Breast Metastasis from a Renal Cell Carcinoma

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Metastases to the breast from extramammary tumors are uncommon, but the proper diagnosis is important because the prognosis and treatment differ from those of primary breast cancer. Metastatic renal cell carcinoma to the breast is extremely rare, accounting for 3% of cases [1]. We report an isolated metastasis to the breast from a renal primary carcinoma that occurred 2 years and 10 months after left radical nephrectomy for renal cell carcinoma.

Patient Description

A 55 year old woman was admitted to the hospital for macrohematuria in January 2003. Whole-body computed tomography scan showed an isolated left renal mass, 5.9 cm in diameter, with no evidence of metastatic spread. On 21 January 2003, she had a left radical nephrectomy. Pathological examination demonstrated renal cell carcinoma of the clear cell type [Figure A], grade I-II and focally III; the tumor compressing the renal capsule but not infiltrating through it; and hilar vessels and ureteral surgical margins free of tumor. Follow-up by the surgeon disclosed no signs of any local recurrence or distant metastases until November 2005 when a routine mammography showed a solid mass in the right breast. Ultrasound examination confirmed a lesion of 6 mm in diameter. Biopsy showed metastatic renal cell carcinoma.

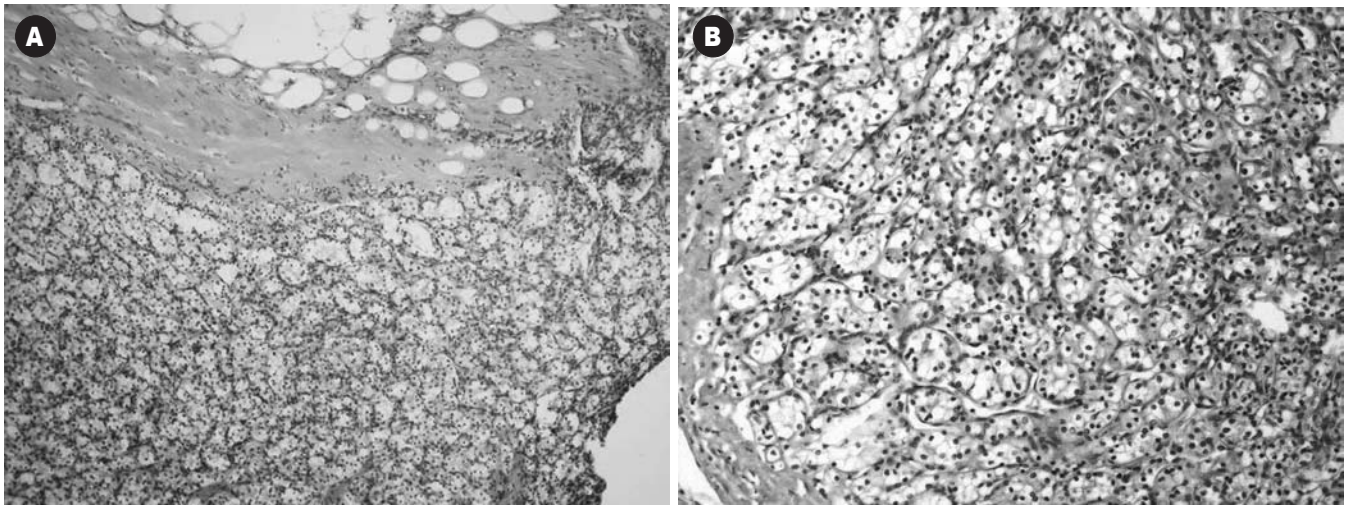
Further systemic evaluation followed. Whole-body bone scan with 99 mTc was negative for bone metastatic spread. Repeated whole-body CT scans showed a spleen nodule 2 cm in diameter, consistent with hemangioma. The lump was excised on 25 December 2005. Pathology examination showed a focus (0.9 cm in diameter) of metastatic clear cell renal carcinoma [Figure B], with all surgical margins free of tumor. No further treatments were recommended.

Routine follow-up in the oncology clinic after discovery of the mass, including CT scans, mammography and ultrasound, showed no evidence of disease as of September 2007.

Comment

The small number of case reports on this entity in the literature suggests that the breast is a highly uncommon site for metastatic disease. It may, however, become an increasingly frequent finding as patients live longer with malignant diseases [2]. In our case the breast metastasis was the first presentation of disease recurrence.

Metastatic neoplasms to the breast account for 0.5–6.6% of all malignant mammary tumors in autopsy series [2], 0.5–1.3% in clinical reports [3], and 2.7% in cytology series [4]. The most frequent origins of metastasis to the breast in women are malignant melanoma, lymphoma, reticulosarcoma, and lung cancer; and for males, prostate cancer [1]. Renal



Photomicrograph showing histopathology presentation of renal cell carcinoma, clear cell type (hematoxylin & eosin). **[A]** Primary renal cell carcinoma, **[B]** metastatic renal cell carcinoma to the breast.

tumors metastasizing to the breast are rare, occurring in only 3% of cases [1]. The average age of patients at the time of presentation of breast metastases from extra-mammary primary malignancies is 47 years [4].

Clinically, metastatic lesions in the breast present as painless discrete masses with rapid growth. Metastatic lesions have several features that may be helpful in differentiating them from primary lesions; all of them were present in our patient. The skin is usually not affected, and axillary node involvement is uncommon. Mammogram shows well-circumscribed lesions that lack microcalcifications. Both breasts are equally affected, and bilateral involvement is not rare. Solitary discrete lesions occur in 85% [1].

Although difficult, it is of the utmost importance to determine the nature of a malignant finding in the breast. A preceding history of malignant disease should arouse suspicion of metastatic escape to the breast despite the fact that primary carcinoma of breast is much more common [1,4]. Pathological investigation is the key to making the correct diagnosis. Palliative chemotherapy or radiotherapy rather than radical surgery may be preferred if the breast lesion is recognized as a metastasis and other sites of metastatic spread are found [1,4]. In the case of an isolated lesion, metastasectomy is the treatment of choice. Mastectomy and lymph node dissection are unnecessary. The prognosis is often poor with a life expectancy rarely exceeding one year [5]. In our patient, tumorectomy was performed and 2½ years later the patient is alive with no evidence of disease.

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