

Asymptomatic right atrial myxoma originating from the inferior vena cava and right atrium junction in a patient with breast ductal adenocarcinoma

Duktal adenokarsinomlu asemptomatik bir olguda, inferiyor vena kava ve sağ atriyum bileşkesinden köken alan sağ atriyal miksoma

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We present asymptomatic right atrial myxoma in a patient with breast ductal adenocarcinoma. A 58-year-old female was referred to our clinic for the evaluation of the potential cardiotoxic side effects of anthracycline-based chemotherapy. She had a 10-month history of modified radical mastectomy for ductal adenocarcinoma of the breast, followed by adjuvant chemotherapy. To evaluate potential side effects of anthracycline-based regimen, transthoracic echocardiography was performed, which showed a highly mobile, cystic, and heterogenous mass, 20x25 mm in size, located in the right atrium. Transesophageal echocardiography confirmed the highly mobile mass originating from the inferior vena cava and extending to the right atrium. Surgery was planned. Upon exposure, the tumor had a broad base, with attachment to the lower dorsal free wall, interatrial septum of the right atrial cavity, and upper border of the inferior vena cava. The tumor was completely excised and histopathologic diagnosis was myxoma. Localization of right atrial myxoma at the junction of the inferior vena cava and right atrium is a rare condition, and its coexistence with breast carcinoma has only been reported once.

Key words: Carcinoma, ductal, breast; heart atria; heart neoplasms/diagnosis; myxoma/diagnosis/surgery; tomography, X-ray computed; vena cava, inferior.

Atrial myxomas are the most common primary cardiac tumors, accounting for nearly 50% of all primary cardiac tumors.^[1,2] Twenty percent of sporadic cardiac myxomas are found in the right atrium.^[3] Right atrial myxomas may present as right heart failure and pulmonary embolism.^[4]

CASE REPORT

A 58-year-old female was referred to our clinic for evaluation. She was diagnosed as having ductal

Bu yazıda, meme duktal adenokarsinomu nedeniyle 10 ay önce modifiye radikal mastektomi ameliyatı ve arkasından adjuvan kemoterapi uygulanan 58 yaşında bir kadın hastada asemptomatik sağ atriyum miksoması sunuldu. Hasta kliniğimize antrasiklin temelli kemoterapinin olası kardiyak yan etkilerini değerlendirmek üzere sevk edilmişti. Transtorasik ekokardiyografide, sağ atriyum içinde, hareketli, kistik ve heterojen yapıda, 20x25 mm boyutlarında bir kitle saptandı. Daha ayrıntılı değerlendirme için yapılan transözofageal ekokardiyografide, oldukça hareketli kitlenin inferiyor vena kavadan köken alıp sağ atriyuma uzandığı görüldü. Hastaya cerrahi tedavi planlandı. Ameliyat sırasında kitlenin geniş bir tabanı olduğu, alt dorsal serbest duvara, sağ atriyum kavitesinde interatriyal septuma ve inferiyor vena kavanın üst sınırına tutunduğu izlendi. Tümörün başarılı şekilde eksizyonundan sonra histopatolojik inceleme sonucu miksoma olarak bildirildi. Sağ atriyum miksomasının inferiyor vena kava ve sağ atriyum bileşkesinde yerleşimi oldukça nadir bir durumdur ve meme kanseriyle birlikteliği ise bugüne kadar sadece bir olguda bildirilmiştir.

Anahtar sözcükler: Karsinom, duktal, meme; atriyum; kalp neoplazileri/tanı; miksoma/tanı/cerrahi; bilgisayarlı tomografi; vena kava, inferiyor.

adenocarcinoma of the breast ten months before, for which she had undergone a modified radical mastectomy, followed by adjuvant chemotherapy with six courses of doxorubicine and paclitaxel. After that, trastuzumab therapy and local radiotherapy were given. She was completely asymptomatic after surgery and was on oral anastrozole therapy 1 mg daily. She was referred to the cardiology department from the oncology unit for the evaluation of the potential cardiotoxic effects of the given medications.

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On admission, she had no symptoms except for mild effort dyspnea. On physical examination, there was a grade 1/6 holosystolic murmur over the right parasternal area, radiating to the left parasternum. There was no evidence for right heart failure and peripheral embolization. Her complete blood count showed normochromic-normocytic anemia; blood biochemistry and all other laboratory data were within normal limits. Transthoracic echocardiography revealed a highly mobile, cystic, and heterogenous mass, 20x25 mm in size, located in the right atrium (Fig. 1a). Further evaluation with transesophageal echocardiography revealed a highly mobile mass arising from the inferior vena cava and extending to the right atrium (Fig. 1b, c). In order to rule out a possible metastasis and tumor embolism, thorax computed tomography (CT) was performed which demonstrated a sessile mass, measuring 20x28 mm in diameter, arising from the right atrium-inferior vena cava junction (Fig. 2). The mass was reported to be a possible right atrial myxoma, but thrombus could not be ruled out. The patient was referred to surgical operation for excision of the mass. When the right atrium was exposed, a tumor was seen with a broad-based attachment to the lower dorsal free wall and interatrial septum of the right atrial cavity and upper border of the inferior vena cava. The intraoperative macroscopic appearance of the lesion was a soft, glistening, multi-lobulated mass with a pale gray-red surface (Fig. 3). The tumor was completely excised. Histopathology of the tumor was consistent with myxoma (Fig. 4). The patient was discharged on the seventh day of operation after an uneventful postoperative period.

DISCUSSION

Atrial myxomas are benign, slow-growing neoplasms that arise from the interatrial septum and extend into the left or right atrium.^[1-3] Development of right atrial myxomas very close to the inferior vena cava is a rare condition. A myxoma in this localization can mimic a thrombus or a malignant mass extending from the inferior vena cava. This is the second reported case of concurrent breast carcinoma and right atrial myxoma.^[5]

Right atrial myxoma may be asymptomatic or the initial presentations may include ascites, hepatomegaly, or peripheral edema due to right heart failure.^[6-10] Pulmonary embolization may also occur. Other clinical symptoms are vague constitutional ones such as malaise, low-grade fever, and weight loss.^[11] In this case of right atrial myxoma, the patient presented with mild effort dyspnea without any remarkable symptoms of right heart failure.

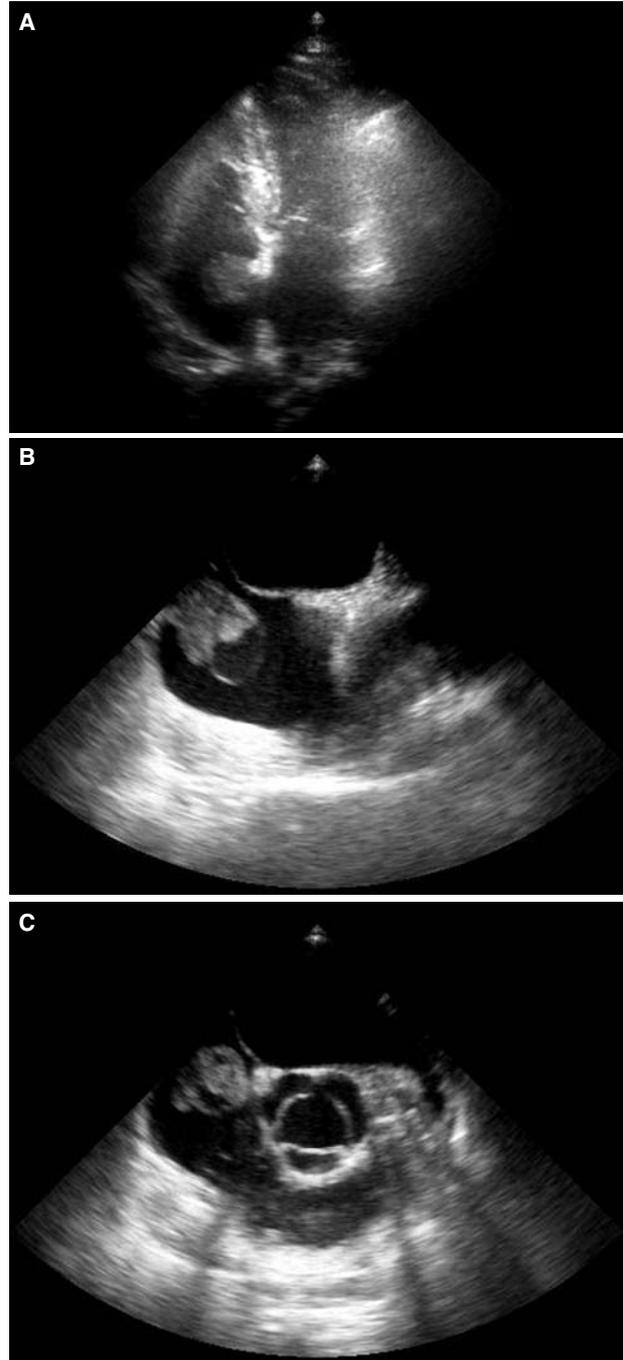


Figure 1. (A) Transthoracic apical four-chamber view showing the mass in the right atrium. Transesophageal echocardiography: (B) bicaval view showing the localization of the mass at the junction of the right atrium and inferior vena cava; (C) aortic view showing the heterogenous mass in the right atrium.

Echocardiography is the primary modality for imaging intracardiac lesions. It provides high-resolution, real-time images. However, as image acquisition with CT and magnetic resonance (MR) imaging has steadily become faster, these modalities have played

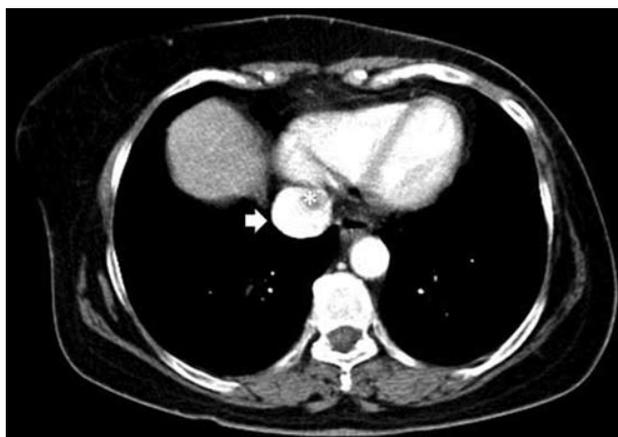


Figure 2. Contrast-enhanced electron beam computed tomography scan demonstrates the extension of the right atrial mass (asterisk) to the inferior vena cava (arrow).



Figure 3. Intraoperative view of the mass (arrow) in the right atrium.

an increasingly important role in the evaluation of cardiac neoplasms. Despite far lower spatial and temporal resolution compared to echocardiography, soft-tissue contrast of both CT and MR imaging is superior to that of echocardiography, and both modalities allow imaging of the entire mediastinum and evaluation of the extracardiac extent of disease.

The differential diagnosis of a mass in the right atrium includes, in the order of likelihood, myxoma, thrombus, metastasis, and a primary malignant cardiac tumor. Myxomas are the most frequent intracavitary primary neoplasm of the heart. Although the preferential location is the left atrium in 75% of cases, 20% of myxomas occur in the right atrium.^[3] Because of their gelatinous nature, myxomas usually

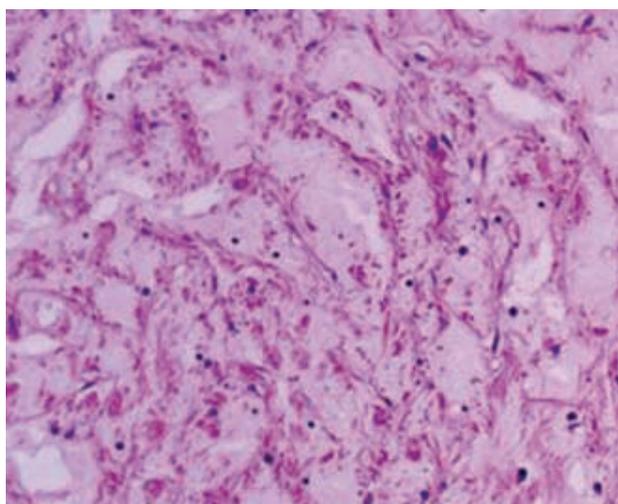


Figure 4. Histopathological appearance of the surgical specimen. Spindle-shaped lipidic cells are seen in a loose myxoid stroma (H-E x 200).

manifest as a heterogeneous, low-attenuation mass on CT and calcification is frequently seen.^[12] Narrow base of attachment is suggestive of, but probably not definitive for, a diagnosis of myxoma.^[12] Cardiac thrombi are overall the most frequent cardiac masses, mainly resulting from regional or global impaired wall motion (e.g., after myocardial infarction or in dilated cardiomyopathy) or from arrhythmias (atrial fibrillation).^[13] Thrombi arising in the right atrium are very rare and usually found in patients with central venous lines or in patients having enlarged cavities such as those seen in dilated cardiomyopathy. The presented case had no other risk factors for right atrial thrombi. With MRI contrast material, enhancement in myxomas is usually heterogeneous, which is also likely to reflect the presence of necrotic areas within the tumor, but intense enhancement may also be seen.^[14] The delayed-enhancement technique of MRI is particularly sensitive for detecting thrombi, which are seen as dark structures surrounded by contrast-enhanced blood.^[14] Chronic organized thrombi may show gadolinium enhancement. In our case, MRI was not performed because excision of the mass and pathological diagnosis were planned.

The most common tumors to metastasize to the heart by hematogenous extension are of bronchial and breast origin, followed by melanoma, lymphoma, and leukemia. Transvenous extension into the right atrium through the inferior vena cava is also a well-known complication of renal cell carcinoma and hepatocellular carcinoma.^[15]

In summary, a well-defined, heterogenous, noninfiltrating, sessile mass in the right atrium favors a benign lesion over a malignant entity. Myxoma is the most like-

ly diagnosis, but thrombi and ductal adenocarcinoma metastasis have to be excluded. A thrombus is unlikely as to the location and the absence of significant risk factors. Finally, resection of the tumor and pathological examination lead to the definitive diagnosis.

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