



Breast Metastasis as Initial Presentation of Silent, Synchronic, Widely Metastatic Renal Cell Carcinoma

Laisa Socorro Briongos-Figuero¹, Esther Giménez-Barriga¹, Sara Plaza-Loma², Fátima Castroviejo-Royo³, Germán Marcos-García⁴, Tomás Zamora-Martínez⁵, José Ignacio Blanco-Álvarez⁶

Departments of Internal Medicine¹, Radiology², Urology³, Oncology⁴, Pathology⁵ and General Surgery⁶; Río Hortega University Hospital. C/Dulzaina 2, 47012 Valladolid, Spain.

Abstract:

Metastasis to breast from extra-mammary sites is much less common as compared to primary ones and only few cases are reported in the literature. Furthermore, very little is known about prognosis and treatment of patients with solid neoplasms metastatic to the breast. If a breast lump is found, it is recommended to perform a bilateral mammogram specially when there is a rapidly enlargement. Here, we describe a case of a young woman with synchronic breast metastasis from asymptomatic, widely spread, renal cell carcinoma, Furhman grade 4. RCC is one of the most aggressive urologic tumors and rarely metastasizes to the breast. This phenomenon takes place in less than 3% of all metastatic renal cell carcinoma and the appearance as first sign of renal disease is exceptional. This case illustrates the importance of histopathological investigation in a breast mass and the potential for rare sites of metastasis in order to prevent unnecessary radical procedures. Also, this report contributes to importance of a proper diagnosis when rare sites of metastatic deposit, like breast, are detected, especially if there is no previous history of neoplasm.

Key words: Angiogenesis Inhibitors, Breast Neoplasms, Carcinoma, Renal Cell, Neoplasm.

Introduction

Metastasis to the breast from extra-mammary tumors occurs rarely, but it must be considered in the differential diagnosis of a rapidly enlarging breast mass. Indeed, this entity is increasing as patients live longer with malignant diseases [1]. In the same way, renal cell carcinoma (RCC) rarely metastasizes to the breast and this phenomenon take place in less than

3% of all metastatic RCC [2,3]. Despite its rarity and difficulties in obtaining a correct diagnosis, a high index of suspicion is necessary because treatment and prognosis differ when compared to primary breast cancer. We report here a case of a young woman with synchronic breast metastasis from asymptomatic renal cell carcinoma.

Corresponding Author: Dr. Laisa Socorro Briongos-Figuero

Email: laisadoc@hotmail.com

Received: September 3, 2015 | **Accepted:** October 21, 2015 | **Published Online:** November 20, 2015

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (creativecommons.org/licenses/by/3.0)

Conflict of interest: None declared | **Source of funding:** Nil | **DOI:** <http://dx.doi.org/10.17659/01.2015.0128>

Case Report

A 46-years-old woman without significant medical history presented with 5-week history of painless, mobile, rapidly growing breast mass. This was accompanied by lumbo-sciatalgia pain for past 3 weeks. No history of fever or weight loss was elicited. Laboratory test and spine X-ray revealed nothing remarkable. A tender, palpable, painless and mobile lump was detected in left breast with no skin infiltration. There was no clinically palpable cervical or axillary lymphadenopathy. Bilateral mammography confirmed a dense, multilobulated, solid, non-speculated mass measuring 12 mm in diameter, located in lower inner quadrant of left breast without micro-calcifications or adjacent

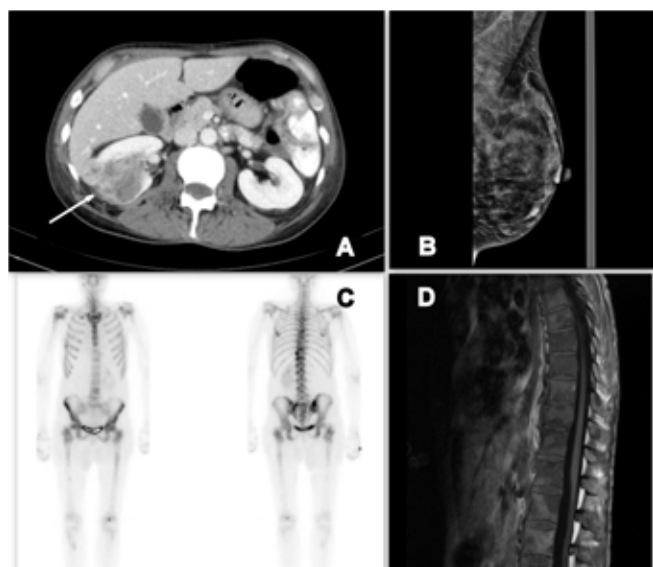


Fig.1: Radiological findings, (A) Computed tomography scan showing a solid mass measuring 7x4 cm in right kidney (arrow). (B) Mammography detected a solid mass in lower inner quadrant of the left breast. (C) Bone scintigraphy showed multiple bone metastasis on hips, ischium, sacroiliac joints, thoracic spine and right costal arches. (D) Sagittal T-1 weighted image of thoracic spine revealed multiple hypointense osteolytic lesions within the vertebrae.

parenchymal distortion [Fig.1B]. Histopathology of an ultrasound-guided tru-cut biopsy was consistent with metastatic deposit from renal cell carcinoma (RCC) by clear neoplastic cells that showed strong positivity in immunohistochemistry for Vimentin, CD10 and RCC marker while CK7, CK17, CK19 and hormone receptors were negative as well as [Fig.2]. ^{99m}Tc tagged to HDP (hydroxymethylene diphosphonate) bone scintigraphy showed a solid mass measuring 7x4 cm in right kidney, multiple bilateral lung nodules and osteolytic lesions in axial skeleton (hips, ischium, sacroiliac joints, thoracic spine and costal arches) suggesting widespread vertebral metastatic disease [Fig.1A,C,D] Final diagnosis was silent RCC with synchronic breast, lung and bone metastasis.

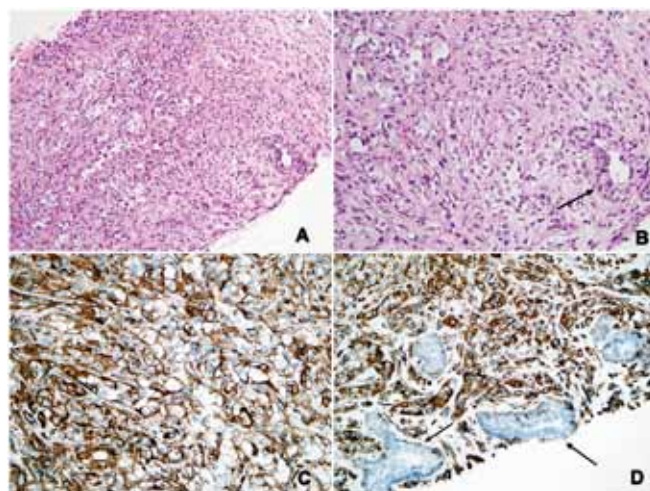


Fig.2: Microscopic appearance of breast lump. Representative photographs from microscopic examination are presented. (A) Hematoxylin and eosin (HE) stain x20 showed islands of tumor cells with clear cytoplasm, lying in fibrovascular stroma. (B) Close view (HE x40) showed cellular atypia and bare mammary ducts (arrow). (C) Diffuse intense staining reaction for Vimentin in tumor cells x20. (D) Vimentin stained section x40 revealed diffuse large clear neoplastic cells and sparse preserved mammary ducts (arrow). CK7 and CK17 were negative as well as CK19 and hormone receptors.

Her case was discussed by a multidisciplinary teamwork and laparoscopic radical right nephrectomy was performed with no complication. Histopathological examination confirmed clear cell RCC, Furhman grade 4, stage pT3apN0pM1. After surgery, she was given 3 cycles of systemic tyrosine kinase inhibitor sunitinib therapy with good tolerance. Unfortunately, she suddenly developed severe dyspnea and fever due to bilateral pneumonia and expired.

Discussion

Renal cell carcinoma (RCC) is one of the most aggressive urologic tumors with unpredictable metastatic behavior. Vascular invasion is most common pathway of spread and 30% of patients have metastasis at the time of diagnosis, most commonly in lung (70%), lymph-nodes (55%), bone (42%), liver (41%), and central nervous system (11%) [3,4].

Metastasis to the breast from extra-mammary tumors ranges 0.5% to 2%, usually due to melanoma, lymphoma or rhabdomyosarcoma in women and prostate cancer in men [1,5]. Accurate diagnosis is important to prevent unnecessary radical procedures and to institute an appropriate systemic oncologic therapy. Metastasis from RCC in breast is extremely rare and only few cases have been reported in literature, most of them years after a previous nephrectomy [4,6,7]. Moreover, breast metastasis as first sign of renal disease, as occurs in our patient, is exceptional [2,8]. To best of our knowledge, this is the first case of synchronic breast metastasis from RCC described from Spain. Clinically, breast metastasis presenting as painless, mobile mass, and skin dimpling is rare leading to delayed diagnosis [3,9]. Axillary node involvement is uncommon. Mammogram shows well-circumscribed lesions that lack micro-calcifications mimicking benign lesion so awareness of breast secondaries is essential to get prompt diagnosis

[2-4]. The key for diagnosis is pathological investigation. Unfortunately, there is no curative treatment for disseminated RCC and prognosis is poor, but it is expected to increase survival in tyrosine kinase inhibitors era [3]. In our case, solitary breast metastasis was the first presentation of asymptomatic RCC and immunohistochemistry was very helpful to get diagnosis, avoiding an unnecessary mastectomy.

Conclusion

This case emphasizes the importance of a proper diagnosis when rare sites of metastatic deposit, like breast, are detected, especially if there is no previous history of neoplasm. Finally, a multidisciplinary strategy is needed to improve understanding of RCC presentation and management of breast metastasis.

References

1. Vaughan A, Dietz J, Moley J, DeBenedetti M, Aft R, Gillanders W, *et al.* Metastatic disease to the breast: the Washington University experience. *World Journal of Surgical Oncology*. 2007;5:74.
2. Alzaraa A, Vodovnik A, Montgomery H, Saeed M, Sharma N. Breast metastasis from a renal cell cancer. *World J Surg Oncol*. 2007;5:25.
3. Falco G, Buggi F, Sanna PA, Dubini A, Folli S. Breast metastases from a Renal Cell Carcinoma. A case report and review of the literature. *Int J Surg Case Rep*. 2014;5:193-195.
4. Mahrous M, Al Morsy W, Al-Hujaily A, Al-Sulimani S. Breast metastasis from renal cell carcinoma: rare initial presentation of disease recurrence after 5 years. *J Breast Cancer*. 2012;15:244-247.
5. Williams SA, Ehlers RA, Hunt KK, Yi M, Kuerer HM, Singletary SE, *et al.* Metastases to the breast from nonbreast solid neoplasms. *Cancer*. 2007;110:731-737.
6. Ganapathi S, Evans G, Hargest R. Bilateral

- breast metastases of a renal carcinoma: a case report and review of the literature. *BMJ Case Reports*. 2008;2008.
7. Bortnik S, Cohen DJ, Leider-Trejo L, Ron IG. Breast metastasis from a renal cell carcinoma. *Isr Med Assoc J*. 2008;10:736-737.
 8. 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;15:427-429.
 9. Solaini L, Bianchi A, Filippini L, Lucini L, Simoncini E, Ragni F. A Mammary Nodule Mimicking Breast Cancer. *International Surgery*. 2014;99:200-202.