

Case Report

Metastatic Breast Cancer to the Urinary Bladder in the Caribbean

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Keywords

Bladder metastasis · Breast cancer · The Caribbean · Distant metastasis · Hydronephrosis · Metastatic breast cancer oncology

Abstract

One of the most common cancers amongst women is breast cancer. The most common metastatic sites are the lymph nodes, lungs, liver, and bone. Metastatic spread to the urinary bladder is rare, and this case, as far as we are aware, is the first reported in the Caribbean. This patient developed urinary symptoms 4 years after her diagnosis of breast cancer. CT imaging showed thickening of the bladder wall, and histology confirmed metastatic breast cancer. As imaging modalities and cancer treatment improve, patients live longer with metastatic disease, and we will potentially see more unusual presentations of metastatic disease.

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Introduction

One of the most common cancers amongst women is breast cancer. Breast cancer metastasis to the lymph nodes, bone, brain, liver, and lungs is the most common [1, 2]. Urinary bladder metastasis from solid tumours is rare and represents 2% of all bladder neoplasms [3]. We present a rare case of breast cancer metastasis to the bladder.

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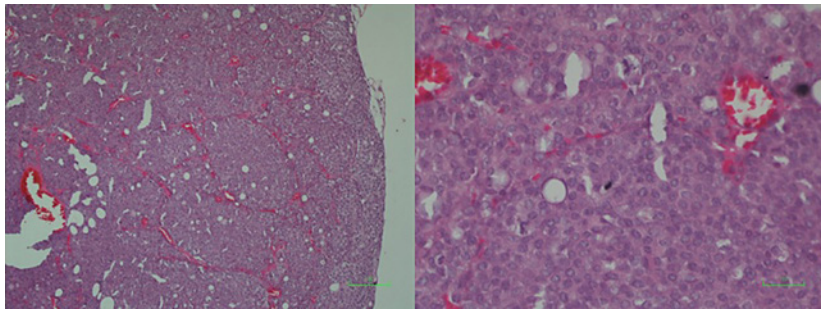


Fig. 1. Histological specimen of bladder biopsy showing metastatic breast cancer.

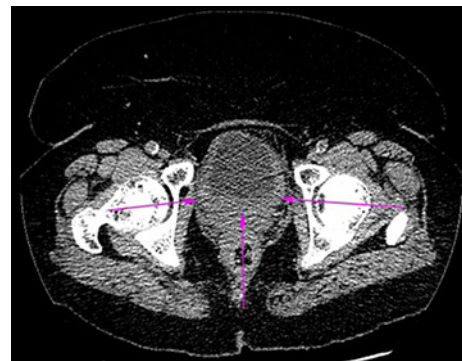


Fig. 2. CT image of the pelvis showing enhanced posterior bladder wall thickening (arrows).

Case Report/Case Presentation

We report a case of an 80-year-old female of Indo-Caribbean ethnicity, who initially presented in 2014 with left breast cancer. She had known comorbidities of hypertension, ischaemic heart disease, osteoarthritis of both knees limiting mobility, and no family history of malignancy. She underwent a left modified radical mastectomy and axillary lymph node dissection in January 2014 and pathologically staged as TNM pT2N3M0, stage IIIC. The histological tumour type of the malignancy was invasive lobular carcinoma, grade 1 (shown in Fig. 1). Immunohistochemistry was oestrogen and progesterone receptor positive and HER 2 negative. The patient then underwent radiation therapy and was started on an aromatase inhibitor. Chemotherapy was not prescribed due to the poor performance status and comorbidities of the patient.

The patient had stable disease on aromatase inhibitors for 4 years. In June 2018, the patient started complaining of urinary incontinence with no other symptoms. Upon investigation, she had microscopic haematuria and impaired renal function. CT imaging of the kidney, bladder, and urinary tract revealed thickening of the posterior bladder wall and bilateral hydroureteronephrosis (right more than left) shown in Figures 2 and 3. Transurethral resection of bladder tumour was performed, and tissue samples were taken for histology. Immunohistochemistry markers aided the diagnosis with tumour cells showing expression for mammaglobin and oestrogen and no expression for CK 20. Immunomorphological features confirmed metastatic breast cancer. The patient had a right-sided nephrostomy procedure performed, and her renal function returned to normal. The patient was then discontinued from aromatase inhibitors and started on fulvestrant (an oestrogen receptor antagonist). She is currently on this treatment, and her CT imaging of the chest, abdomen, and pelvis has shown stable disease in the bladder with no other sites of metastatic disease

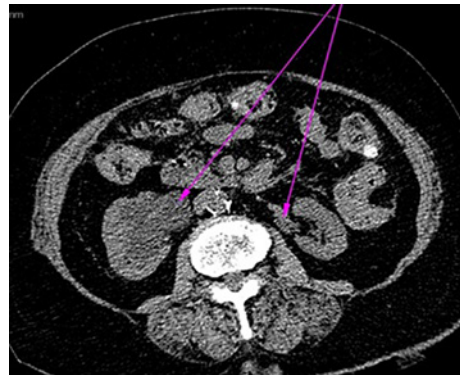


Fig. 3. CT image demonstrating bilateral hydronephrosis. Right > left indicated by arrows.

for the last 2 years. She is clinically well with no urinary incontinence and remains under care at the oncology service.

Discussion

Breast cancer with urinary bladder metastasis is a rare presentation of the disease, accounting for 2% of solid bladder tumour metastases [4]. Urinary bladder metastasis is rare, with a recent systemic review done in March 2020 showing 65 cases reported in the literature [4]. The age of presentation ranges from 40 to 83 with a median age of 55, and our patient presented within this median age [3]. As far as we are aware, this case is the first reported in the Caribbean.

Breast cancer metastasis is linked to the histological type of cancer. The major pathological subtypes are ductal and lobular carcinoma. Lobular carcinoma has a higher tendency to metastasize to serosal surfaces, and the greater incidence of bladder involvement may be caused due to the spread from these sites [4]. The patient, in this case, had the infiltrating lobular carcinoma subtype, which is in keeping with the literature. The pathologist should always be made aware of the prior history as, in this case, the patient had infiltrating lobular carcinoma more prone to cause urinary bladder metastasis, and history would also aid with immunohistochemistry.

Urinary symptoms at presentation range from gross haematuria, urinary frequency, low back pain, nocturia, urge incontinence, and microscopic haematuria [5]. Our patient presented with urinary incontinence and microscopic haematuria in keeping with the literature. These symptoms highlight the need for an urgent investigation into patients with urinary symptoms with a history of breast cancer. Urinary ultrasound is a safe modality to start with, and if renal function permits, then CT venogram to look for filling defects along the urinary tract. Flexible cystoscopy would be advantageous as it allows for biopsy and histological examination of bladder lesions. Further investigations should include CT images of the whole body to determine any metastatic disease as breast cancer commonly metastasizes to the lungs, liver, and bone. In this case, of note, there was only metastasis to the urinary bladder.

Hydronephrosis was a complication of our patient bladder metastases. The median time between surgery and diagnosis of hydronephrosis is 47 months (20–70 months), with a median survival time of 12 months (3–57 months) [6]. Our patient developed hydronephrosis in 48 months. Our literature review reported the 5-year survival of patients with bladder metastases from breast cancer [7]. Our patient is 3 years after diagnosis and has stable disease in the bladder with no other metastases on CT imaging and clinically no further urinary symptoms. With advancements in imaging and therapies, patients with metastatic disease are demonstrating increased overall survival.

Conclusion

This case highlights the need for a prompt investigation into patients presenting with urinary symptoms and a history of breast cancer. With advancements in imaging and therapies for cancer patients, the life expectancy of patients is increasing. The standard workup for surveillance and metastatic disease, in our opinion, may require a change in the future.

Acknowledgments

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Statement of Ethics

Written and informed consent was obtained from the patient for publication of this case report and accompanying images. Ethical approval was not required.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

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Author Contributions

All authors were involved in the preparation of the manuscript. S. Mohammed designed and conceptualized the case report, prepared the initial draft of the manuscript, and finalized the manuscript. A. Akii Bua designed, conceptualized, and finalized the manuscript.

Data Availability Statement

All data generated or analysed during this study are included in this article. Further enquiries can be directed to the corresponding author.

References

- 1 DeSantis C, Ma J, Bryan L, Jemal A. Breast cancer statistics, 2013. *CA Cancer J Clin*. 2014 Jan;64(1):52–62.
- 2 Marino N, Woditschka S, Reed LT, Nakayama J, Mayer M, Wetzel M, et al. Breast cancer metastasis: issues for the personalization of its prevention and treatment. *Am J Pathol*. 2013 Oct;183(4):1084–95.
- 3 Bates AW, Baithun SI. Secondary neoplasms of the bladder are histological mimics of nontransitional cell primary tumours: clinicopathological and histological features of 282 cases. *Histopathology*. 2000 Jan;36(1):32–40.

- 4 Karjol U, Jonnada P, Cherukuru S, Chandranath A. Bladder metastasis from breast cancer: a systematic review. [Cureus](#). 2020 Mar 25;12(3):e7408.
- 5 Feldman PA, Madeb R, Naroditsky I, Halachmi S, Nativ O. Metastatic breast cancer to the bladder: a diagnostic challenge and review of the literature. [Urology](#). 2002 Jan;59(1):138.
- 6 Sugimoto H, Oda G, Yokoyama M, Hayashi K, Yoshino M, Ogawa A, et al. Hydronephrosis caused by metastatic breast cancer. [Case Rep Oncol](#). 2021;14(1):378–85.
- 7 Poulakis V, Witzsch U, de Vries R, Becht E. Metastatic breast carcinoma to the bladder: 5-year followup. [J Urol](#). 2001 Mar;165(3):905.