

Case Report

ISOLATED BREAST CANCER METASTASIS TO BLADDER- A RARE OCCURRENCE

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ABSTRACT

Solid organ metastasis to bladder are quite rare and accounts for less than 20 % of bladder cancers. Even though, world wide breast cancer is second leading cause of death due to cancer, metastasis to bladder is accounts only 3% of all solid organ tumor metastasis and that to seen in advanced stage. Very few reports are in the literature documented about the isolated breast metastasis to bladder. The exact mechanism is not known. We are reporting such case encountered.

Keywords: *Breast Carcinoma, Bladder Metastasis, Immunohistochemistry*

INTRODUCTION

Among the malignant bladder tumors urothelial carcinoma is most frequent type. Secondary malignancy in bladder accounts for only 2% of overall bladder tumors. Even though breast cancer is the 2nd most common cancer in women and one of the leading cause of cancer related mortality and morbidity, bladder involvement is quite rare. Breast cancer metastasis constitutes around 2.5% of all metastatic malignancies to bladder. In most of the cases reported are on autopsies and disease is far advanced. A very few articles documented in the literature where metastasis occurs primary to bladder, that to in early stage and without evidence in other organs (Gatti *et al.*, 2005; Bates and Baithun, 2002; Ferlay *et al.*, 2008).

CASES

A 55 years old women who is under breast cancer follow up since 5 years, presented with persistent non specific urinary symptoms. She under went radical mastectomy procedure for her left breast cancer 5 years back. Histopathological reported as infiltrated ductal carcinoma of left breast with axillary node metastasis. Since then she underwent regular Bone scan and CT scan of chest, abdomen and pelvis and other relevant investigations periodically and she is cancer free until now. Patient advised for CT scan which revealed a significant asymmetrical lateral bladder wall thickening, for which she underwent for transurethral resection of bladder (TURB) procedure.

Histological Study

Microscopic study reveals linear soft tissue bits lined by normal urothelial mucosa and areas of focal ulceration. Deeper stroma is infiltrated by polygonal tumors cells, which are arranged in clusters, ductal pattern and singles and surrounded by desmoplastic stroma, inflammatory cell infiltration and hemorrhage. These large tumour cells have hyperchromatic nuclei, occasional prominent nucleoli and atypical mitosis (Figure 1). Tumor cells have moderate amount of granular cytoplasm. Lymphovascular emboli also are noted. Immunohistochemical study shows widespread positivity for CK7/CK17 (Figure 2) & focal positivity for GCDFP -15, Mammoglobin (Figure 3), CK5 & 6 and immunonegative for CK 20, p63 and TTF-1, which confirms the infiltrating ductal carcinoma of breast metastasis to bladder.

DISCUSSION

Breast cancer is 2nd most leading cause of death in the world and in India. Most important prognostic factor in breast carcinoma is tumor size and axillary lymph node involvement. Most commonly it

Case Report

metastasis to lung, liver, bone and less often bladder. In most of the studies show urinary bladder involvement seen in advance stage and autopsy series. A very few cases show isolated breast cancer metastasis to bladder (Gatti *et al.*, 2005; Ferlay *et al.*, 2008; Ramsey *et al.*, 2000).

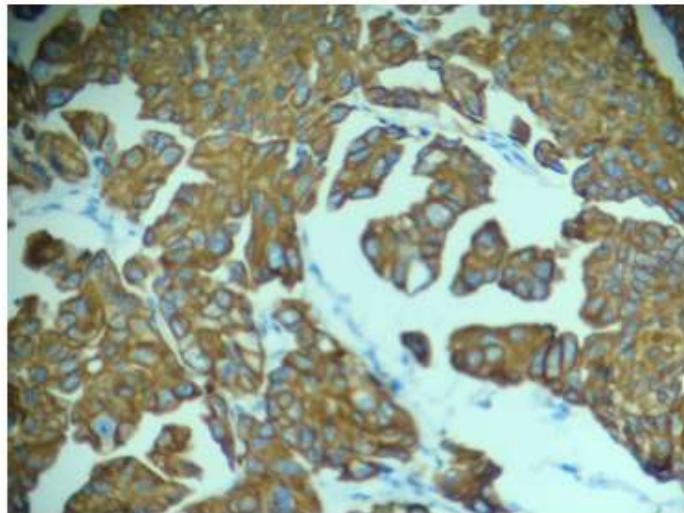


Figure 1: Normal bladder mucosa with sub-epithelial tumor cell infiltration. Note focal epithelial ulceration (HE 10X).

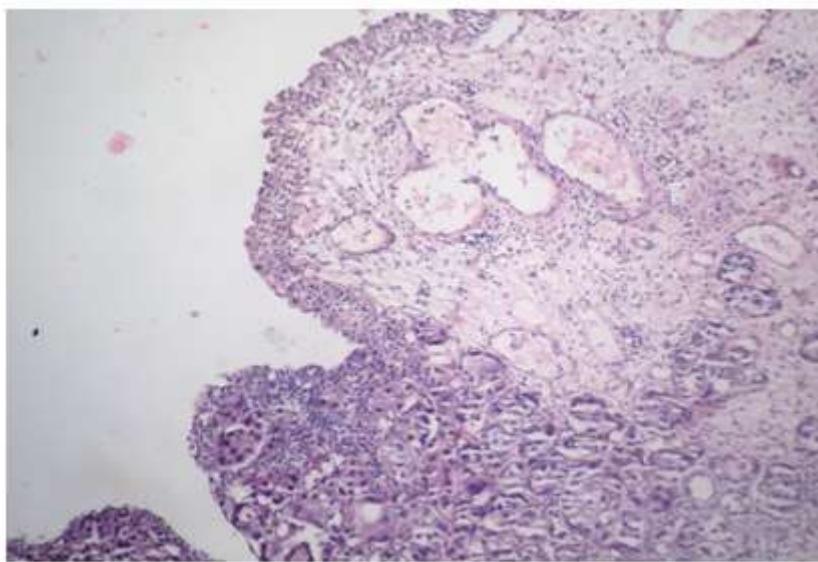


Figure 2: Widespread tumor cell cytoplasmic positivity of CK17 (40X).

The incidence of solid tumor metastasis in bladder is very less and accounts for 2% - 3%. Most common histological type is infiltrating lobular carcinoma. We are reporting infiltrating ductal carcinoma which accounts less than common compared to prior type. The exact mechanism of metastasis is not known, but few reports show steroid based multi drug chemotherapy may be risk factor. In our case patient not under went chemotherapy. The possible mechanism could be a genetic mutation and minute viable tumor emboli that pass through the pulmonary circulation without establishing a lung metastasis and subsequently reach

Case Report

the urinary bladder by hematogenous transportation postulated in some articles (Gatti *et al.*, 2005; Bates and Baithun, 2002; Ramsey *et al.*, 2000; Zagha *et al.*, 2007).

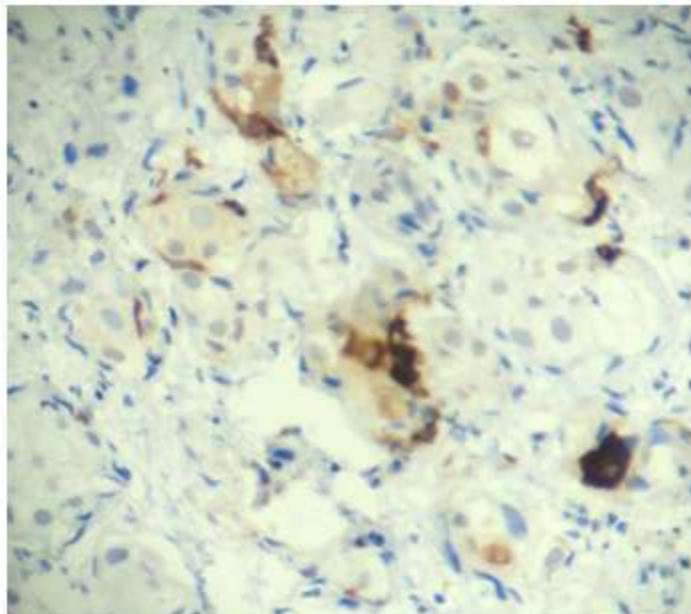


Figure 3: Tumor cells showing focal cytoplasmic positivity of Mammoglobin (40X).

Immunohistochemical evaluation is one of the important modality for diagnosis confirmation and prognosis. Most of the breast cancer shows positivity for common markers like CK7 and specific markers like CK17, mammoglobin and GCDFP -15. The expression of CK17 indicates poor outcome in breast carcinomas. Immunoreactivity of ER, PR and Her2/Nu varies from primary breast cancer and have no diagnostic importance. However they help in hormone based chemotherapy treatment (Łuczyńska *et al.*, 2010; Bahrami *et al.*, 2008; Wei-Ching and Jeon-Hor, 2007).

Conclusion

In present medical practice, it is inevitable to see woman who has breast cancer or recovering from cancer. Even though primary bladder cancer is more common and breast cancer metastasis to bladder is rare, it should be thought under appropriate clinical circumstances and followed up accordingly. Even though complete molecular biology of tumor metastasis is not known, studying such cases gives lot of insight to tumor biology.

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Case Report

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