

## Case Report of Renal Cell Carcinoma Metastasis to the Breast

Rebecca Breese, MD, Kara Friend, MD  
Department of Surgery, Eastern Virginia Medical School

### Introduction

Breast cancer is very common in women, however, metastases from other primary malignancies to the breast are extremely rare with an incidence up to 2% reported in literature [1]. Melanoma, lymphoma, and leukemia are the cancers most likely to metastasize to the breast [2]. Renal cell carcinoma (RCC) usually metastasizes to the lung, bone, lymph nodes, liver, and brain. However, it is also known to form micrometastases in unusual organs such as the thyroid or pancreas [3]. This report describes a renal cell carcinoma breast metastasis that was treated with surgery.

### Case Report

A 68-year-old female with a history of left renal cell carcinoma treated with left nephrectomy 20 years prior presented to clinic with a new abnormality on a screening mammogram. She had no palpable masses in her breast, but diagnostic mammogram confirmed a subtle architectural distortion in her right upper outer breast. Ultrasound reveal a 0.6 x 0.6 x 0.5 cm irregularly shaped mass with posterior shadowing. Biopsy was performed and returned as a pigmented carcinoma, at least ductal carcinoma in situ. Her case was presented at a multidisciplinary tumor board, and upon discussion led to the review by several pathologists, where it was confirmed to be metastatic renal cell carcinoma involving breast tissue. The tumor was positive for renal markers racemase and PAX8, and negative for breast marker GATA3 and estrogen receptor. Workup was negative for further metastatic disease, so she underwent a partial mastectomy with needle localization. On pathology, no residual tumor was identified at the site of the biopsy, and only fibrocystic changes were seen. PET scan was negative for additional metastatic disease. When discussed at an institutional tumor board, the team recommended monitoring with PET scans and to forego chemotherapy and radiation therapy at this time given the small size of the lesion.

Figure 1 – Ultrasound

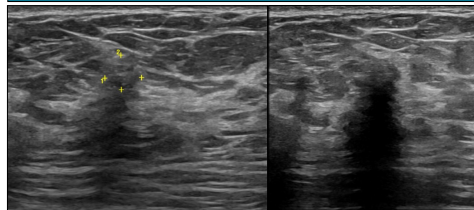
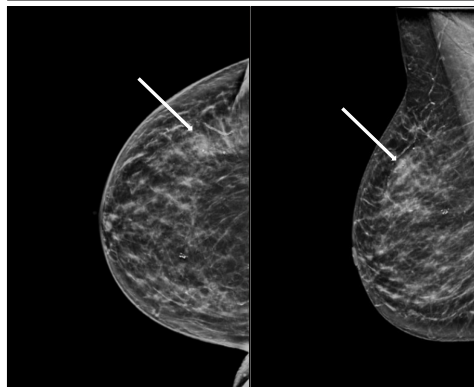


Figure 2 – Mammogram



### Discussion

Renal cell carcinoma is an uncommon cancer, and there have been less than 50 cases of breast metastases reported in literature. These metastases are often not treated with surgery, as there is usually widespread metastatic disease. A combination of chemotherapy and immunotherapy, such as protein-tyrosine kinase inhibitors and anti-PD-1 monoclonal antibodies, is often used. Breast metastases have been found months to years after nephrectomy. Vassalli et al reported metastatic RCC lesions to the breast 1 to 18 years after nephrectomy [4]. It could be beneficial to stain for RCC in biopsies of patients with a new breast mass and history of renal cell carcinoma. In the setting of an isolated breast metastasis, it appears to be beneficial to treat with surgery alone.

### Conclusion

In conclusion, RCC is an uncommon cancer with rare metastases to the breast. Breast metastases have been identified many years after a nephrectomy, so staining for RCC should be considered in patients with a new breast mass and history of renal cell carcinoma.

### References

1. Hajdu SI, Urban JA. Cancers metastatic to the breast. *Cancer*. 1972;29(6):1691–1696
2. McLaughlin SA, Thiel DD, Smith SL, Wehle MJ, Menke DM. Solitary breast mass as initial presentation of clinically silent metastatic renal cell carcinoma. *Breast*. 2006;15(3):427–429.
3. Sellner F. Isolated pancreatic metastases of renal cell carcinoma—a paradigm of a seed and soil mechanism: a literature analysis of 1,034 observations. *Front Oncol*. 2020;10:709
4. Vassalli L, Ferrari VD, Simoncini E, Rangoni G, Montini E, Marpicati P, Mambrini A, Pagani M, Agazzi C, Marini G. Solitary breast metastases from a renal cell carcinoma. *Breast Cancer Res Treat*. 2001;68(1):29–31

### Contact Information

Eastern Virginia Medical School, Dept of Surgery  
825 Fairfax Avenue, Suite 610  
Norfolk, VA 23507

T: 757-446-8960  
E: breesero@evms.edu