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A Rare Case of Renal and Uterine Clear Cell Carcinoma: Which is the Primary Tumour?

Case Report

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Abstract: Renal cell carcinoma to the uterus is rare. We describe a 52-year old lady who presented with progressive abdominal distension and computerized tomogram scan of the abdomen showing two pathologies; uterine and right renal tumour. It was initially thought to be two distinct tumours (double pathology). Radical nephrectomy and total abdominal hysterectomy with bilateral salpingo-oophorectomy was performed concurrently. Histopathological evaluation of the uterine and right renal tumour however surprised us with a rare form of metastasis from a renal tumour to the uterus. The method of differentiating primary renal cell carcinoma with uterine metastasis, from primary uterine carcinoma with renal metastasis, via immunohistochemistry, is described.

Keywords: *Renal cell carcinoma • Uterine metastasis • Cancer • Pathology • CD10*

1. Introduction

Renal cancer constitutes 2% - 3% of all adult malignancies. It is the third most common urologic malignancy after prostate and bladder carcinoma and in fact the most lethal. Common sites of metastasis in patients with renal cell carcinoma in order of decreasing frequency are lungs, lymph nodes, liver, bone, adrenal gland, soft tissue, and brain [1]. However, renal cell carcinoma metastasis to the uterusis still surprisingly rare and thus far less than five cases have been reported [2-5]. We report a case of renal cell carcinoma with uterine metastasis and further describe the method of differentiating primary renal cell carcinoma with uterine metastasis, from primary uterine carcinoma with uterine metastasis.

2. Case Report

A 52-year old lady, presented to the clinic with a six- month history of progressive abdominal distension. She denied any history of hematuria, abnormal vaginal bleed, rectal bleed or alteration in bowel habit. Abdominal examination revealed presence of a pelvic mass estimated to be the size of a 20-week gravid uterus. Vaginal examination which was completed by Pap smear was negative for intraepithelial lesion or malignancy.

Computerised tomogram (CT) scan of the abdomen and pelvis showed a right adnexal mass which was most likely arising from the right ovary as well as a right renal tumour (Figure 1).

Total abdominal hysterectomy and bilateral salpingo-oophorectomy (TAHBSO) together with radical right nephrectomy were performed. Intraoperative findings were large, bulky uterus which mimicked the appearance of uterine fibroid and presence of a well circumscribed right renal tumour with well-defined margin.

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Figure 1. Computerised tomography showing right renal and uterine tumour.

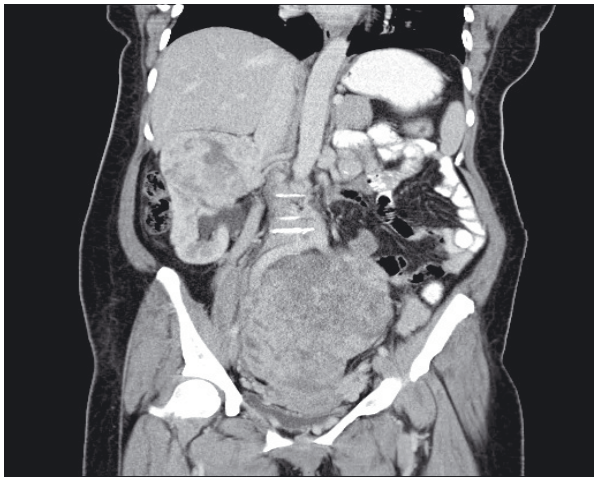


Figure 2. Clear cell carcinoma cells on the right (hematoxylin and eosin stain: magnification x 10).

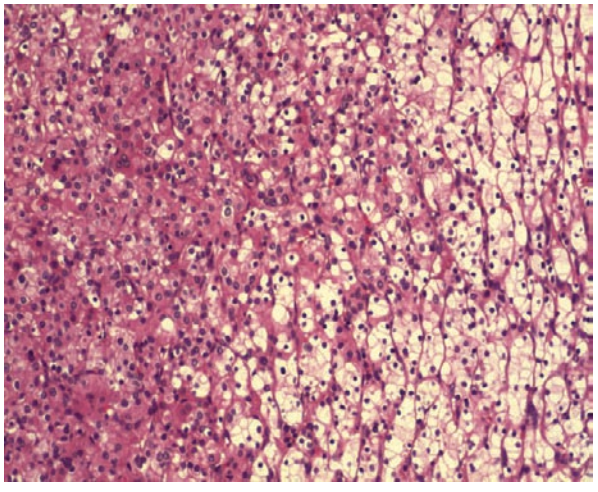
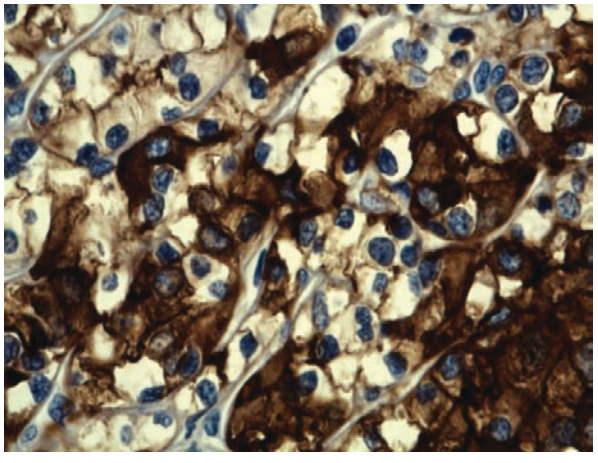


Figure 3. CD10 immunostain for clear cell renal cell carcinoma (magnification x 40).



Histopathological examination showed clear cell carcinoma of both the right kidney and the uterus (Figure 2). Both specimens showed identical positive immunohistochemical staining for CD10 (Figure 3). Therefore, the diagnosis concluded was, a renal cell carcinoma which had metastasized to the uterus. The ovaries were not involved by the tumour. Surgical margins were all free of malignant infiltration.

Postoperative bone scan showed no evidence of skeletal metastasis. She was then given adjuvant sunitinib, a tyrosine kinase–based therapy.

3. Discussion

Renal cell carcinoma shows unpredictable clinical presentation. Metastases from renal cell carcinoma have been reported in all organs however, metastases to the female genital tract are rare. The majority of such metastases have been documented to the lower third of the vagina. Metastasis to the uterus is even rarer. Among those cases with uterine metastases, most of them originated from the left kidney. This finding could be explained by the route renal cell carcinoma spreads. Renal cell carcinoma spreads retrogradely through the left renal vein into the ovarian vein. Previous reports have postulated four plausible routes of spread of renal cancers to the genital tract; systemic haematogenous spread, retrograde venous & lymphatic spread and migration via the urinary tract [3]. In our case, it was probably caused by systemic haematogenous spread.

Differentiation between metastatic clear cell carcinomas to the genital tract and clear cell carcinoma originating from the genital tract can be clearly demonstrated immunohistochemically. Metastatic clear cell carcinoma to the gynaecologic tract show constant positivity of CD10 which is in sharp contrast with the persistent negativity of all primary gynaecologic clear cell carcinomas regardless of the anatomical origin [4]. CD10 in this case is the mainstay test used to differentiate between the two pathologies.

Nephrectomy in the presence of solitary metastatic disease offers the benefit of reversing the immune system dysfunction. The exact mechanism for the immune system dysfunction is not known. However, the possibility is that the host immune system becomes tolerant to the tumour antigens. Another explanation is thatremoval of the primary tumour (and its production of cytokines and other soluble factors) could decrease the immunosuppressive effects of the cancer, allowing the immune system to eradicate a relatively smaller volume of residual disease, especially in combination with biologic response modifier chemotherapy. Hence,

surgical removal of the primary tumour boosts the body immune reaction against the metastatic sites [6]. This translates into better adjuvant therapy effect towards the metastatic sites.

Renal cell carcinoma is generally resistant to chemotherapy or radiotherapy. Therefore, after the primary tumour has been removed, sunitinib is used to target the metastasis. Sunitinib acts by inhibiting cellular signalling through its action on multiple receptor tyrosine kinases. These receptors include platelet-derived growth factor and vascular endothelial growth factor, which are involved with tumour angiogenesis and tumour cell proliferation. By simultaneously inhibiting these targets, there will be reduced tumour vascularisation and this will eventually lead to cancer cell death. The recommended schedule for sunitinib is 50mg per day for four weeks followed by two weeks off-treatment, till disease progression [7].

4. Conclusion

Positive CD10 immunostain is seen in primary renal clear cell carcinoma with metastasis to the uterus. This will differentiate it from a primary clear cell carcinoma of the uterus with metastasis to the kidney.

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