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Breast metastasis nine years after nephrectomy for renal cell carcinoma: A case report

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ABSTRACT

INTRODUCTION: The breast is a rare site for metastatic disease. We report a rare case of breast metastasis 9 years after nephrectomy for renal cell carcinoma (RCC) and include a review of the relevant literature. **PRESENTATION OF CASE:** An 82-year-old woman who developed an RCC underwent left nephrectomy in 2005. In October 2014, computed tomography (CT) revealed a mass of approximately 1 cm in the lateral portion of the right breast. Breast ultrasonography (US) revealed a well-circumscribed, hypoechoic mass at the same site. Fine needle aspiration (FNA) was performed, but the sample was inadequate because it did not capture breast duct epithelial cells. In June 2015, follow-up US revealed enlargement of the mass, and core needle biopsy (CNB) was performed to confirm the diagnosis. Histological examination resulted in the diagnosis of breast metastasis from an RCC. The patient underwent surgery for partial mastectomy in November 2015. The patient was asymptomatic and free of detectable disease at 18-month follow-up. **DISCUSSION:** The diagnosis of breast metastasis by imaging examination is difficult, and the results of FNA examination are often inconclusive because of the absence of breast duct epithelial cells. Only 22 cases of breast metastasis from RCC have been described in the literature. In almost all the reported cases, lumpectomy or partial mastectomy was performed.

CONCLUSION: It is important that histological diagnosis be determined by CNB and by other methods if the patient has a history of malignancy, and minimally invasive therapy should be performed in accordance with the prognosis.

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1. Introduction

The incidence of breast metastasis from extramammary primary tumors ranges from 0.5% to 2% [1]. Malignant melanoma, leukemia and lymphoma are the most common among all malignancies that have been described as metastasizing to the breast [2]. By contrast metastasis from a renal cell carcinoma (RCC) to the breast is very rare. In line with SCARE criteria, we report a rare case of breast metastasis 9 years after nephrectomy for RCC and provide a review of the relevant literature [28].

2. Presentation of case

An 82-year-old woman developed an RCC and underwent left nephrectomy for clear cell carcinoma at the Department of Urology of The Jikei University Kashiwa Hospital in 2005. She had no history of malignancy other than RCC, no breast disease and no family history of carcinoma. In October 2014, CT of the chest and abdomen performed as a regular follow-up revealed a mass of approximately 1 cm mass in the lateral portion of the right breast. The patient was referred to our department for further assessment and treatment. On clinical examination, no swelling was palpable in either breast. Mammography showed a smooth-margined, high-density mass in the upper outer quadrant of the right breast (see Fig. 1). Breast US revealed a well-circumscribed, hypoechoic mass measuring 10 mm at the same site; this was judged to be a fibrous adenoma (see Fig. 2). FNA of the right breast mass was performed, but the sample was inadequate because it did not contain breast duct epithelial cells. In June 2015, follow-up US revealed enlargement of the mass to 13 mm (see Fig. 2); FNA was conducted for the second time, but the result was undeterminable for the same

Abbreviations: RCC, renal cell carcinoma; CT, computed tomography; US, ultrasonography; FNA, fine-needle aspiration; CNB, core-needle biopsy; MRI, magnetic resonance imaging; ALND, axillary lymph node dissection.

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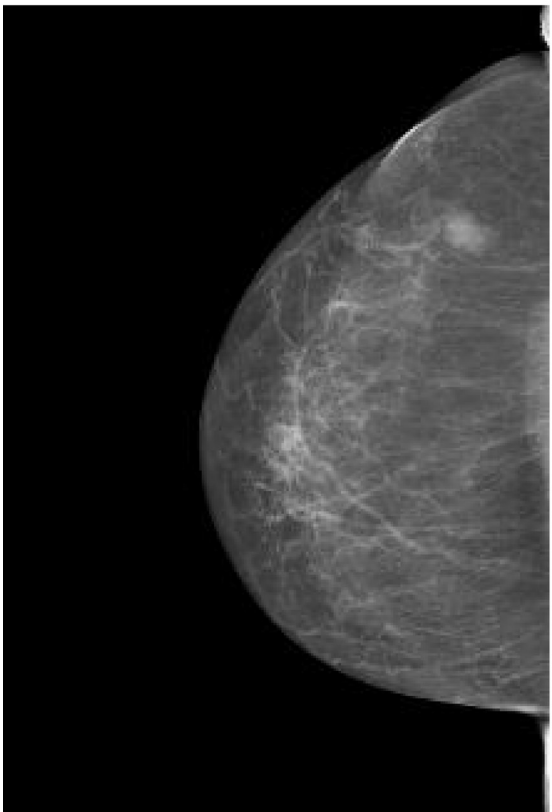
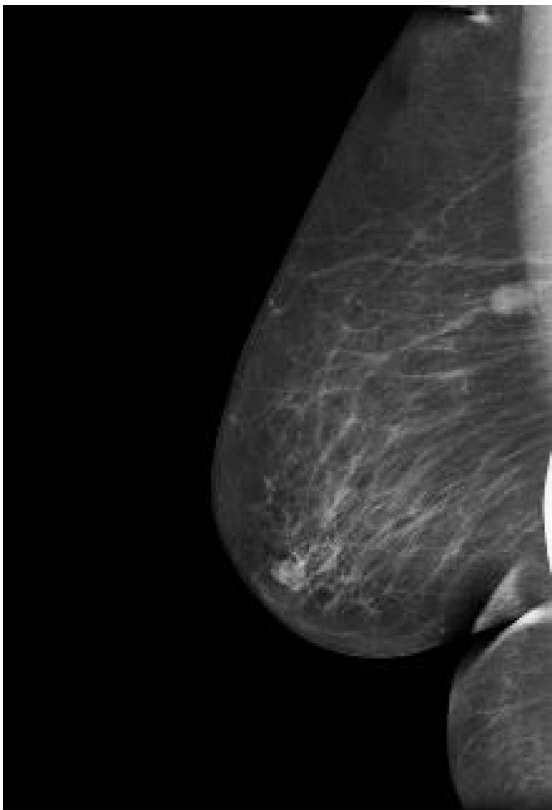


Fig. 1. The mammogram shows a smooth-margined, high-density mass in the upper outer quadrant of the right breast.

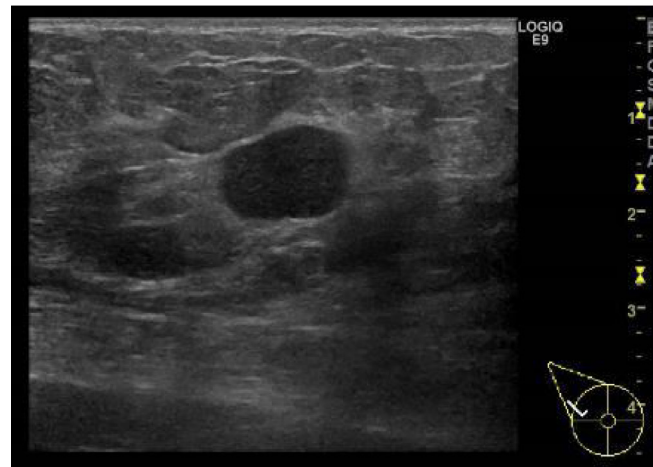
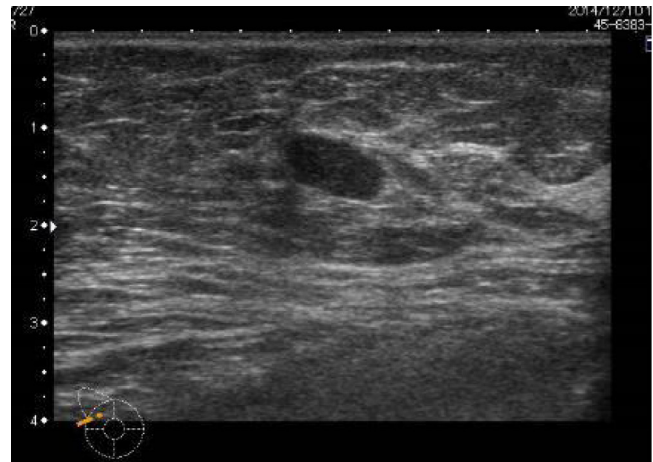


Fig. 2. US performed in October 2014 (top) shows a well-circumscribed, hypoechoic mass measuring 10 mm. US performed in June 2015 (bottom) shows enlargement of the mass to 13 mm.

reason. CNB was performed to confirm the diagnosis. Histological examination resulted in diagnosis of the lesion as breast metastasis from an RCC of the clear-cell type. Contrast-enhanced MRI and contrast-enhanced CT showed a localized, well-enhanced mass at the same site, but no extensive intraductal component and no axillary lymph node metastasis (see Figs. 3 and 4). Other imaging studies revealed no distant metastasis. Although adaptation for cryoablation was initially considered, eventually the patient underwent a partial mastectomy in November 2015. Gross pathology of the cut surface showed a yellowish-brown, well-defined tumor. Histological examination revealed solid alveolar proliferation of tumor cells with small round nuclei and abundant clear cytoplasm, compatible with clear cell type RCC metastasis (see Fig. 5). The patient was asymptomatic and free of detectable disease at 18-month follow-up without any other treatment.

3. Discussion

The breast is a rare site of metastatic disease; the incidence of clinical breast metastasis from extramammary primary neoplasms ranges from 0.5 to 2.0% of all breast malignancies [1]. Metastases from renal adenocarcinoma to the lung and lymph nodes occur most frequently, followed by metastases to the bones, liver, contralateral kidney, ipsilateral adrenal, and pancreas [3], but metastasis to the breast is very rare. It has been suggested that, as a metastatic route to the breast tumor cells transit into the right ventricle from the inferior vena cava and spread to the breast after

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