A rare cause in etiology of left atrial mass: metastatic testicular germ cell tumor

Serhat Huseyin1, Volkan Yüksel1, Ahmet Okyay2, İlhan Hacıbekiroğlu3, Ebru Tastekin2, Mustafa Yılmaztepe4, Gökay Taylan4, Suat Canbaz1, İrfan Çiçin3

1Department of Cardiovascular Surgery, Trakya University Faculty of Medicine, Edirne, Turkey
2Department of Pathology, Trakya University Faculty of Medicine, Edirne, Turkey
3Trakya University Medical Oncology Department, Edirne, Turkey
4Trakya University Cardiology Department, Edirne, Turkey

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CASE REPORTS

Abstract

Although intracardiac metastasis of germ cell tumors is rare, it can be localized in the right or left heart by disseminating spread and give their cardiac symptoms depending on the location of metastatic mass. We present a 38-year-old male patient with a preliminary diagnosis of testicular tumor who was followed by the medical oncology clinic with cerebrovascular event and heart failure symptoms.

Key words: germ cell tumor, intracardiac metastasis, surgery.

Introduction

Testis tumors are rare, but it is the most common solid tumor in men under 45 years of age. They represent 1-2% of all malignant tumors in men [1]. Germ cell tumors account for almost 90% of all testis tumors. Although intracardiac metastases of testicular germ cell tumors occur rarely in clinics, they may lead to the congestive heart failure, paradoxical systemic emboli and vena cava superior syndrome with disseminated involvement of the right or left heart [2-5]. Metastatic tumors of the heart are seen more frequently when compared to primary tumors. Lung cancer and breast cancer are the most frequent tumors that lead to metastases to the heart [3]. Autopsy series done by Bredael et al. [6] revealed that the most common metastatic sites for testicular carcinoma are the lungs, liver, brain, and bone whereas intracardiac metastases are found in less than 1% of patients. Here, we report a patient with a prediagnosis of testis tumor and developed symptoms of the cerebrovascular accident and heart failure.

Case report

A 38-year-old man admitted to hospital with the complaint of swelling in the left testis for the last 3 months. Scrotal ultrasonography revealed heterogeneous and hypoechogetic solid mass lesion in the left testis with 9 x 6 cm dimensions. Normal testicular tissue was not observed and it was considered to be testicular tumor.

While the patient had been followed up by the medical oncology department, a cerebrovascular accident (CVA) developed and symptoms of NYHA class 4 heart failure were detected. Then, an echocardiography was performed. Echocardiography revealed a mass attached to the mitral valve with 18 x 52 mm in dimensions and filling two thirds of the left atrium. It was tufted with irregular borders and prolapsing into the left ventricle (Fig. 2). The patient underwent the surgery following our examination.

Under general anesthesia, after median sternotomy, cardiopulmonary bypass was started with bicaval cannulation. Left atriotomy was performed following cross clamp placement. Left atrium was explored and a 5 x 3 cm pe-
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discerned fragile mass was seen in the left atrium. It was free of the atrial wall and mitral valve. The pedicle was extending to the left lower pulmonary vein and was probably a part of metastatic mass in the left lung. The mass was excised totally (Fig. 3). The left atrial space was irrigated by saline after excision and there was no residual mass. There was a slight mitral valve insufficiency which required no additional intervention. Cardiopulmonary bypass was terminated without any complication or problem.

The patient was taken to the postoperative intensive care unit for 1 day and discharged on the 6th postoperative day. He was taken to the medical oncology department for therapy. Symptoms of the patient declined to NYHA class 1 postoperatively. Postoperative echocardiography revealed first degree mitral insufficiency and no residual mass.

Pathologic examination of the left atrial mass with a large amount of polypoid tissue revealed hypocellular mesenchymal tissue consistent with a non-seminomatous germ cell tumor metastasis. Microscopically teratoid glandular and ductular structures lined by columnar or squamous epithelial cells were seen in an edematous and hemorrhagic fibrous stroma. Epithelial areas were very scanty and focal. The small foci of choriocarcinoma component were located in hemorrhagic areas. Immunohistochemically, while teratoid areas were stained with pankeratin, choriocarcinoma areas were stained with HCG (Fig. 4).

Metastatic testicular germ cell tumor was diagnosed and BEP (bleomycin, etoposide, cisplatin) chemotherapy protocol was started 15 days after the surgery. The patient did not have any problem in wound healing during the follow-up. The thoracic CT at sixth month’s control showed regression in the pulmonary mass and no recurrence in the cardiac cavity (Fig. 5).

Discussion

Testicular tumors are among the tumors with the best therapy success and the longest survival. Patients have the chance of cure even in the advanced stages [7]. Five-year survival rate is 90% without distant metastases and 60% with distant metastases [8].

Cardiac metastases are rare in malignant tumors and their incidence ranged between 1.5% and 18.3% in various
Based on autopsy reports of 1029 patients with malignancy, the most frequent metastasis occurs in pericardium and the most frequently metastasizing tumor is lung cancer which is followed by lymphoma, breast cancer and esophagus cancer [9].

The most common sites of metastasis in testis tumors are paraaortic lymph nodes, mediastinal lymph nodes, lungs and supraclavicular fossa. Testicular germ cell tumors rarely spread to the heart. The incidence of metastatic involvement of cardiac endothelium and valvular surface due to testis tumors is 3.8% and it is considered that hematogenous spread via vena cava inferior is the main route [10]. Cardiac metastasis can be via hematogenous route, lymphatic route or both. Lymphatic spread follows ductus thoracicus pathway to the heart [11]. Hematogenous spread may involve lungs, liver, bones, brain and heart.

Chest pain, newly developed effusion, symptoms of tamponade, increase in the dimensions of the heart, new murmurs, new electrocardiography (ECG) changes and unexplained cardiac failure may point out to cardiac metastasis in patients with a neoplastic disease. In addition, dizziness, hypotension, loss of consciousness, and seizure may indicate embolization to the brain and intracardiac mass [12].

In literature, cases of right atrial mass and right heart failure are more common, but our case showed left atrial...
mass and symptoms of left heart failure. Excision of tumor mass led to dramatic regression of clinical symptoms. There was no recurrence at the postoperative 6th month follow-up visit.

In conclusion, cardiac output can be corrected by radical cardiac surgery in malignant germ cell testicular tumors with cardiac involvement. Although cardiac involvement has been related to short survival and worse prognosis, tumor type, tumor marker levels and the number of metastatic sites may affect prognosis [13]. The resulting clinical status in this patient encouraged us to conclude that a patient with disseminated cancer can be operated for treatment purposes. Developments in imaging techniques and surgical methods enable curative treatment choices in such patients during metastatic stages.

Disclosure

Authors report no conflict of interest.

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