

## METASTATIC RENAL CELL CARCINOMA PRESENTING AS A BREAST MASS IN A WOMAN WITH HISTORY OF PRIMARY BREAST CANCER

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**Metastatic extramammary breast tumours are uncommon and differential diagnosis with primary breast carcinoma may prove to be difficult. We report a case of a metastasis of a renal cell cancer in the breast in a woman with a history of primary breast cancer. On follow-up of her breast carcinoma, a lump was detected via mammography and ultrasound. Core needle biopsy revealed a metastatic extramammary lesion originating from an asymptomatic renal cell carcinoma. We conclude that the diagnosis of metastasis to the breast from extramammary tumours is important to avoid unnecessary surgery and insure proper treatment of the primary disease.**

**Key-words:** Breast neoplasms, metastases – Kidney neoplasms, secondary.

Metastatic extramammary breast lesions are rare. Differential diagnosis with primary breast lesions may be difficult. The following case describes the clinical course of a woman with a breast lesion as initial presentation of a renal cell carcinoma.

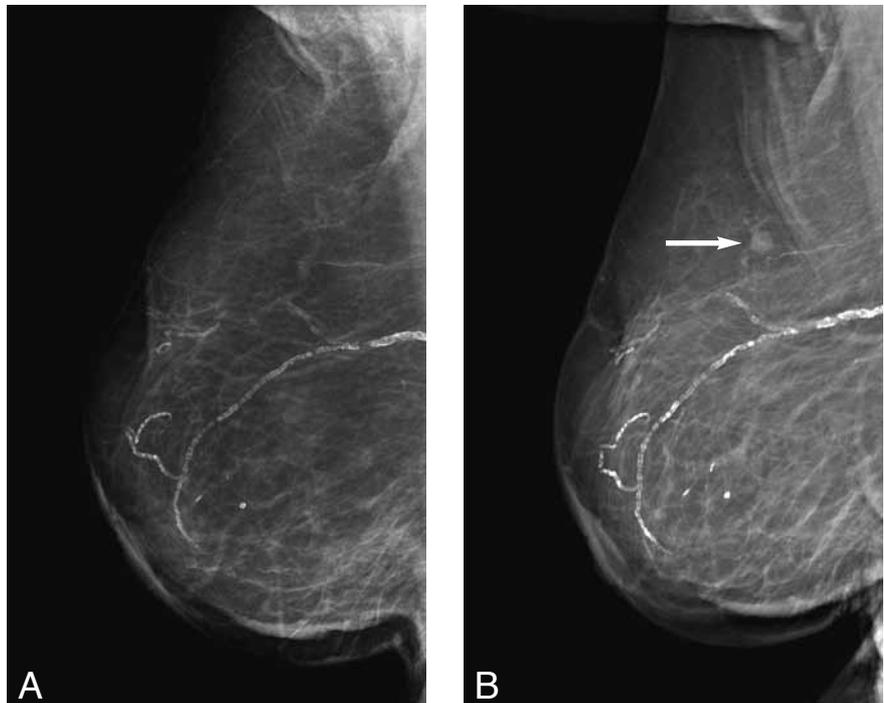
### Case report

A 83-year-old caucasian woman developed a ductal breast carcinoma in the right breast (pT2 N0 M0) in 1995. She underwent a tumorectomy and a right axillary lymph node dissection followed by radiotherapy. She had been treated with tamoxifen during five years.

The patient had 11 years of follow-up of her breast carcinoma without severe abnormalities apart from 2 clinically palpable lumps of scar tissue in the right breast which were twice biopsied and histologically negative.

In June 2007, the patient was examined and found to be in a good general condition on a routine gynaecological consultation. Clinically, she had a satisfying heart and lung auscultation. Clinical breast examination remained normal. Her laboratory work-up only demonstrated an elevated lactate dehydrogenase (509 U/L (240-480 U/L)).

Mammography in June 2007 demonstrated a single well-margined opacity in the axillary tail of the right breast with a diameter of 6 mm (Fig. 1A,B) and a similar lesion of 7 mm and calcifications (Le Gal type 2) in the left breast (Fig. 2A,B).



*Fig. 1. — Mammography of the right breast (mediolateral oblique view) in 2005 (A) and 2007 (B) shows a well-margined new opacity (arrow) in the axillary tail with a diameter of 6 mm (B).*

Ultrasound investigation (Fig. 3) visualised a regular circumscribed nodular hyporeflexive lesion in the axillary tail of the right breast. The lesion was evaluated with fine needle aspiration cytology (FNAC). The left side only showed some lymph nodes.

On FNAC epithelial cell populations were found. A differentiation between benign and malignant

pathologies could not be made. Metastasis of the former breast cancer could not be ruled out. Core needle biopsy (CNB) was performed on the lesion in the right breast.

In July 2007 CNB (Fig. 4) showed morphologically a metastasis of a renal cell carcinoma (RCC). Immunohistological characterisation indicated a positive staining for CD 10 suggestive of RCC of the clear cell type (Fig. 5) and a negative for cytokeratine CK7 and CK 20.

Next, computer tomography (CT) of the thorax and the abdomen illustrated several lung metastasis and a large hypervascular mass in the left kidney, suggestive of RCC (Fig. 6). Due to the patient's age, the significant comorbidity, and the

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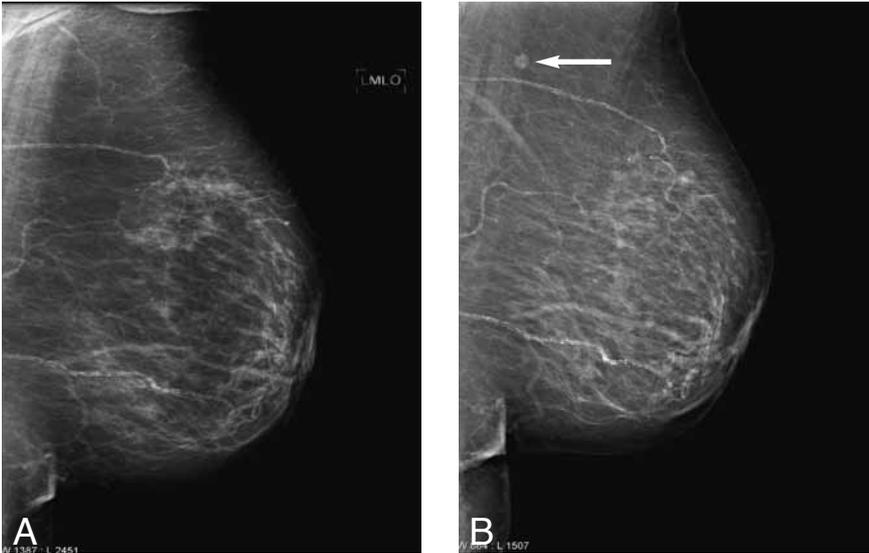


Fig. 2. — Mammography of the left breast (mediolateral oblique view) in 2005 (A) and 2007 (B) demonstrates the apparition of a sharply marginated opacity (arrow) in the axillary tail with a diameter of 7 mm.

asymptomatic state of her disease no therapy was administered with the patient's consent. A follow-up in October 2007 showed only a slight progression of her disease without manifestation of any symptoms. Actually, in august 2008, the mass in the right breast is growing without progression of the other metastatic lesions and primary tumour.

### Discussion

The diagnosis of renal cell carcinoma can be challenging. It is the most common cancer of the kidney and many have referred to the disease as the 'internists' tumour'

because of its multiple presenting symptoms and signs. Metastasis has been described in approximately 30% of the patients at the time of diagnosis. The disease spread can affect almost every organ (1).

Metastasis to the breast from extramammary tumours is rare and accounts only for 0,2-1,3% of the breast malignancies (2). The most common primary tumours are melanomas, lymphomas, leukemias, lung cancers, and prostate cancers in men, although nearly all malignancies have been described to metastasise to the breast (3). In general, metastasis to the breast is most frequently due to a primary breast

cancer.

There have been 17 cases of metastatic RCC to the breast described in the literature. In only 8 of these cases the breast mass is the presenting sign of metastatic spread of the disease (4-7). In our case, the patient had a history of breast cancer, but none of RCC. The solitary breast mass represented not only the initial sign of metastatic spread of RCC, but also the diagnosis of an RCC, which is even more rare.

Clinically there are no significant characteristics to differentiate a primary breast lesion from a metastatic breast mass. At mammography and sonography, however, primary tumours more frequently have microcalcifications or spiculations while metastatic extramammary breast lesions usually are well-circumscribed without calcifications or an intraductal component. Because of the absence of ductal involvement, nipple retraction and discharge, and skin dimpling are rare. The growth of a breast metastasis usually is more rapid (8).

In most cases differentiation between primary breast cancer and metastatic extramammary breast lesions can be made by FNAC. Cytologic features of RCC include a clear or granular cytoplasm with prominent fine vessels. The CD10 staining is positive in 90% of the RCC; CK7 and CK20 are rarely expressed in RCC (3). In difficult cases CNB should be used for diagnosis (9).

Reliable and prompt diagnosis is important to avoid unnecessary surgery (i.e. mastectomy) and to treat the patients' primary disease more

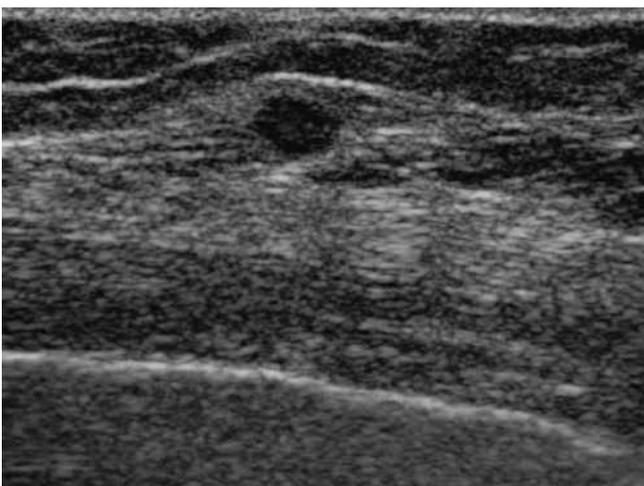


Fig. 3. — Ultrasound of the right breast shows a nodular hyporeflexive lesion in the right axillary tail.

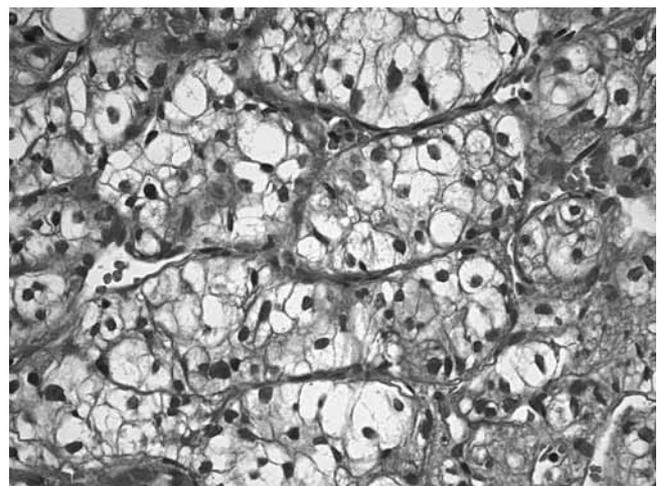


Fig. 4. — Magnification (x400, hematoxylin and eosin stain) of the biopsy specimen showing the typical aspect of renal cell carcinoma with clear cytoplasm and a prominent vascular network.

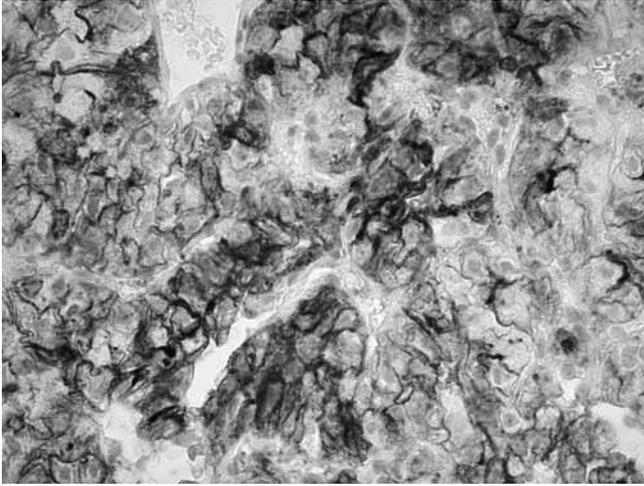


Fig. 5. — CD10 is a specific marker for renal cell carcinoma. Immunohistochemical staining with CD10 is highly positive in the tumour cells' cytoplasm (Magnification  $\times 400$ ).

adequately. Metastatic RCC is a systemic disease and should be treated accordingly.

### Conclusion

Extramammary breast metastasis is an uncommon disease, yet in order to avoid breast surgery, it is important to diagnose it correctly. The diagnosis may be suggested after radiologic work-up; abnormally rapid growth and atypical behaviour may indicate a metastatic disease. Confirmation of the metastatic extramammary breast lesions is obtained with FNAC or CNB. The treatment should be focused on the primary tumour, hence the importance of a correct diagnosis.

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Fig. 6. — Coronal reformation of a contrast-enhanced computed tomography of the abdomen showing a large mass in the left kidney (arrows) suggestive of a renal cell carcinoma.