Tumoral Heart Involvement in Middle-Aged Woman with Documented Sternal Chondrosarcoma

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Abstract

We describe the case of a 47-year-old woman with a history of sternotomy and insertion of a sternal prosthesis six months prior to admission due to sternal chondrosarcoma. The patient was admitted with dyspnea and chest discomfort, which had increased twenty days before admission.
Echocardiography showed moderate pericardial effusion with moderate right ventricular enlargement and dysfunction and large gelatinous mass in the right atrium, which had protruded to the right ventricle through the inflow valve. Unfortunately, the patient died before any intervention.
Final echocardiography revealed a reduction in the size of the mass, confirming that the patient's death occurred secondary to metastatic pulmonary emboli ***(Iranian Heart Journal 2011; 12 (1):53-55).***

Keywords: Chondrosarcoma■ Cardiac metastasis

Metastatic tumors involve the heart from a primary origin in some other organ 20 to 40 times more frequently than do primary tumors.[5] Secondary tumors are a variety of carcinomas and sarcomas.[5]
Chondrosarcomas, which constitute about 20-25% of carcinomas and sarcomas, are tumors of adulthood and old age with a peak incidence in the fourth to sixth decades of life.
They have a predilection for the flat bones, especially shoulders and pelvis but can also affect the diaphyseal portion of long bones.[4]
There are a few reports of the metastatic chondrosarcoma in the heart.[3,1]
Metastatic tumors are classically thought to reach the heart by embolic hematogenous spread, lymphatic spread, or direct invasion.[5]
The most common site of cardiac metastasis in a review of the clinical manifestations of chondrosarcoma metastasis to the heart in 18 patients was the right atrium.[5] Dyspnea and chest pain were the most common symptoms in the Leung et al study.[2]
Most chondrosarcomas and their metastases are resistant to chemotherapy and surgical resection of the primary or recurrent tumors.

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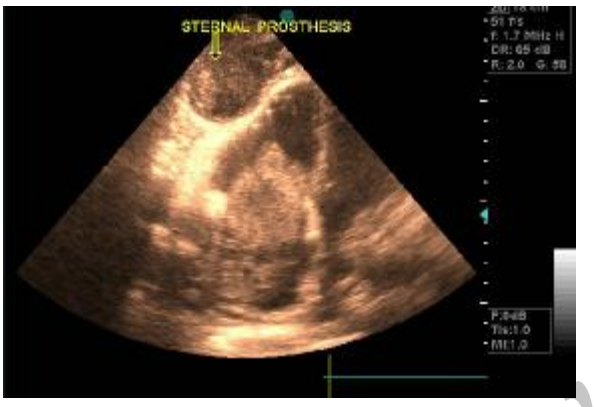
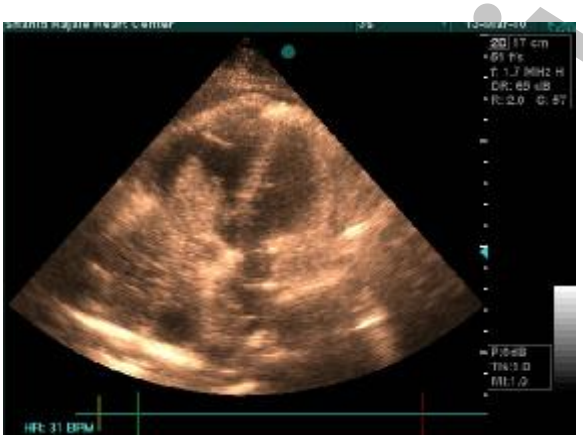
months and the median time from the recognition of cardiac symptoms to death was 2 months.[2]

Case report

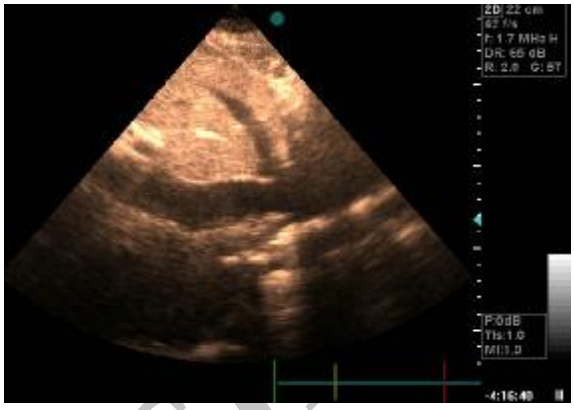
A 47-year-old woman admitted to the CCU was referred to our echocardiography department because of severe respiratory distress. The patient was a known case of sternal chondrosarcoma. Sternotomy and insertion of a sternal prosthesis had been performed for her about six months before admission. The patient had several chemotherapy courses as well.
Follow-up chest CT-scan, at the third postoperative month had shown multiple lung metastases. The patient had developed dyspnea and chest discomfort twenty days prior to admission and was admitted to our center with severe respiratory distress.
The patient was intubated early after admission.

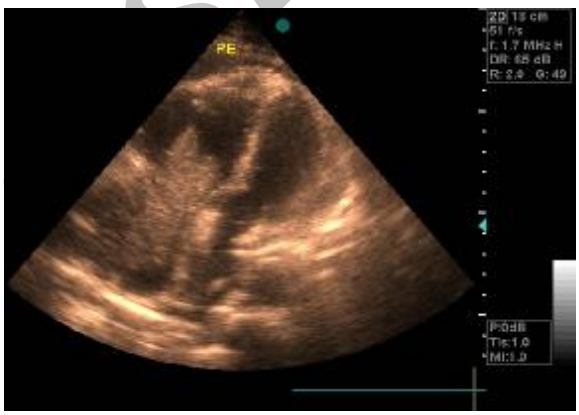
On admission, laboratory findings showed ESR=34mm/h, Hb=10.8 gr/dl, cr=1.5mg/dl, and Bun=35 mg/dl.
Transthoracic echocardiography revealed a great tumors mass in the right atrium with adhesion to the lateral wall of the right atrium and protruding to the right ventricle through the tricuspid valve and led to moderate functional tricuspid stenosis (MPG=6mmHg) and moderate eccentric tricuspid regurgitation (Figs. 1,2).





There was moderate pulmonary arterial hypertension (pulmonary arterial pressure=55mmHg) based on the tricuspid regurgitation velocity. The inferior vena cava orifice was spare from the tumoral mass, but the superior vena cava orifice was not evaluated by transthoracic echocardiography (Fig. 3). The right ventricular chamber was moderately enlarged with moderate systolic dysfunction, and there was moderate pericardial effusion (14 mm) as well (Fig. 4).





The patient was candidated for surgical intervention, based on consultation with an oncologist. However, before surgery, the patient expired with a picture of massive pulmonary emboli from the right atrium mass.
The final echocardiography prior to the patient's death showed an obvious decrease in the mass size.

Discussion

We presented a case of an extremely rare type of tumor–chondrosarcoma, which produced a solitary heart metastasis.
The existing literature contains a few reports of metastatic heart chondrosarcomas with a bone tissue origin. [1,2]

Most heart metastases are usually confirmed at autopsy,[1] but in our case the histological diagnosis was confirmed in a living patient based on the pathological result of sternal mass excision.

Also, given the proliferation nature of the heart metastasis, the growth of which is extremely fast and invasive, it would be reasonable to expect the same or even worse clinical course of the pulmonary embolism, if metastatic.

The patient's tumor could not be removed completely. Also, this tumor was resistant to chemotherapy, and unfortunately our patient had a poor quality of life after sternal tumor surgery.

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