

Bladder cancer metastasis to the pectoral muscle mimicking a breast tumor

Mesane kanserinin, meme tümörünü taklit eden pektoral kas metastazı

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Summary

The most frequent sites of metastasis from transitional cell carcinoma (TCC) of the bladder are lymph nodes, lung, liver, bone, and adrenal gland. Skeletal muscle metastasis is rare. A 67-year-old male patient who had undergone transurethral resection for grade III TCC of the bladder presented with a painful mass, 7x3 cm in size, in his right breast after the second course of postoperative systemic chemotherapy. A right radical mastectomy and axillary lymphadenectomy were performed. Pathological examination demonstrated a malignant epithelial tumor invading the pectoral muscle and axillary lymph nodes. Immunohistochemical studies showed high-grade TCC of the bladder. Despite further chemotherapy, the disease progressed and the patient died due to systemic metastases 10 months after the diagnosis of pectoral muscle metastasis. To our knowledge, this is the first case of metastasis to the pectoral muscle from a bladder TCC.

Key words: Carcinoma, transitional cell; muscle neoplasms/secondary; urinary bladder neoplasms.

Özet

Transizyonel hücreli mesane karsinomunun (THMK) en sık metastaz yerleri lenf nodları, akciğer, karaciğer, kemik ve adrenal bezdir. Çizgili kaslara metastaz oldukça nadir görülür. Altmış yedi yaşında bir erkek hasta, derece III THMK için yapılan transüretral rezeksiyon ve ardından uygulanan ikinci sistemik kemoterapi küründen sonra, sağ göğsünde, 7x3 cm'lik ağrılı bir kitle ile başvurdu. Sağ radikal mastektomi ve aksiler lenfadenektomi yapılan hastanın patolojik incelemesinde, pektoral kası ve aksiler lenf nodlarını tutan malign epitel tümörü saptandı. İmmünohistokimyasal incelemelerde lezyonun yüksek dereceli metastatik THMK olduğu görüldü. Sürdürülen kemoterapi hastalığın ilerlemesini durduramadı ve hasta, pektoral kas metastazı tanısından 10 ay sonra, sistemik metastazdan dolayı kaybedildi. Bildiğimiz kadarıyla, olgumuz THMK'nin pektoral kasa metastaz yaptığı ilk olgudur.

Anahtar sözcükler: Karsinom, transizyonel hücreli; kas neoplazileri/sekonder; mesane neoplazileri.

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Skeletal muscle metastasis from invasive transitional cell carcinoma (TCC) of the bladder is very rare.^[1-3] The sites of skeletal muscle metastasis from TCC are the deltoid, psoas, and rectus abdominis muscles, and adductor muscles in the thigh.^[1,3] Despite the fact that skeletal muscle comprises 50% of the total body mass and receives a large portion of cardiac output, hematogenous metastases to these areas rarely manifest as clinical symptoms because of muscle resistance to cancer via muscle movements, pH, and ability of muscle to remove lactic acid.^[4,5] Patients with skeletal muscle metastases from TCC of the bladder generally have a dismal prognosis with a mean survival of eight months (range 6 to 12 months).^[1] This poor prognosis can be attributed to widespread micrometastatic disease.

Breast metastasis from invasive TCC of the urinary bladder is uncommon. Solitary breast metastasis is sometimes indistinguishable from primary breast tumor. We present a case of pectoral muscle metastasis from TCC of the bladder mimicking breast tumor. To our knowledge, this is the first case of bladder TCC metastasizing to the pectoral muscle.

Case report

A 67-year-old male patient presented with a painful mass in his right breast. He had a three-month history of transurethral resection for bladder cancer at another center and a pathological diagnosis of grade III TCC of the bladder with muscle infiltra-



Figure 1 A thoracic computed tomography scan demonstrating a solid mass of 7x3.5 cm.

tion. The metastatic workup of the patient showed a locally invasive (cT₃bN₀M₀) bladder tumor. Systemic chemotherapy with MVAC (methotrexate, vinblastine, doxorubicin, and cisplatin) and local radiation therapy were started. After the second course of chemotherapy, he presented to our department with a painful breast mass.

He had a tender, partially mobile, solid mass in his right breast measuring 7x3 cm. Blood chemistry and urine analysis were in normal ranges. A thoracic computed tomography scan demonstrated a solid mass in the right breast, 7x3.5 cm in size (Fig. 1). Further imaging studies showed no demonstrable metastasis. A right radical mastectomy and axillary lymphadenectomy were performed and the patient had an uneventful postoperative course.

Pathological examination demonstrated normal breast tissue and a malignant epithelial tumor invading the pectoral muscle (Fig. 2a, b). Of the resected 16 axillary lymph nodes, one had malignant epithelial tumor metastasis. Immunohistochemistry of the tumor showed high-grade transitional cell carcinoma. The tumor was positive for CEA (+++) (Fig. 2c), cytokeratin (+++), and EMA (+++) staining. These findings confirmed metastatic involvement of the pectoral muscle and axillary lymph nodes by the high-grade, locally invasive TCC of the bladder. We continued MVAC chemotherapy for three more cycles and irradiated the right breast and axilla. However, the disease progressed and the patient died due to systemic metastases 10 months after the diagnosis of pectoral muscle metastasis.

Discussion

Skeletal muscle metastasis is a rare clinical entity usually seen in advanced malignancies. The rarity of muscular metastatic lesions has been attributed to multiple factors such as contractile activity, change in pH, the accumulation of metabolites, intramuscular blood pressure, and local temperature.^[1,2] Sites of skeletal muscle metastases from TCC of the bladder

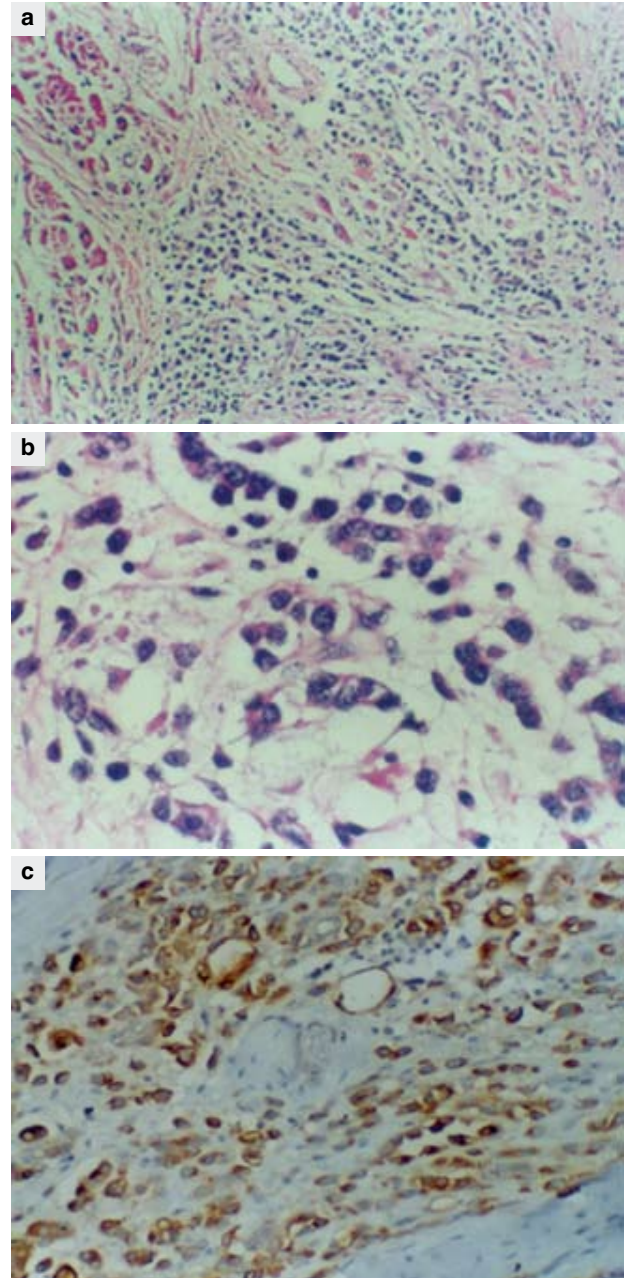


Figure 2 (a) Malignant epithelial tumor foci infiltrating skeletal muscle (H-E x110). (b) Tumor cells with large pleomorphic nuclei (H-E x440). (c) CEA positivity in tumor cells (DAB x440).

include the deltoid, psoas, rectus abdominis muscles, and adductor group of muscles in the thigh.^[1,3] To our knowledge, our case represents the first report of pectoral muscle metastasis from TCC of the bladder.

Patients with skeletal muscle metastasis generally have a widespread metastatic disease and poor prognosis. Skeletal muscle metastasis from TCC of the bladder also has a dismal prognosis. Nabi et al.^[1] reported the mean survival as eight months (range 6-12 months) in five patients with skeletal muscle metastasis from bladder tumors. In our case, mortality due to systemic metastases occurred 10 months after the diagnosis of metastatic disease, at which time there was no evidence for systemic metastasis. This finding demonstrates that even cases with solitary muscular lesions have widespread micrometastatic disease at the time of diagnosis.

In general, management of muscular metastasis of TCC is palliative, which includes local resection of the metastatic site, chemotherapy, and radiotherapy. However, in most cases, these palliative measures do not prevent mortality from systemic disease. Surgery, local radiotherapy, and systemic chemotherapy failed to control the disease in our case, showing that muscular metastasis of TCC of the bladder has a poor prognosis.

Skeletal muscle metastasis of TCC is very rare, but in cases of invasive TCC of the bladder, localized muscular swellings with or without pain should raise the suspicion for metastasis. In our case, the patient had a painful swelling in his right breast and surgery of this mass demonstrated pectoral muscle metastasis from TCC of the bladder.

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