

Primary squamous cell carcinoma of the renal parenchyma: A rare occurrence

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ABSTRACT

Primary squamous cell carcinoma (SCC) of renal parenchyma is a very rare entity although renal pelvic SCC is common. We probably are reporting the third case in a 35 years female presenting with left lumbar pain and weight loss. Lower pole mass was found on contrast enhanced computed tomography (CECT) study of abdomen for which left total nephrectomy was done. Histopathological examination revealed a well differentiated squamous cell carcinoma. Her physical condition did not permit for any adjuvant therapy. Two months after surgery she expired.

Key words: Kidney, squamous cell carcinoma, urothelial carcinoma

INTRODUCTION

Primary squamous cell carcinoma (SCC) of the renal parenchyma is a very rare entity. Only two cases reported previously to the best of our knowledge.^[1,2] SCC of the renal pelvis, however, is a known entity, the reported incidence being 1.4% of all renal malignancies.^[3] Etiological factors that have been implicated include renal calculi, infection, endogenous and exogenous chemicals, hormonal imbalance, and Vitamin A deficiency, although tumours have been reported in the absence of these factors.^[4] Primary SCC of kidney should be differentiated from metastatic SCC or squamous metaplasia.^[5] We report a case of primary renal parenchymal SCC in a 35-year-old lady.

CASE REPORT

A 35-year-old female, nonsmoker presented with dull intermittent pain and heaviness of left upper abdomen with history of weight loss for 5 months. No history of fever, hematuria or other urinary symptoms. Clinical examination

revealed mild pallor and tenderness over left lumbar region. Blood picture showed hemoglobin 9.5 g/dl, erythrocyte sedimentation rate 60 mm in 1st h and 17% eosinophils. She had raised lactate dehydrogenase (663.8 U), creatine phosphokinase (CPK)-MB (42.6 U), serum glutamic-pyruvic transaminase (126.2 U) and alkaline phosphatase (143.7) and normal urea, creatinine, serum glutamic oxaloacetic transaminase and CPK. Urine showed mild proteinuria and few pus cells with sterile culture. Contrast-enhanced computed tomography (CECT) whole abdomen revealed a solitary heterogeneously enhancing relatively well demarcated space occupying lesion (SOL) in the lower pole of the left kidney [Figure 1]. No cystic changes or calculus could be identified. Retroperitoneal lymph nodes were not enlarged. No other primary lesion or metastasis identified on CECT chest or bone scan or positron emission tomography (PET) (which was not done routinely, but done in this case). She underwent left total nephrectomy. Gross examination showed well-circumscribed, light tan to yellow mass measuring 6 cm × 4 cm × 3.5 cm with areas of hemorrhage and necrosis confined to the lower pole of the kidney. The mass did not involve the pelvicalyceal system grossly, and no calculus or cystic change noted [Figure 2]. Histopathology showed sheets of malignant squamous cells with pearl formation and entrapped glomeruli. There was no urothelial component, and the pelvis was free from tumor [Figures 3-7]. Tumor node metastasis stage T1N0M0. After nephrectomy, the general condition of the patient deteriorated and she died after 2 months from septicemia without receiving any chemotherapy.

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Figure 1: Contrast-enhanced computed tomography abdomen - space occupying lesion, lower pole of left kidney measured 6.21 cm × 4.77 cm. Areas of necrosis present



Figure 2: Gross examination well-circumscribed, light tan to yellow mass in lower pole of left kidney, measured 6 cm × 4 cm × 3.5 cm with areas of hemorrhage and necrosis. Pelvis was free from tumor

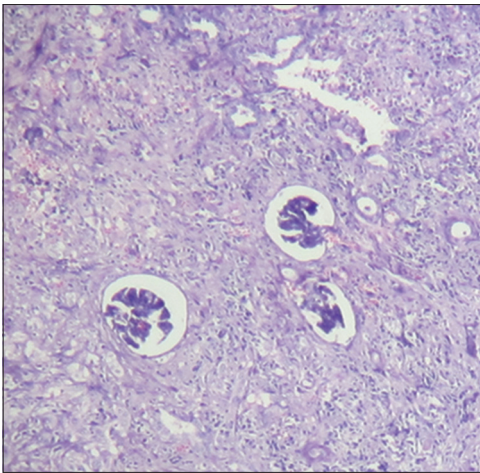
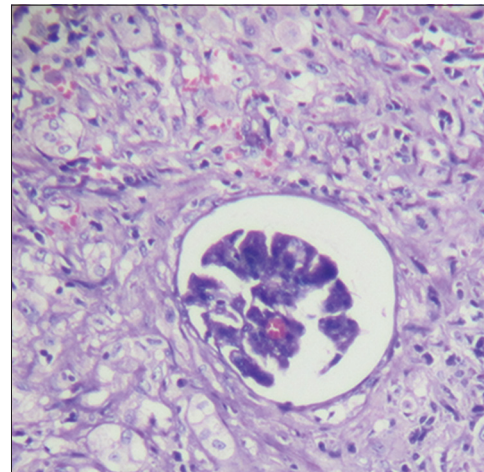


Figure 3: Photomicrograph (H and E, ×40 and ×100 respectively) well-differentiated squamous cell carcinoma. No urothelial component seen



Figures 4: Photomicrograph (H and E, ×40 and ×100 respectively) well-differentiated squamous cell carcinoma. No urothelial component seen

DISCUSSION

Most SCC of kidney have been found to originate from the renal pelvis. Urothelial cell carcinoma is the commonest neoplasm of renal pelvis, followed by SCC, which constitutes about 0.7-7% of all urothelial neoplasm.^[6] SCC of pelvis presents with advanced stage and infiltration to adjacent tissue than conventional urothelial cell carcinoma, though both usually tend to have a similar prognosis at later stages.^[7] Women are affected more frequently and most common age group being 50-70 years.^[4] In the present case, the tumor was a primary intraparenchymal SCC of a 35-year-old female and to the best of our knowledge we are reporting the third case of primary SCC of renal parenchyma.^[1,2]

Squamous cell carcinoma of the renal pelvis is thought to arise via squamous metaplasia (mostly keratinizing squamous metaplasia) of urothelium. Staghorn calculi, chronic urinary tract infection, smoking, schistosomiasis, hormonal imbalance, and Vitamin A deficiency are often associated

with squamous metaplasia leading to renal pelvic SCC^[4,8] although we find no such associative causes in our case. The association with squamous metaplasia is controversial. Most of the studies find strong association,^[9] but some found little association.^[10] The controversies may partially be due to the relative rarity of SCC at upper urinary tract.^[5] Presence of a urothelial dysplastic element including urothelial carcinoma *in situ* indicate a primary urothelial carcinoma with squamous differentiation and presence of keratinizing squamous metaplasia of the adjacent flattened urothelium suggests primary SCC of the renal pelvis.^[9] In our case, we found no such dysplastic urothelial component or metaplastic squamous lining of urothelium or no such causative agents.

Primary SCC of kidney should further be distinguished from metastatic SCC with the combination of clinical history, imaging study and histopathology.^[6,8] CT scan imaging of our case showed a solitary intraparenchymal SOL and PET scan failed to detect any other primary

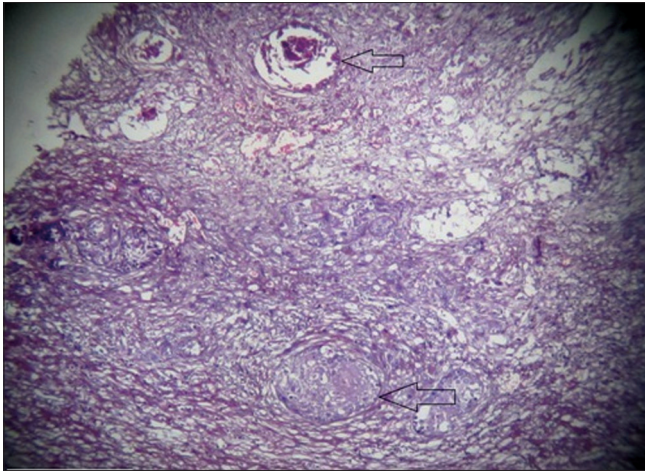


Figure 5: Photomicrograph (H and E, ×40) well-differentiated squamous cell carcinoma. Arrows show atypical squamous cell nest and glomeruli

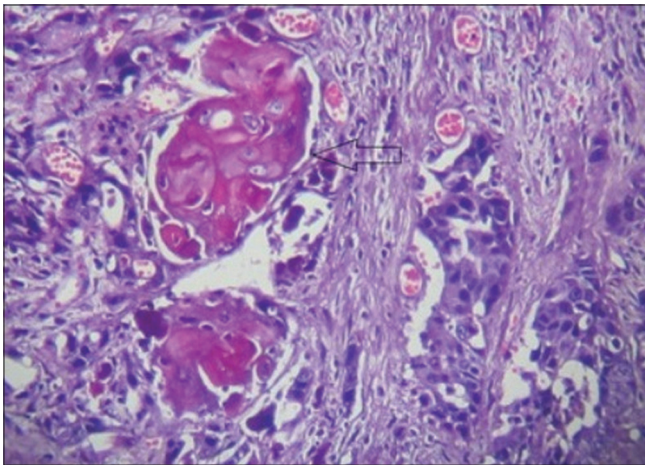


Figure 6: Photomicrograph (H and E, ×100) - keratin pearl formation (arrow). Glomeruli was not present in the same field

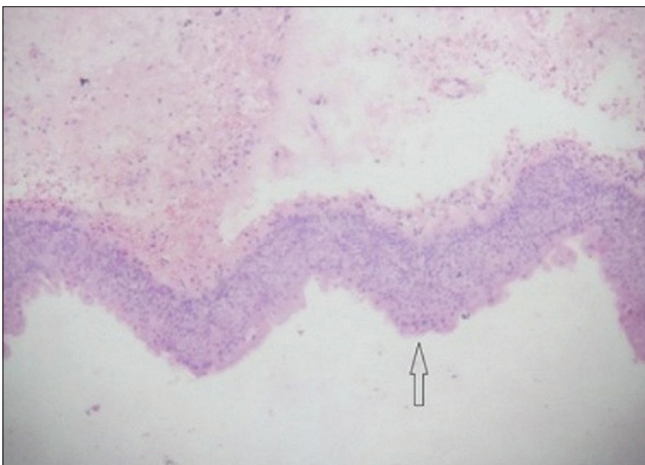


Figure 7: Photomicrograph (H and E, ×40) - urothelial lining of pelvis free from tumor urothelial lining is away from tumor

malignancy. Histologically pelvis was also free of tumor. All the findings indicate it as a primary renal parenchymal SCC which is an extremely rare entity.

Prognostically high stage is common, and results are unfavorable in renal SCC^[9] and total or radical nephrectomy is the mainstay of treatment. This case also had similar unfavorable outcome after total nephrectomy.

The previous two reported cases of SCC of renal parenchyma occur in older age group (51 years male and 60 years female^[1,2]) but in our case patient was a 35 years female. In the previous cases no etiological factors like calculi or smoking were not present^[1,2] as in our case. These cases are treated with radical and total nephrectomy, and histopathology reveals SCC of the renal parenchyma without involving pelvis and the both cases having single lower pole mass,^[1,2] as in our case. The tumor stage was T4N1MO and T1bNoMO respectively in these two cases and both patients are alive after 1 year of surgery,^[2] but in our case stage was T1NoMO and patient died after 2 months from septicemia without receiving any chemotherapy.

As prevailing data regarding the incidence, histogenesis, course and prognosis of renal parenchymal SCC are very inadequate, it needs further future evaluation to give comprehensive data on this entity.^[2]

REFERENCES

1. Kulshreshtha P, Kannan N, Bhardwaj R, Batra S. Primary squamous cell carcinoma of the renal parenchyma. *Indian J Pathol Microbiol* 2012;55:370-1.
2. Ghosh P, Saha K. Primary intraparenchymal squamous cell carcinoma of the kidney: A rare and unique entity. *Case Rep Pathol* 2014;2014:256813.
3. Tyagi N, Sharma S, Tyagi SP, Maheshwari V, Nath P, Ashraf SM, et al. A histomorphologic and ultrastructural study of the malignant tumours of the renal pelvis. *J Postgrad Med* 1993;39:197-201.
4. Talwar N, Dargan P, Arora MP, Sharma A, Sen AK. Primary squamous cell carcinoma of the renal pelvis masquerading as pyonephrosis: A case report. *Indian J Pathol Microbiol* 2006;49:418-20.
5. Eble JN, Young RH. Tumours of the urinary tract. In: Fletcher CD, editor. *Diagnostic Histopathology of Tumours*. 3rd ed. Philadelphia, PA: Mosby/Elsevier; 2007. p. 522-3.
6. Mizusawa H, Komiyama I, Ueno Y, Maejima T, Kato H. Squamous cell carcinoma in the renal pelvis of a horseshoe kidney. *Int J Urol* 2004;11:782-4.
7. Bandyopadhyay R, Biswas S, Nag D, Ghosh AK. Squamous cell carcinoma of the renal pelvis presenting as hydronephrosis. *J Cancer Res Ther* 2010;6:537-9.
8. Bonsib SM, Cheng L. Renal pelvis and ureter. In: Bostwick DG, Cheng L, editors. *Urologic Surgical Pathology*. 2nd ed. Philadelphia, PA: Mosby/Elsevier; 2008. p. 173-93.
9. Blacher EJ, Johnson DE, Abdul-Karim FW, Ayala AG. Squamous cell carcinoma of renal pelvis. *Urology* 1985;25:124-6.
10. Hertle L, Androulakakis P. Keratinizing desquamative squamous metaplasia of the upper urinary tract: Leukoplakia-Cholesteatoma. *J Urol* 1982;127:631-5.

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