Primary Malignant Cardiac Tumor Presenting with Dyspnea: A Case Report

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Abstract

Primary malignant cardiac tumors are rare tumors of the heart with a very poor prognosis. Complete excision is the treatment of choice, but it is dependent on the stage and extension of the tumor. We describe an old man with the initial presenting symptoms of progressive dyspnea. Our assessment revealed moderate pericardial effusion and a large infiltrative right ventricular mass. The initial differential diagnosis included malignant sarcoma, lymphoma, or melanoma. The patient underwent palliative excision of the tumor and chemotherapy. After biopsy, cardiac lymphoma was confirmed.

Keywords: Cardiac Lymphoma, Pericardial Effusion, Echocardiography

1. Introduction

Primary malignant cardiac tumors are rare tumors of the heart and include 1% of primary cardiac tumors and 0.5% of extranodal lymphomas. They have a very poor prognosis. Complete excision is deemed the treatment of choice, although it is dependent on the stage and extension of the tumor (1, 2). We introduce a rare case of cardiac lymphoma with the initial presenting symptoms of progressive dyspnea.

2. Case Presentation

A 64-year-old man was admitted to our center with symptoms of dyspnea, having started 1 month previously and progressed gradually from functional class II to III. The patient’s vital signs were normal.

In physical examination, jugular vein pressure was elevated without any lower extremity edema and abdominal distention. The chest roentgenogram showed small left plural effusion (Figure 1).

ECG showed sinus rhythm with a low-voltage QRS amplitude and a right bundle branch block pattern, q and S-T elevation, and inverted T waves in \( V_1 \) - \( V_4 \) and the inferior leads.

Echocardiography revealed severe right ventricular (RV) enlargement and systolic dysfunction with a large (8 cm × 5 cm) nonhomogeneous lobulated mass in the lateral and inflow parts of the RV with invasion to the RV myocardium, protruding into the RV outflow tract and even

the pulmonary valve during systole. There was large-sized pericardial effusion without evidence for the physiology of tamponade (3) (Figure 2).

Left ventricular size and function were normal, and no mass was detected on the left side. Moderate central tricuspid regurgitation with right atrial enlargement was also

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found. The inferior vena cava was dilated with reduced respiratory collapse without any obvious mass in it. Based on these data, our initial differential diagnosis included primary or secondary cardiac malignant tumors such as metastatic sarcoma, melanoma, or lymphoma.

Abdominal computed tomography (CT) scan and thoracic CT angiography showed RV mass and left pleural effusion without evidence for pulmonary emboli or the involvement of the other organs.

Finally, cardiothoracic consult was done and the patient was transferred to the operating room for the palliative excision of the tumor. Tumor biopsy revealed atypical, intermediate to large-sized lymphoid cell infiltration (Figure 3). The final diagnosis was primary diffuse cardiac large B-cell lymphoma, and the patient was subsequently referred for chemotherapy.

3. Discussion

Primary cardiac lymphomas constitute very rare malignant cardiac tumors with the involvement of only the heart and the pericardium. The Non-Hodgkin type involves the heart and the pericardium and, less commonly, extracardiac sites. The right atrium and the RV are frequently involved. Primary cardiac lymphomas include about 1% of primary cardiac tumors and 0.5% of extranodal lymphomas. They range in age from 18 to 77 years with equal sex distribution. Clinically, cardiac tumors cause symptoms in patients by 3 mechanisms: 1) intracardiac obstruction, 2) systemic embolization of tumor fragments, and 3) constitutional symptoms (1, 2). The symptoms are related to the site of involvement in the heart (4). Lymphoma should be suspected when patients present with a cardiac mass or unexplained refractory pericardial effusion and when more than 1 chamber is involved (5). In our patient, the RV was involved with protrusion into the main pulmonary artery and invasion to the pericardium (with no evidence of extra-cardiac involvement), causing dyspnea.

The treatment of choice for these rare tumors is a combination of chemotherapy and radiation, but this modality is dependent upon the stage and the extent of infiltration at presentation (3). The survival is generally less than a month without treatment but has been prolonged for up to 5 years with palliative treatment in selected cases (1).

Footnote

Conflict of Interest: There is no conflict of interest.
Figure 3. Tumor is composed of atypical, intermediate to large-sized lymphoid cell infiltration, leading to the final diagnosis of diffuse large B-cell lymphoma.

References