

129. Aggravating Dyspnea Caused by Pericardial Angiosarcoma in a Patient With Metastatic Colonic Carcinoma

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Body

Background: Pericardial angiosarcoma is a rare cause of aggressive constrictive pericarditis. Herein, we report an adult with a history of metastatic colon carcinoma, suffering from pericardial angiosarcoma, which presenting as aggressive constrictive pericarditis. Prognosis was also reported.

Case: In August 5th 2019, a 69-year-old man was admitted for complaint of dry cough and fever for 4 weeks. His past medical history included smoking, coronary artery heart disease, hypertension and hyperlipidemia for more than 10 years. Earlier in 2016, he received an operation for well-differentiated carcinoma of colon, and in September 2018, hepatic masses were detected. In the past 5 days, he developed intermittent dyspnea, which can be induced by mild activation or dry cough. Upon admission, physical examination revealed the patient has a temperature at 37.6°C, the pulse was 109bpm, the respiration rate was 25bpm, and the blood pressure was 108/75mmHg. Bilateral pulmonary auscultation was unremarkable. The border of relative dullness was enlarged, and heart sound was attenuated. The abdominal examination was negative. No lower limbs edema was found.

Laboratory examinations reveals elevations of markers of inflammation, including elevated level of white blood cell ($9.94 \times 10^9/L$) and percentage of neutrophilic granulocytes (77.8%), accompanied with an increased C-reactive protein (CRP) (108.12mg/L) and erythrocyte sedimentation rate (ESR, 89mm/h) level. Cardiac troponin-T (hs-TnT) was mildly elevated at 0.04ng/mL ($0 \sim 0.024$ ng/mL), and the creatine kinase-MB was within in normal limits.

Electrocardiogram (Fig. 1) showed sinus tachycardia. Chest computer tomography (CT) showed funiform pulmonary lesions which were more diffuse than that of the previous year. Besides, more pericardial nodules and effusions (Fig. 2A and B), and hepatic hypo-density nodules were also noted than that in 2018. Enhanced abdominal magnetic resonance revealed multiple abnormal enhanced lesions in the liver, pericardium, and multiple vertebral body bone, indicating metastases. Considering the increased pericardial effusion on chest CT, transthoracic echocardiography was performed (Fig. 2C and D) and an enlarged pericardial space occupied with irregular hypo-echogenic masses was noted. Bi-atrial enlargement and a normal E/A (1.4) were noted. He was empirically treated with Fluoroquinolones and Ertapenem but he still suffered irregular fever with the temperature ranging from 36.5°C~38.5°C. Therefore, metastatic colon cancer to the liver, pericardium, lungs, and the bones accompanied by tumor fever were suspected. Aggravating dyspnea and fever in the presence of pericardial lesions, and elevated markers of inflammation indicated the diagnosis of acute pericarditis. Since the disparity between echocardiography and chest CT regarding the pericardial hypo-echodensity or pericardial effusion, pericardiectomy was not performed. The patient's family and the physicians decided to resort to the cardiac surgery.

Pericardial stripping was performed in August 30th 2019. Constricted pericardial space by hemorrhagic tumor tissues which has infiltrating the myocardium was noted (Fig. 2E). No pericardial effusion was

found. The post-operative histopathology and immunohistochemistry showed the tumor to be a primary pericardial angiosarcoma (Fig. 2F).

In September 11, 2019, 12 days after the operation, he died of cardiac arrest.

Discussion: Heart tumors of both primary and metastatic origins are not uncommon, and particularly, the pericardium is the most affected part by metastatic neoplasms(1). Although the right heart involvement might undergo a more silent process(2), the left heart and the pericardium involvement could be progressive and bring hemodynamic collapse, and portends poor prognosis(1, 3), as is shown in this case. Surgical intervention to relieve symptom or to prevent possible complications is indicated in suitable cases.

This case is unique in at least two facets. First, cardiac involvement in a patient with history of colon carcinoma and evidence of multiple metastases at other organs should raise the suspicion of metastasis to the pericardium. However, since the carcinoma and the sarcoma are of totally different origins, the pericardial angiosarcoma in this case was considered primary instead of metastatic. Second, both transthoracic echocardiography and chest radiography play a crucial role in the evaluation of patients with pericardial disease, (4) and yet it is quite often in clinical settings for the chest CT to misdiagnose the epicardial adipose tissue to pericardial effusion, due to the fact that the fatty tissue has similar density to liquid. This case also highlights the fact that, even with surgical intervention, the survival duration is short as the tumor can infiltrate the myocardium and get difficult to clear.

Conclusion: Pericardial angiosarcoma is a rare cause of aggressive constrictive pericarditis and may lead to cardiac tamponade. It may manifest itself as an irregular hypo-echogenic mass occupying the pericardial space on thoracic echocardiography.



