

A case of recurrent breast cancer diagnosed from symptomatic metastasis to bladder

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ABSTRACT

A woman living in the United States has approximately a one in eight chance of developing breast cancer within her lifetime. The main cause of death associated with breast cancer is from metastatic spread of the disease, with the most frequent sites of spread being the bone, brain, and lungs. The urinary bladder is an uncommon site of metastasis, rarely reported on in the literature. In this report, we present a case of recurrent metastatic breast cancer found in the urinary bladder with no other sites of metastatic spread. A thorough history should be obtained in all patients, and in patients with a previous history of cancer, reoccurrence and distant spread should be kept as a differential diagnosis.

KEYWORDS

Metastatic Breast Carcinoma, Hematuria

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The patient is a 61-year-old female with a history of locally advanced ER/PR+, HER-2 negative breast cancer diagnosed in September 2002. At the time of her diagnosis, she underwent neoadjuvant chemotherapy, followed by a mastectomy with sentinel lymph node biopsy where five of eight lymph nodes were found to be positive. She was treated with adjuvant Taxotere for four cycles, after which she received radiation to her chest wall. She completed her radiation therapy in August 2003 and received tamoxifen until 2009. At that time, she was switched to Femara and went on to complete more than five years of therapy. During her therapy, she was under regular surveillance, which included mammograms and clinic visits that showed no findings of recurrent disease.

Of note, this patient had a past medical history of asthma, diabetes type II, hyperlipidemia, hypertension, osteoarthritis, and hypothyroidism. She reported no tobacco or drug use and only mild alcohol consumption. Both parents are alive, and there is no known family history of breast cancer.

In April 2019, she presented with lower abdominal pain and hematuria for which she underwent a cystoscopy. The examination showed a single large

sessile neoplasm in the upper dome region of the bladder. Transurethral resection of the bladder tumor was completed with pathology findings of ER/PR + HER-2 negative breast carcinoma. A systemic workup, which included CT scans of the chest, abdomen, and pelvis, and a bone scan were completed. Findings included a thyroid nodule, which was negative for malignancy on fine-needle aspiration, and a palpable lymph node in her right inguinal region, which was biopsied and also negative.

The patient was started on daily letrozole and cycles of palbociclib. She continued on calcium and vitamin D supplements. She tolerated this regimen well. The most recent mammogram of the left breast was negative.

DISCUSSION

Secondary tumors found in the bladder, such as metastasis, are rare and account for only two percent of bladder tumors.¹ Most of these are from direct invasion from adjacent structures in the pelvis.² Due to the rarity of metastasis from the breast to the bladder, screening for bladder metastasis is typically triggered only by symptoms such as lower abdominal pain or



hematuria, which is how our patient presented. Even more rare are findings of metastasis incidentally without symptoms.³

Differentiating between primary bladder neoplasm and metastasis requires biopsy and pathological examination. One would expect homogenous expression of ER/PR receptors between the primary neoplasm in the breast and the metastasis. However, heterogenic expression between the primary breast tumor and the metastatic lesion is not uncommon, with some studies showing 20 to 40 percent of patients demonstrating discordance.⁴ This makes for an important distinction between primary versus metastatic neoplasms of the bladder and possible treatment modalities.

Another point to consider is how breast cancer can metastasize to the bladder with no local involvement. Previously, it was believed that metastasis to the bladder occurred through the extension of retroperitoneal masses. However, another proposed mechanism occurs through venous emboli.⁵ The theory of metastatic emboli from a primary source could account for both solitary bladder involvement and the presence of metastasis in the absence of gross disease recurrence.

This leads us to consider if there is enough evidence to promote routine screening for bladder metastasis in breast cancer patients. As patients with breast cancer live longer, we may need to be more vigilant to uncover atypical presentations of metastasis, especially those that tend to present late. At this time, the evidence of metastasis is still less than five percent, with many of those presenting symptomatically.⁶

CONCLUSION

Currently, there is insufficient evidence to support routine screening for bladder metastasis without symptoms. However, the evidence is significant enough to allow for a higher index of suspicion in patients presenting with urinary symptoms and a history of breast cancer to necessitate a full workup in order to tailor treatment accordingly.

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