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Case Report

Retroperitoneal Metastasis of Metaplastic Breast Cancer Causing Hydronephrosis

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Abstract

Metaplastic breast carcinoma (MpBC) accounts for <5% of all cases of breast cancer. Retroperitoneal metastasis is also a rare metastatic site of breast cancer. We report a case of retroperitoneal metastasis of MpBC which was extirpated by transperitoneal laparoscopic surgery. The patient was free of disease for 30 months. We also discuss the presentation, diagnosis and treatment of retroperitoneal metastasis of MpBC causing hydronephrosis.

Keywords: Breast cancer, hydronephrosis, metaplastic breast carcinoma, retroperitoneal metastasis, triple negative breast cancer

INTRODUCTION

Metaplastic breast carcinoma (MpBC) is an extreme rare histological variant of breast cancer, accountings for only 0.2%–5% of all breast cancer cases. The disease is often present aggressive and an even worse prognosis than triple negative breast cancer (TNBC).^[1] The World Health Organization classifies MpBC into several subgroups: Low-grade adenosquamous carcinoma, fibromatosis-like metaplastic carcinoma, spindle cell carcinoma, squamous cell carcinoma, metaplastic carcinoma with heterologous mesenchymal differentiation, and mixed metaplastic carcinoma. Low-grade adenosquamous carcinoma and fibromatosis-like metaplastic carcinoma subtypes have a more indolent behavior than the other subtypes, probably has a more favorable outcome.^[2]

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Herein, we report a case of retroperitoneal metastasis of MpBC causing hydronephrosis.

CASE REPORT

This 53-year-old woman was treated for MpBC of her left breast in 2013 had been regularly followed up at our hospital since then. The initial stage of disease was pT2N0M0, stage II, estrogen receptor: Negative, progestrone receptor: Negative, HER2/neu: -/+++ (negative for HER2 protein expression), and Ki-67: 55%. She received six courses of

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adjuvant chemotherapy with docetaxel followed by left total mastectomy and sentinel lymph node biopsy. However, she complained of mild right flank pain for months. A routine abdomen sonogram in 2017 showed a hypoechoic metastatic lymph node or mass lesion (3.9 cm) in her right pelvis, which was compressing the right middle third ureter and causing right sided hydroureter with moderate hydronephrosis in the right kidney [Figure 1].

Subsequent abdominal contrast-enhanced computerized tomography (CT) [Figure 2] and magnetic resonance imaging (MRI) [Figure 3] both revealed a right retroperitoneal tumor anterior to and abutting the right psoas muscle. The tumor was compressing the right middle third ureter and causing mild right hydroureter. After consulting an urologist, transperitoneal laparoscopic retroperitoneal tumor extirpation was suggested due to progressive hydronephrosis and hydroureter [Figure 4]. The final pathology report showed metastatic metaplastic carcinoma, spindle cell type with smooth muscle differentiation from



Figure 1: Abdominal sonogram revealed a hypoechoic metastatic lymph node or mass lesion (3.92 cm) in her right pelvis

the breast [Figure 5]. Comparing the retroperitoneum tumor to the origin breast tumor, the morphology was similar [Figure 6]. Postoperative radiotherapy and chemotherapy were suggested, but the patient refused further treatment. After the operation, a positron emission tomography CT scan showed no distant metastases or local residual tumor. She is still receiving regular follow-up at our hospital and there has been no evidence of recurrence for over 30 months.

DISCUSSION

MpBC often presents with a poor prognosis and a lack of estrogen receptor (ER), progesterone receptor (PR), and human epidermal growth factor receptor 2 (HER2) expressions. In comparison to TNBC, MpBC patients more often present with well-differentiated disease, more advanced T stage, and less advanced or similar N stage than TNBC patients. In general,



Figure 2: Abdominal contrast-enhanced computerized tomography showed a mass above the right psoas muscle (arrow) causing compression/invasion of the right middle third ureter and subsequently right hydroureteronephrosis



Figure 3: T2-weighted magnetic resonance imaging revealed a right retroperitoneal tumor (arrow) anterior to right psoas muscle



Figure 4: A well-defined and lobulated tumor measuring 4.1 cm \times 4.0 cm \times 3.1 cm

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Figure 5: The malignant tumor was composed of spindled neoplastic cells with hyperchromatic nuclei in a fascicular growth pattern

MpBC patients have worse overall survival compared with TNBC patients.^[3]

Due to the rarity of MpBC, no randomized control trials to date have been conducted to establish a standard MpBC treatment modality. For localized MpBC, surgery is still the standard of care.^[4] For metastatic MpBC, only a few studies have reported the use of chemotherapy, including anthracyclines, taxanes, capecitabine, vinorelbine, and cyclophosphamide. One study reported a patient with sarcomatoid features who was previously unresponsive to standard chemotherapy and was treated with ifosfamide and etoposide.^[5] Further targeted therapies involving PI3K, AKT, or mechanistic target of rapamycin pathways are still under investigation.^[6]

Although MpBC is aggressive and has a poor prognosis, low-grade adenosquamous carcinoma, and fibromatosis-like metaplastic carcinoma subtypes have a better prognosis. In our case, the pathologist favored the spindle cell carcinoma subtype of MpBC. She did not any have other distant metastases and the tumor presented with less aggressiveness and she has remained disease-free for over 30 months and still receives regular follow-up at our hospital.

Several cases of retroperitoneal metastasis of breast cancer have been reported.^[7] Obstructive uropathy is a typical feature of retroperitoneal tumor and bilateral flank pain is the most common clinical symptom. The most common histology of retroperitoneal metastasis is invasive ductal carcinoma. However, none of these cases were MpBC.



Figure 6: The morphology of the spindle neoplastic cells in the retroperitoneal tumor (Panel B) was similar to the tumor cells in the original left breast mass (Panel A)

Therefore, this is the first case report of retroperitoneal metastasis of MpBC.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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