

Squamous Cell Carcinoma of Pelvicalyceal System Completely Replacing Renal Parenchyma - An Incidental Finding: A Case Report

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Abstract

Staghorn calculi are seen in entire or part of the renal pelvicalyceal system. If untreated or inadequately treated, they may lead to complications like the deterioration of renal function. They also cause chronic irritation, inflammation, and infection leading to squamous metaplasia of the renal pelvis epithelium, which may progress to squamous cell carcinoma. Squamous cell carcinoma in renal pelvis is an uncommon and constitutes <1% of all urinary tract neoplasms. We are presenting a Case report of 45-year-old male came with complaints of flank pain and burning micturition, off and on for 5 months with no other significant medical or family history. The general and physical examination was within normal limits with deranged kidney function tests. Ultrasonography of kidney ureter, and bladder showed left-sided Grade IV hydronephrosis due to obstructing staghorn calculus. Complete loss of corticomedullary architecture with large staghorn calculi. Renal parenchyma completely replaced by squamous cell carcinoma. Our case highlights the importance of keeping this diagnosis in the back of the mind in patients with chronic renal calculi with the non-functioning hydronephrotic kidney.

Key words: Squamous cell carcinoma, Pelvi-calyceal system, Stag horn calculus

INTRODUCTION

Staghorn calculi are seen in entire or part of the renal pelvicalyceal system. If untreated or inadequately treated, they may lead to complications like the deterioration of renal function.^[1] They also cause chronic irritation, inflammation, and infection leading to squamous metaplasia of the renal pelvis epithelium, which may progress to squamous cell carcinoma.^[2] Squamous cell carcinoma in renal pelvis is an uncommon clinical entity. It constitutes <1% of all urinary tract neoplasms.^[3] Squamous cell carcinomas are more common in male urethra and urinary bladder than renal pelvis. This entity is usually clinically unsuspected as it is rare, with ambiguous clinical and radiological features. Hence, patients usually present at advanced stages resulting

in poor prognosis. This case highlights the importance of early treatment of renal calculi to prevent the development of squamous cell carcinoma and screening of patients with long-standing staghorn calculi.

CASE REPORT

A 45-year-old male came with complaints of flank pain and burning micturition, off and on for 5 months. There was no other significant medical or family history. The general and physical examination was within normal limits. His blood urea and serum creatinine levels were 22.3 mg/dl and 1.14 mg/dl, respectively. Urine examination showed the presence of pus cells and red blood cells. Ultrasonography of kidney ureter, and bladder showed left-sided Grade IV hydronephrosis due to obstructing staghorn calculus.

The patient was planned for exploration with the flank incision. Intraoperative findings showed left-sided kidney grossly enlarged in size, containing large staghorn calculus. Cortex was thinned out with the dilated pelvis. Adhesions were present between kidney capsule and surrounding tissues. He underwent left-sided nephrectomy and

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Month of Submission : 10-2018
Month of Peer Review : 11-2018
Month of Acceptance : 12-2018
Month of Publishing : 12-2018

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Figure 1: Gross picture showing cut section of kidney showing tumour with dilated pelvi-calyceal system and staghorn calculi

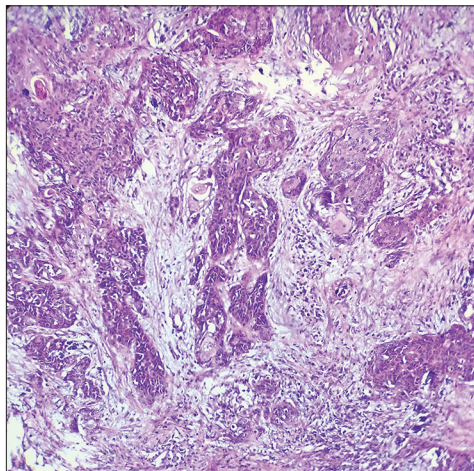


Figure 2: Microscopic picture of tumor on Low power field (H&E stain)

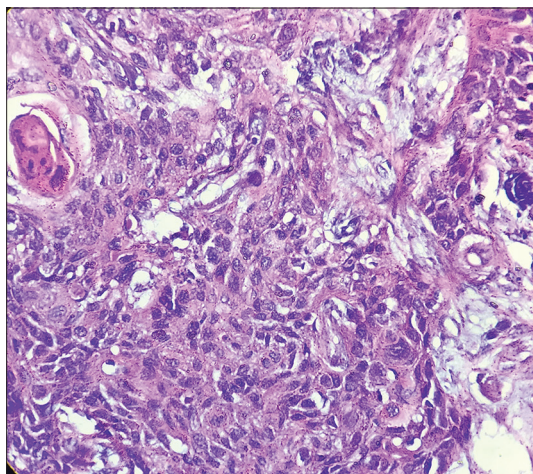


Figure 3: Microscopic picture of tumor on High power field (H&E stain)

specimen was sent for histopathological examination. Gross examination of the left nephrectomy specimen showed grossly enlarged kidney with a lobulated surface measuring

16 cm × 8 cm × 8 cm. The cut surface showed a cystically dilated pelvicalyceal system with presence of grayish white firm mass in the region of renal pelvis measuring 7 cm × 4 cm × 4 cm (Figure 1). Large staghorn calculus of size 8 cm × 6cm × 4 cm identified. Histopathological examination revealed well to moderately differentiated squamous cell carcinoma (Figures 2 and 3) involving the resection margins focally. No lymph nodes were identified in perinephric fat. Thus, the stage was - pT3NxMx. The patient had an uneventful post-operative course.

DISCUSSION

Squamous cell carcinoma of the urinary tract is more common in urinary bladder and male urethra. This entity is rarely encountered in the renal pelvis.^[4,5] The etiological factors associated with this rare entity include phenacetin consumption, chronic renal calculi, pyelonephritis, and squamous metaplasia.^[5] A population-based study conducted by Chung *et al.* showed the association between urinary calculi and renal pelvis cancers.^[6] The suggested mechanism is due to chronic irritation by calculus and infection at the damage site, a plentiful of cytokines and chemokines get secreted by the lymphocytes, which promote the growth of tumor cells and contribute to the onset and progression of cancer.^[7]

Various studies show that the mean age of presentation is 56 years, with equal incidence in males and females. The right and left side involvement is equally observed. Presenting symptoms include loin pain, hematuria, and abdominal lump.^[8,9] Or patient is 45-year-old male with flank pain and burning micturition. Renal squamous cell carcinoma is difficult to diagnose as they have non-specific clinical features with radiology showing mainly presence of calculi and hydronephrosis.^[4,5] These cases are, therefore, diagnosed mainly on the basis of histopathology.

At present, the primary treatment of renal squamous cell carcinoma is nephrectomy or nephroureterectomy.^[4,5] Cisplatin-based adjuvant chemotherapy and radiotherapy are usually given in metastatic disease but has shown little benefit. This highlights the importance for early diagnosis.^[2,8-10] Our patient underwent left radical nephrectomy with uneventful post-operative period. However, the further course of the disease could not be assessed as the patient was lost to follow-up.

CONCLUSION

Squamous cell carcinomas of renal pelvis are rare tumors, which are difficult to diagnose clinically and even on radiology. They are detected incidentally on histopathological examination of nephrectomy specimen.

As these tumors are associated with renal calculi, the patients with long-standing non-functioning calculous kidney should be carefully assessed with newer imaging modalities for early detection of the tumor, and prompt treatment with surgery and adjuvant chemotherapy for better results. This case highlights the importance of keeping this diagnosis in the back of the mind in patients with chronic renal calculi with the non-functioning hydronephrotic kidney.

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How to cite this article: Bhaskar V, Wasnk M, Prasad D. Squamous Cell Carcinoma of Pelviccalyceal System Completely Replacing Renal Parenchyma - An Incidental Finding: A Case Report. *Int J Sci Stud* 2018;6(9):99-101.

Source of Support: Nil, **Conflict of Interest:** None declared.