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Case Report

Synchronous presentation of renal cell carcinoma and cervical cancer: a rare oncological challenge

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ABSTRACT

Cervical cancer is the fourth most common cancer among women globally, with a high incidence and mortality, particularly in developing countries. Renal cell carcinoma (RCC), though less common, comprises 2% of global cancer diagnoses. The synchronous occurrence of RCC and cervical cancer is extremely rare, with less than 5% of cervical cancer cases presenting with another primary malignancy. We report a case of a 47-year-old multiparous woman diagnosed with FIGO stage IIIB cervical cancer, who, during staging and evaluation, was incidentally found to have a synchronous renal cell carcinoma. During the course, imaging revealed a mass in the right kidney, confirmed to be RCC via biopsy. A multidisciplinary tumor board recommended surgical management for the RCC, and the patient underwent a right radical nephrectomy, which confirmed clear cell RCC. Postoperatively, the patient resumed treatment for cervical cancer with concurrent chemoradiation. This case highlights the importance of comprehensive diagnostic imaging in patients with pelvic malignancies to detect any coexisting primary tumors. Early identification and treatment of synchronous malignancies are critical for optimizing patient outcomes, and this case contributes valuable insight into the rare co-occurrence of RCC and cervical cancer.

Keywords: Synchronous malignancies, Renal cell carcinoma, Cervical cancer, Squamous cell carcinoma, Radical Nephrectomy, Chemoradiation

INTRODUCTION

Cervical cancer is the fourth most common cancer among women worldwide, both in terms of incidence and mortality, with an estimated 660,000 new cases and 350,000 deaths in 2022.[1] In India, it ranks second after breast cancer. According to GLOBOCAN, cervical cancer mortality is expected to increase by 25.4% by 2030, highlighting its significance as a major healthcare issue. Concurrent, synchronous, and metachronous cancers describe different temporal patterns of multiple primary cancers in a patient. Concurrent cancers are independent malignancies diagnosed at the same time, often in different organs. Synchronous cancers also arise in separate organs but are diagnosed within six months of each other. Metachronous cancers, on the other hand, refer to the occurrence of a second primary cancer more than six months after the first, developing independently following treatment or remission of the initial cancer. The occurrence of synchronous primary malignancies with cervical cancer is rare, accounting for less than 5% of cases.[2] Renal cell carcinoma (RCC) comprises 2% of global cancer diagnoses and deaths. It is often detected incidentally during imaging studies, with survival rates highly dependent on the stage at diagnosis. The 5-year relative survival rate is 93% for stage I disease but drops to only 12% for stage IV. Patients diagnosed with RCC face a heightened risk of developing synchronous, antecedent, or metachronous malignancies.[3] While RCC commonly coexists with cancers of the prostate, bladder, lung, breast,

rectum, malignant melanoma, and non-Hodgkin lymphoma (NHL), its association with other pelvic tumors, such as cervical cancer, is exceedingly rare.[4]

In this case, RCC was incidentally discovered during the course of cervical cancer disease. Both malignancies were treated using different therapeutic modalities.

CASE REPORT

A 47-year-old multiparous woman (P5L5) presented to our outpatient department with complaints of post-coital vaginal bleeding and foul-smelling vaginal discharge for two months. She had a history of type 2 diabetes, well-controlled on oral hypoglycaemic drugs for the past four years and had history of tubal ligation 16 years back. Her family history was notable for diabetes in both parents, but there was no history of malignancy or other chronic illnesses in her three-generation pedigree. General physical examination was unremarkable.

Upon per speculum examination, a large exophytic cauliflower-like growth measuring 5×4 cm was observed on the cervix, which bled on contact. Combined rectovaginal examination revealed bilateral parametrial involvement up till lateral pelvic wall, extending to the lower third of the vagina. Clinically, she was staged as FIGO IIIB cervical cancer, and a punch biopsy was performed. While awaiting the biopsy results, a PET-CT scan revealed a metabolically active cervical mass measuring 5.7×6.1 cm with multiple FDG-avid enlarged retroperitoneal pelvic lymph nodes. Histopathology confirmed non-keratinizing squamous cell carcinoma (Figure 1). The patient was referred to radiation oncology for concurrent chemoradiation. However, due to delays in radiotherapy slot availability, she received three cycles of neoadjuvant chemotherapy with paclitaxel and cisplatin on a 3-weekly schedule. During follow-up, she reported decreased urine output and a sense of heaviness in the lower abdomen, prompting an ultrasound of the kidneys, ureters, and bladder (KUB). The ultrasound suggested a right kidney mass, and she was referred to urology.

A subsequent CT angiography revealed a well-defined, necrotic mass in the mid and lower pole of the right kidney (T3N0Mx) (Figure 2) and a residual cervical growth measuring 3.6×3 cm. PET-CT confirmed a mildly FDG-avid complex cystic lesion measuring 6×6.5 cm in the lower pole of the right kidney, with a normal left kidney (Figure 3). The patient was referred to our department for expert opinion. Upon re-evaluation, a renal biopsy was recommended to rule out metastasis from the cervical cancer. The biopsy, performed by urologists, confirmed renal cell carcinoma (RCC). A multidisciplinary tumor board recommended proceeding with surgery for the RCC. The patient subsequently underwent a right open radical nephrectomy, with final pathology confirming clear cell RCC. Her postoperative course was uneventful, and the consensus was to proceed with definitive concurrent chemoradiation for her cervical cancer. After treatment completion, she is currently under surveillance and is disease-free for 8 months.

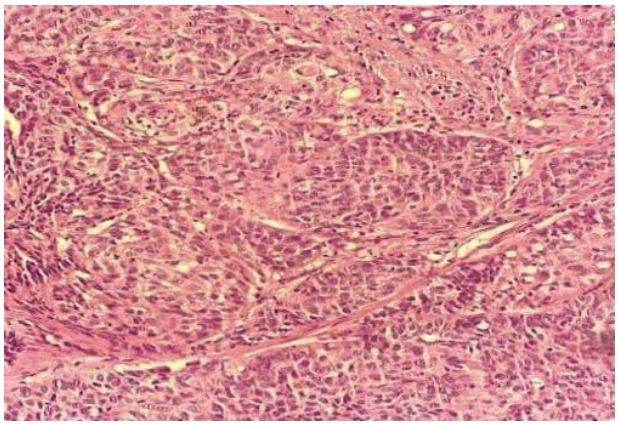

Figure 1: 100X H&E stain of squamous cell carcinoma cervix showing cells arranged in nests and sheets and enlarges hyperchromatic nuclei.

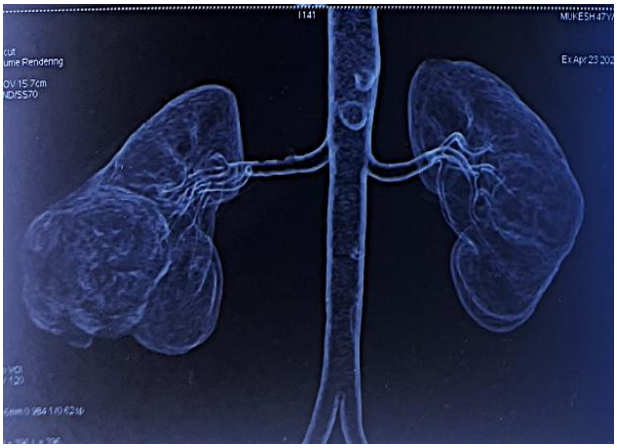

Figure 2: CT angiography picture revealing a well-defined smoothly marginated heterogeneously enhancing solid and necrotic mass in mid and lower pole of right kidney.

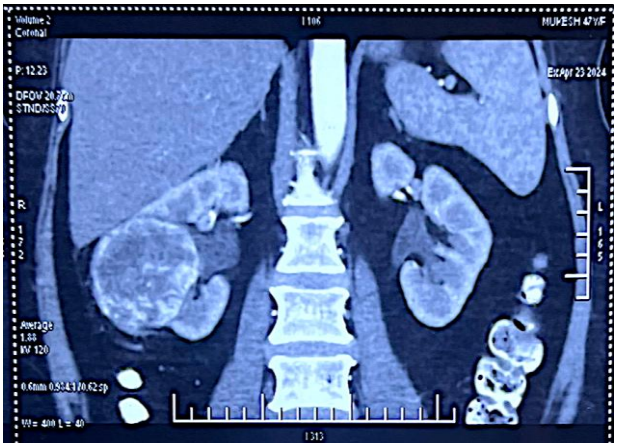

Figure 3: Coronal section of PET CT showing right renal mass in mid and lower pole with normal appearing left kidney.

DISCUSSION

Synchronous malignancies are defined as cancers diagnosed concurrently or within six months of each other. The occurrence of multiple primary malignancies has been well-documented in the literature. Warren and Ehrenreich were the first to classify multiple malignancies as a distinct entity, based on their study of 1,078 cancer autopsies, where 40 cases (3.7%) had multiple primary malignant growths. They found that patients diagnosed with RCC have a higher risk of developing antecedent, synchronous, or metachronous malignancies.[5]

Shaukat et al, presented a series of three pelvic malignancy cases where RCC was discovered incidentally, with one case involving carcinoma of the cervix.[6] Sato et al, conducted a study on Japanese RCC patients, reporting 38 cases (12%) of additional malignancies, but none involved the cervix. Similarly, Wong et al. and Momah et al, have published case reports highlighting the rarity of synchronous RCC and cervical cancer.[7]

The management of synchronous cervical cancer and RCC requires a multidisciplinary approach tailored to the stage and aggressiveness of each malignancy, as well as the patient's overall health. For cervical cancer, early-stage disease is typically managed with radical hysterectomy and pelvic lymphadenectomy, while locally advanced stages (IIB-IVA) are treated with concurrent chemoradiation using cisplatin. The presence of synchronous RCC may necessitate modifications or delays in the cervical cancer treatment, depending on the urgency of the RCC. Localized RCC is commonly treated with partial or radical nephrectomy, with surgical intervention prioritized if the RCC presents complications like obstruction or bleeding.

For advanced RCC, systemic therapies such as tyrosine kinase inhibitors or immunotherapy may be required. The treatment order is determined based on which cancer is causing more immediate symptoms, and in some cases, surgeries for both may be scheduled sequentially. Radiotherapy for cervical cancer can be planned alongside RCC surgery, or staggered to minimize toxicity overlap. In cases of metastatic RCC, systemic therapy may precede cervical cancer treatment. Similarly, in our case during cervical cancer management RCC was diagnosed and managed with radical nephrectomy followed by definitive concurrent chemoradiation for cervical cancer. Despite the frequent occurrence of RCC and cervical cancer as independent malignancies, their synchronous presence is extremely rare, with only a few reported cases in the literature. Early detection of secondary malignancies is crucial for improving patient outcomes. In gynaecological oncology, clinicians should consider the possibility of a separate malignancy, rather than assuming metastasis from a known tumor. Given the rarity of synchronous RCC and cervical cancer, this case report adds valuable insight to the existing literature. A close, coordinated effort among oncology specialists is essential to balance treatment strategies and optimize outcomes.

CONCLUSION

This case underscores the importance of comprehensive diagnostic imaging in pelvic malignancies, which should also include screening of other regions for potential coexisting malignancies. While the incidence of cervical cancer has decreased in the developed world due to routine Pap smear screening, it remains a significant cause of cancer-related death in developing countries, necessitating vigilant diagnostic and treatment strategies.

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