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Case Report

Large Left Atrial Myxoma Discovered During Restaging of Breast Cancer

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INTRODUCTION

Although extremely rare, myxomas are the most common cardiac tumors, accounting for more than 50% of all cases worldwide.[1,2] Despite being histologically benign, myxomas can have a wide spectrum of presentations based on their anatomic location, size, and mobility. They can mimic various heart conditions and present as cardiac insufficiency, valvular heart disease, syncope, peripheral embolic events, and systemic symptoms.[3] Transthoracic echocardiography (TTE) is the preferred imaging modality to visualize the tumor. If image quality is inadequate, transesophageal echocardiography (TEE) may be used for further evaluation. Multimodality imaging with cardiac computed tomography (CCT) and cardiac magnetic resonance (CMR) also is helpful for assessing anatomical and tissue features.[4] Given the risk of embolization, transvenous biopsy generally is not recommended, especially if the appearance is typical on imaging.[5]

An interesting aspect of cardiac myxomas is their infrequent occurrence as asymptomatic entities, often serendipitously identified through imaging studies. Typically known for causing noticeable symptoms, myxomas rarely manifest without any apparent signs.[6] We present a rare and interesting case of a large asymptomatic left atrial myxoma incidentally discovered during breast cancer restaging studies.

CASE REPORT

We present the case of a 50-year-old previously healthy female with normal prior mammograms who initially presented to the oncology clinic after an abnormal mammogram and ultrasound of the left breast. Imaging revealed a 1 cm mass with a spiculated margin and calcifications. An ultrasound of the left breast showed an irregular mass with an irregular margin and an echogenic boundary, with no abnormalities seen in the left axilla. A breast biopsy later confirmed estrogen receptor (ER)/progesterone receptor (PR) positive, HER-2/neu negative, high Ki-67, invasive grade 2 ductal carcinoma of the breast, along with admixed lobular carcinoma in situ (LCIS).

Magnetic resonance imaging (MRI) of the breast showed a 0.9 cm x 1.1 cm x 1.4 cm irregular mass with a spiculated margin in the left breast and a fluid collection near the LCIS consistent with a hematoma. No other suspicious lesions were seen. Genetic testing with myRisk was negative for any deleterious mutations. The patient then underwent a bilateral mastectomy and left axillary lymph node dissection with immediate reconstruction. Pathology of the right breast was negative, but the left breast showed a 1.1 cm, grade 2, invasive ductal carcinoma with negative margins and foci of LCIS. While there was no evidence of lymphovascular invasion, six out of eight left axillary lymph nodes were positive for macrometastasis without evidence of extranodal extension.

Subsequent restaging studies with a computed tomography (CT) scan of the chest, abdomen, and pelvis, along with a whole-body bone scan, did not reveal any evidence of obvious metastatic disease. However, a left atrial mass measuring 2.4 x 2.4 cm was seen, suggestive of a myxoma or a large thrombus (Figure 1). A follow-up TEE showed a large mobile hyperechoic mass measuring 2.7 cm in the left atrium (Figure 2). The atrial mass subsequently was resected via median sternotomy, and pathology confirmed it to be a myxoma with negative margins. No additional intervention was required, and no intraoperative complications were noted. The patient then returned to the clinic to start neoadjuvant chemotherapy.

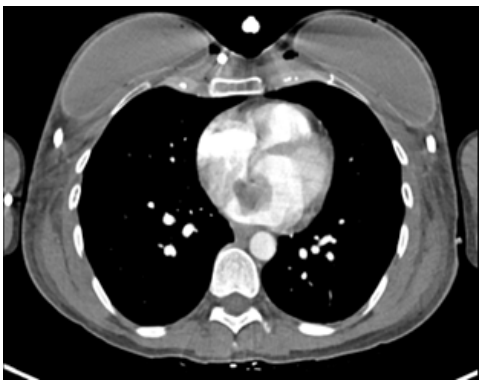

Figure 1. Computed tomography scan of the chest showing left atrial mass.

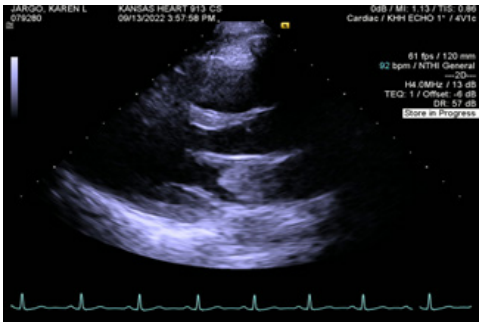

Figure 2. Transesophageal echocardiogram showing the large mobile hyperechoic mass.

DISCUSSION

Intracardiac masses are rare, with a few differential diagnoses including vegetations, thrombi, and tumors. Metastatic cardiac tumors are 20 to 40 times more common than primary tumors, with myxomas being the most common primary ones.[7] Left atrial myxomas have an incidence rate of 0.5 per million per year, with a peak incidence in women, primarily appearing between 30 and 60 years of age.[8]

Although mostly found in the left atrium near the fossa ovalis, these benign tumors can originate in any of the cardiac chambers and even valves. Therefore, the clinical manifestations vary widely depending on the size, location, and mobility of the mass. Myxomas can cause intracardiac blood flow obstruction, valvular dysfunction, local invasion, systemic embolization, and constitutional symptoms. Patients can present with malaise, fever, weight loss, dyspnea, orthopnea, arrhythmia, and heart failure. Despite the broad clinical spectrum, in some

rare instances, patients can remain asymptomatic, and the mass can be discovered incidentally on imaging.

Echocardiography remains the most common modality used to diagnose cardiac tumors given its high sensitivity and specificity.[9] This simple and non-invasive approach provides details of the tumor size, location, shape, attachment, and hemodynamic effect. Transesophageal echocardiography, as compared to transthoracic, can be more helpful in demonstrating the attachment site and detecting smaller tumors. A multimodal imaging approach with additional CT, MRI, and positron emission tomography (PET) scans provides more details about tissue composition and helps differentiate a myxoma from metastatic heart tumors.

In our case, the patient was completely asymptomatic and the intracardiac mass was not discovered until a repeat CT scan was performed for a restaging study. Surgical resection remains the treatment of choice for myxomas and is considered curative with an excellent short- and long-term prognosis. Given the possibility of embolization and other complications, surgery should be performed promptly after the diagnosis is made.[10] Recurrence after surgical excision is rare, with an overall risk of 1 to 3%, but regular follow-up with echocardiography is warranted.[11]

One syndrome that can explain the simultaneous presence of a breast mass with a cardiac myxoma is Carney Complex (CNC).[12] It is a multiple tumor syndrome characterized by cutaneous pigmented lesions, myxomas mainly in the heart, breast, and skin, as well as endocrine or neural tumors, among others. As part of CNC's main diagnostic criteria, breast myxomatosis and breast ductal adenomas are included; however, the involvement of breast cancer and other breast tumors is currently not clearly known. Hence, it is less likely for our patient to have a syndromic disease, making her case rare.[13]

CONCLUSIONS

Cardiac tumors are rare, with myxomas being the most common benign primary cardiac tumors. Despite their benign nature, these tumors can present with a wide range of clinical symptoms depending on their size, location, and mobility. However, some patients can remain asymptomatic, and myxomas are sometimes detected incidentally during routine imaging for other reasons. Prompt surgical excision is recommended after diagnosis to avoid complications.

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