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Primary squamous cell carcinoma of renal parenchyma: Case report and review of literature

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ABSTRACT

Primary squamous cell carcinoma (SCC) of renal parenchyma is very rare and until now only a few cases have been reported. We report a unique SCC case in terms of aggressive nature and metastatic pattern. Renal rubber consistency and pasty keratin secretions were important findings in our patient. The patient underwent radical nephrectomy and lymphadenectomy and received 4 cycles of chemotherapy with cisplatin and gemcitabine. Eight month later, she succumbed the disease after developing ovary metastasis and not responding to chemotherapy. Also, our study showed that SCC may be present in pyelonephritic kidneys without a specific radiologic finding.

Introduction

Primary squamous cell carcinoma (SCC) of renal parenchyma is very rare and until now only 6 cases have been reported in the literature.[1] Known risk factors are kidney stones, infections, chemical exposure and hormonal disorders.[2] Due to the rarity of the disease, the effect of chemotherapy and radiotherapy is unclear yet. We report a very aggressive form of primary renal parenchymal SCC with unique clinical manifestation for the first time.

Case presentation

A 49-year-old woman with the chief complaint of fever, chills, dysuria, and flank pain from three months ago was referred to our institution. The patient had history of nephrolithiasis from 8 years ago. At referral, urine culture was positive for Ecoli. Patient received appropriate antibiotic and the next urine culture was negative. Ultrasonography showed large left kidney with multiple stones in the lower calyx as well as increased echogenicity with the possibility of pyelonephritis.

KUB and CT scan (Fig. 1) without contrast demonstrated left kidney enlargement with moderate to severe hydronephrosis, multiple stones in the lower pole, and a single large stone at the left renal pelvis. Subtle perinephric fat stranding was also present. Findings were in favor of xanthogranulomatous pyelonephritis. A few well-marginated iso-dense lesions were seen at the medial aspect of the left kidney as well as enlarged lymph nodes in para-aortic region.

The patient underwent nephrectomy with initial diagnosis of xanthogranulomatous pyelonephritis. After incising kidney parenchyma we noticed almost 20 stones within the kidney as well as keratin accumulations in the kidney parenchyma. The kidney was very large with a rubbery consistency. Para-aortic lymph nodes were large and complete lymphadenectomy was not feasible due to the large extent of the invasion. Four days later, the patient was discharged with good general condition.

Pathology findings confirmed the involvement of kidney tissue by nests of tumoral tissue. The tumoral tissue showed squamoid features with many keratin pearls formation, extensive necrosis, and invasion to renal parenchyma with no pelvis involvement. The final diagnosis was primary SCC of the renal parenchyma (Fig. 2). Patient received 4 cycles of chemotherapy with cisplatin and gemcitabine.

Eight months later, the patient referred with a metastatic mass in the left ovary measuring 20 cm. Multidisciplinary tumor board decided to start chemotherapy with cisplatin, methotrexate, and bleomycin and continue with surgical resection. However, her response to chemotherapy was poor and she succumbed to the disease after receiving three cycles of chemotherapy.

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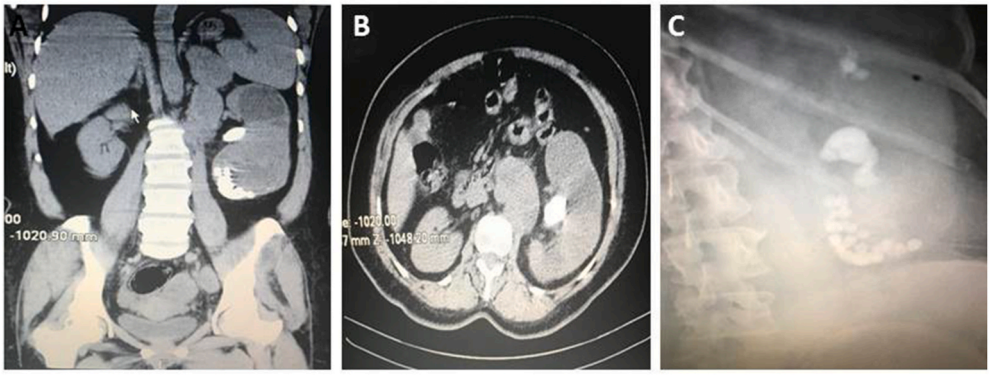

Fig. 1. A- Non-contrast abdominal CT scan coronal image, severely enlarged left kidney with several varying size stones and para-aortic lymph nodes; B- Axial abdominal CT scan without contrast, left kidney enlargement with a large stone and an apparent para-aortic lymph node; C- Abdominal X-ray image, left kidney enlargement along with innumerable varying size stones.

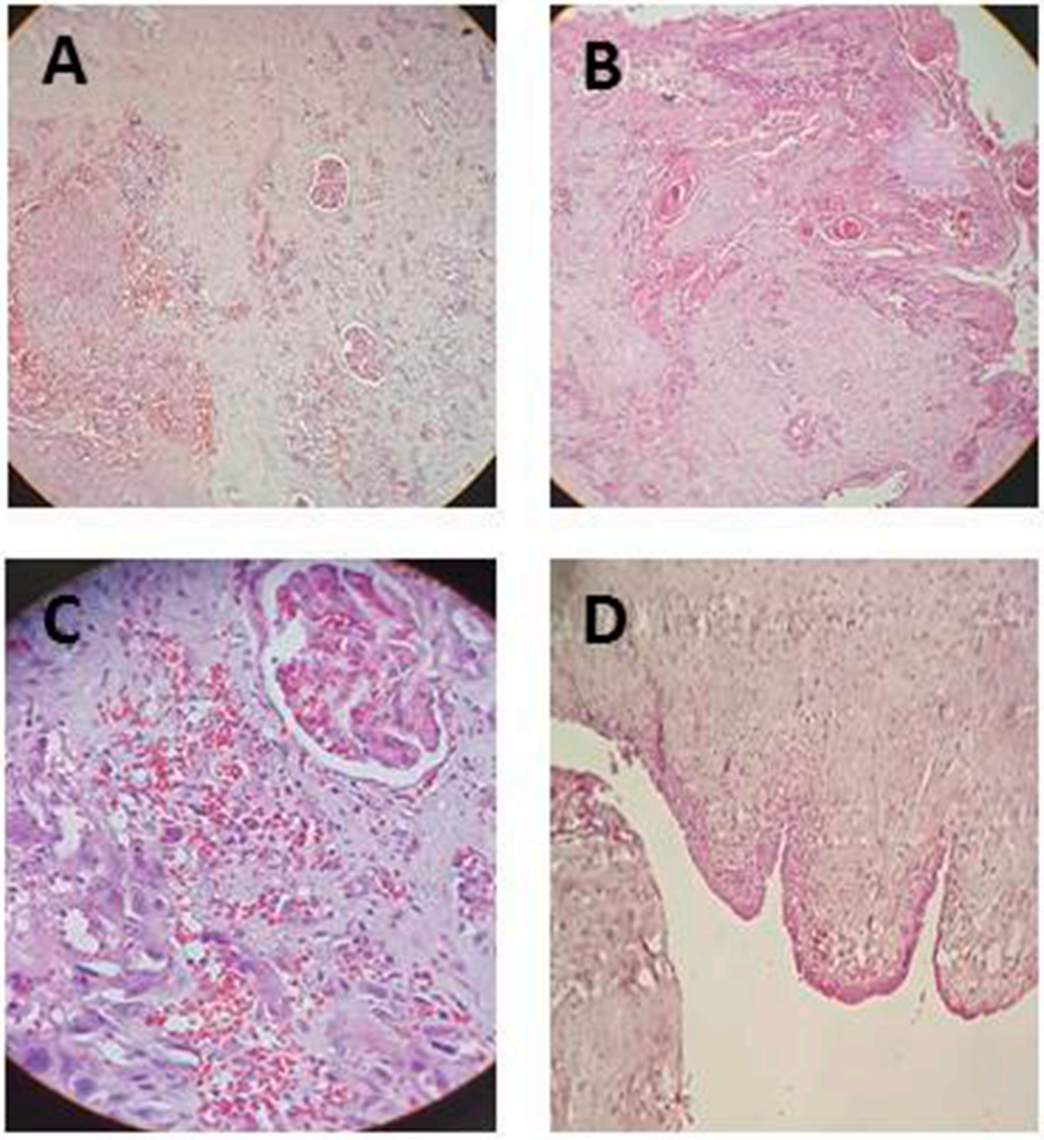

Fig. 2. A- Two glomeruli in the right side and tumor in the left side; B- Extensive keratin pearls; C- Squamous cell carcinoma nearby a glomerulus, D- Normal pelvis, not involved with tumor.

Discussion

SCC of the upper tracts comprises 0.5% of all renal malignancies. Primary SCC of renal parenchyma is a very rare condition with only 6 reported cases in the world (1).

In this report, we introduced a Primary SCC of renal parenchyma with an aggressive nature and different clinical signs. At the referral time, history, clinical examination, ultrasonography, KUB, and CT-scan did not show any sign of tumor in the body. Interestingly, it is notable that contrary to previous reports our case had no obvious kidney mass on preoperative CT scan. She underwent surgery because of the nephrolithiasis, and possibility of xanthogranulomatous pyelonephritis. It is difficult to discriminate infectious and inflammatory processes from neoplasms in some cases. FDG-PET/CT scan is valuable for the diagnosis and preoperative evaluation of renal cancers but it is unable to differentiate between infectious processes from cancers.[3]

Important histological findings of SCC are keratin pearls formation and intercellular bridges. Renal rubber consistency and pasty keratin secretions were important findings in our patient.

The primary treatment is surgery, even in metastatic cases.[4] Adjuvant or neoadjuvant chemotherapy is often used in metastatic SCC of renal pelvis with a combination of cisplatin, methotrexate, and bleomycin however it has limited effect on the survival of the patients.[5] Few studies evaluated primary SCC of renal parenchyma and there is no appropriate and efficient treatment.

Conclusion

Our case was unique in terms of aggressive nature and metastatic pattern. Renal rubber consistency and pasty keratin secretions were important findings in our patient. In addition, our study showed that underlying malignancies i.e. SCC may be present in pyelonephritic kidneys without a specific radiologic finding.

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