluid shows atypical or malignant cells. But the definite diagnosis of the primary origin should be based on the permanent pathology of the pericardium. The prognosis of metastatic pericardial malignancy is poor despite relief of the effusion. Treatment must be individualized with the clinical condition and tumor type, including pericardiocentesis, chemotherapy, radiotherapy, local sclerotherapy, and pericardiotomy. Pericardial window or pericardiotomy was considered as the most effective but the most invasive modality for malignant pericardial effusion [Vaitkus 1994]. Here, we reported a rare case of pericardial adenocarcinoma metastatic from the colon, with massive pericardial effusion and subsequent tamponade as the initial manifestations. This case could remind us that only pericardial metastases as the earliest manifestation in cancer cases is possible. Emergent modalities should not be delayed in these life-threatening cases.

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