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## Case Report

# Metachronism Association between Cervical and Kidney Cancer and the Importance of Follow-Up: A Case Report -

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**ABSTRACT**

The longer life expectancy of people treated for cancer has meant that the risk of finding a second primary cancer also increases over time.

The relationship between cervical cancer and kidney cancer remains poorly understood. Several factors have been reported in the literature including smoking and radiotherapy which are the most probable factors with the genetic factor that should be proven. The early detection and management of these second cancers would improve survival

This article takes up the observation of a woman treated for cervical cancer in 2016 by radiation and chemotherapy followed by surgery and who developed 5 years later hematuria associated with irritative urinary symptoms leading to the discovery of a kidney cancer treated by surgery alone.

**INTRODUCTION**

The kidney is considered a frequent site of second-time primary cancer. It's in general discovered fortuitously by radiographic imaging such as ultrasound, CT scan, or MRI, or after urinary symptoms.

We will present, in this article, the case of a woman treated and cured for cervical cancer who was diagnosed 5 later with a second renal cancer.

Our aim, firstly, is to emphasize the importance of a long-term follow-up for cancer patients, and secondly, to show that with current imaging techniques and therapies, the curative and radical treatment of 2 cancers can be possible.

**OBSERVATION**

Our Patient, B.F is 52 years old, without comorbidities, exposed to secondhand (passive) smoking, diagnosed with a localized squamous cell cervical carcinoma stage IIb (the kidney was free from any lesion at the moment of diagnosis) in 2016, treated by chemo-radiotherapy: 66 by including lumbar aortic lymph nodes + 6 cycles of cisplatin (brachytherapy source was over at this time) as a neoadjuvant treatment to a total hysterectomy ( no residual tumor was detected in pathology examination) then she was followed in consultation every 3 to 6 months.

Mrs. B.F presented in January 2021 with intermittent non-clotting hematuria accompanied by irritative urinary symptoms without low back pain.

The clinical examination found a patient with good performance status, without any remarkable sign, as well as a normal vaginal examination.

The reno-abdominal ultrasonography of the patient revealed a right renal process and the uroscanner concluded to a right renal mass in its superior pole, iso-dense and heterogeneously enhanced measuring 31 x 32 x 36 mm, arriving at contact with the superior calyx and bulging in its lumen (which creates confusion between its renal or upper urinary tracts 'origin) (Figure 1).

There was no sign of recurrence in hysterectomy bed.

Her chest CT scan was normal, and since a tumor in the upper urinary tracts was suspected, her right ureteroscopy revealed petechial images of the right ureter and the pyelo-caliceal cavities (Figure 2) with negative selective urinary cytology.

Our patient was programmed after a multidisciplinary meeting for right partial nephrectomy, but we encountered an intraoperative difficulty which changed our attitude towards a right total nephrectomy (Figure 3).

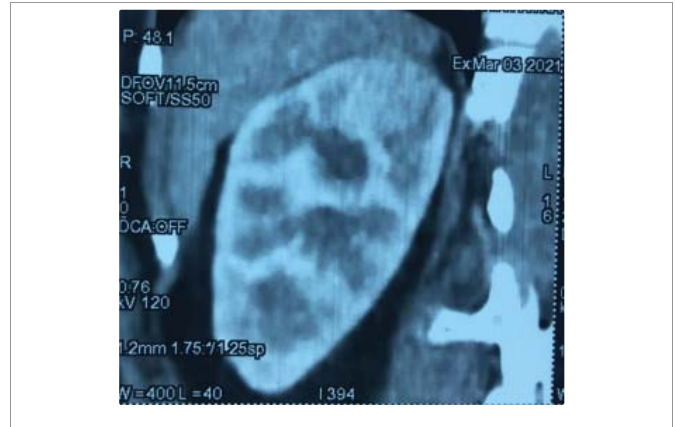


Figure 1: Coronal section of uroscanner showing right renal mass.

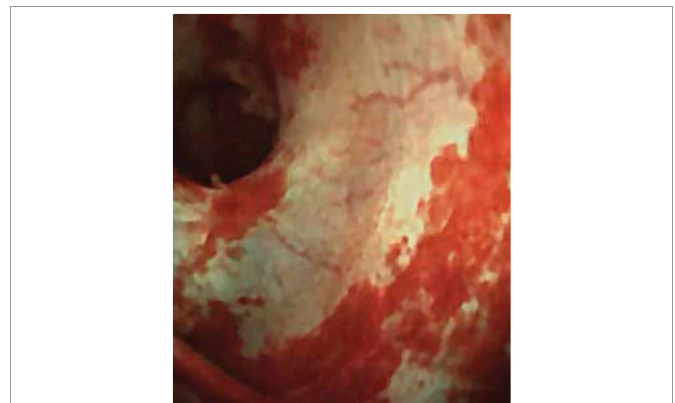


Figure 2: Endoscopic appearance of petechial lesions of the right ureter.



Figure 3: Right nephrectomy surgical specimen.

The postoperative follow-up was good. The pathologic examination concluded a clear cell renal carcinoma ISUP 2 pT1aN0M0

We still see our patient in medical consultation and until today her check-up is normal.

## DISCUSSION

A second primary cancer is defined according to the established SEER criteria and previous studies, as two tumors arising in different sites, or at the same site with different histology [1].

Their incidence remains low, around 16% or less, with a time to onset varying from 5 to 10 years from the initial tumor [2].

The most common effective causes are late toxic effects of chemotherapy, radiotherapy, hormone therapy, prolonged survival through treatment of primary cancer, genetic factors, lifestyle, and prolonged exposure to certain carcinogens including tobacco [1,2].

On one hand, previous research suggests a joint effect of tobacco carcinogens leading to DNA damage and decreased immune clearance of HPV causing malignancy and hence cervical cancer.

However, the relationship between cervical cancer and renal cancer is not well elucidated in the literature and several hypotheses have been proposed.

On the other hand, smoking, both active and passive, is also considered by several authors as a risk factor for the occurrence of kidney cancer, which may explain the synchronous or metachronous existence of these two cancers in the same person.

We should highlight that the kidney is, in general, a frequent site of second primary cancer after lung and uterus<sup>2</sup>. It also occurs, most often after colorectal cancer, bronchopulmonary cancer in a primary cervical cancer [1].

In a study done by Kleinermermen [3], with the participation of 8 European centers, in the purpose of evaluating the occurrence of secondary cancers during the surveillance of cervical cancer, the results showed that the highly irradiated sites (doses organs > 3 Gy) had a higher incidence of cancer after 30 years or more from radiation therapy. These sites were primarily the bladder, rectum, vagina, vulva, and ovary.

However, among the organs receiving between 1 and 3 Gy, only the risk of kidney cancer was significantly elevated in patients irradiated after 30 years and this increases over time.

They also support the hypothesis according to which the occurrence of kidney cancer after cervical cancer may be mainly due to two factors: radiotherapy and tobacco.

Similar results have been published by Evans concerning the frequent sites of second cancer after cervical cancer as well as the role of radiotherapy and tobacco in the occurrence of kidney cancer as secondary cancer.

Taking into consideration that the usual type of radiation-induced cancer is sarcoma and that our patient had her kidney cancer just 5 years after radiation therapy, Can we say that the kidney cancer is radiation-induced?

Our patient's ureteroscopy had shown petechial lesions in the right ureter and pyelo-caliceal cavities.

Knowing that the most frequent urological complications [4] after radiotherapy for cervical cancer are: ureteral obstruction, radio cystitis, and vesicovaginal fistula, these lesions can be attributed to radiotherapy and we, therefore, emphasize the crucial importance of long-term follow-up to watch out for short-term and long-term complications of radiotherapy.

Our patient received concomitant cisplatin. Although the great benefits of this drug in healing several cancers, it's well known for its important nephrotoxicity. According to a Sandhya Manohar, et al. [5] review, the most important side effect of cisplatin is acute and chronic renal failure, but no author or study has yet proven its role in secondary renal cancer.

Finally, several studies have tried to prove the genetical relationship between different solid tumors and in particular between the kidney and the cervix tumor such as the loss of expression of the FHIT tumor suppressor gene in chromosome 3p [6] or the substantial increase expression of NETO2 gene [7] which is found frequently in renal cancer and to a lesser extent in cervical carcinoma.

Other epigenetic abnormalities such as methylation of the LRR3B [8] gene have also been described.

## CONCLUSION

As well as scientific advances in diagnosis and treatment of cancers continue to emerge, vigilant surveillance and screening for cancer survivors are essential to reduce mortality and morbidity and especially to detect second cancers at an early stage to be curative and extend their life expectancy.

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