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Case Study

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SQUAMOUS CELL CARCINOMA OF RENAL PELVIS: A RARE CASE REPORT

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ABSTRACT

Squamous cell carcinoma (SCC) of the renal pelvis is a rare neoplasm and is usually associated with long standing renal calculi. Since this tumor is aggressive in nature, it usually has a poor prognosis thus aggressive treatment modalities are tried.[1] Here we report two cases of histologically proven squamous cell carcinoma of renal pelvis who were treated with surgery followed by adjuvant Radiotherapy.

KEYWORDS: Renal pelvis, Renal calculi, Squamous cell carcinoma, Hydronephrosis, Radiotherapy.

INTRODUCTION

Squamous cell carcinoma of renal pelvis is very rare tumour. Review of literature shows evidence of long standing co existence of renal calculi. Chronic irritation, inflammation and infection can cause squamous metaplasia of renal pelvis epithelium that may progress to squamous cell carcinoma. Many treatment modalities have been tried, however prognosis is poor.[1]

CASE 1

A 62year old elderly male presented with complaints of pain on the right side of abdomen since 3 months. On per abdomen examination a surgical scar was present in the right lumbar region, tenderness present over operated site. Patient had a history of Right Renal Pelvic Calculus since an year. On further evaluation blood parameters such as Complete blood count, Renal and Liver function tests, Serum electrolytes, Uric acid and ESR were performed which were within normal limits. Renal Scan showed a GFR of 80.5ml/min. Split Function - Right kidney was 31.8% and left kidney was 68.2%. Right kidney showed Hydro nephrosis with mild to moderate decrease in function with features suggestive of ? partial obstruction at the right pelviureteric junction or ? Passive stasis of tracer in a Hydro nephrotic Right kidney. Left kidney was normal. Patient underwent right open Pyelolithotomy with DJ stenting and followed by stent removal.

Ultrasound of abdomen and pelvis showed 7.8*7cms heterogeneous mass with vascularity & Hydro nephrosis noted at the upper pole of right kidney. CT Scan of abdomen and pelvis showed bulky Right kidney with an irregular ill-defined heterogeneously enhancing mass lesion in the pelvicalyceal system approximately 24*34*36mm causing dilatation of pelvicalyceal system with thinned out parenchyma. Multiple non obstructive calculus are noted in the lower pole largest measuring 8*7mm. Left kidney was normal.

Patient was diagnosed as a case of Carcinoma of Right Renal Pelvis and underwent Right Open Radical Nephrectomy. Post operative findings (Figure 1: a, b) showed features suggestive of Squamous cell carcinoma of Right renal pelvis with a nodal mass at the aortocaval area with metastatic deposits. Multiple sections studied from grey white lesions of renal pelvis showed extensive squamous metaplasia with focal dysplasia. Tumour cells were seen infiltrating the underlying stroma in the form of sheets and nests and were highly pleomorphic. Tumour cells were seen infiltrating into the renal parenchyma. Patient was staged as pT3N1M0.

Later patient was planned for Adjuvant Radiotherapy with 5040cGy in 28 fractions (Figure 2:a,b). He completed the treatment without any complications and toxicities and is on follow up.

CASE 2

A 50yr old male from West Bengal presented with complaints of right flank pain since 8 months and painless haematuria since 5 months. On evaluation RFT showed elevated creatinine (1.6). Multiple urine culture analysis showed no growth. On CT-KUB right kidney showed moderate hydroureteronephrosis with soft tissue density mass in right mid ureter measuring 1.7x1.8cm. MRI abdomen and pelvis showed patchily enhancing soft tissue mass (4.2x3.5 cm) in Right pelviureteric junction which was adherent to lower pole of right kidney. Urine cytology showed features highly suspicious of malignancy. Patient underwent Right open nephroureterectomy. Post-operative findings showed features suggestive of primary squamous cell carcinoma of renal pelvis, moderately differentiated, tumour size being 4x5x3 cm and seen invading muscularis of renal pelvis and was staged as pT2NxMx (Stage II). Patient was planned for Adjuvant Radiotherapy with 60Gy and 30fractions (Figure 2c). On further evaluation after 45Gy patient was found to have developed liver metastases and planned for palliative chemotherapy.

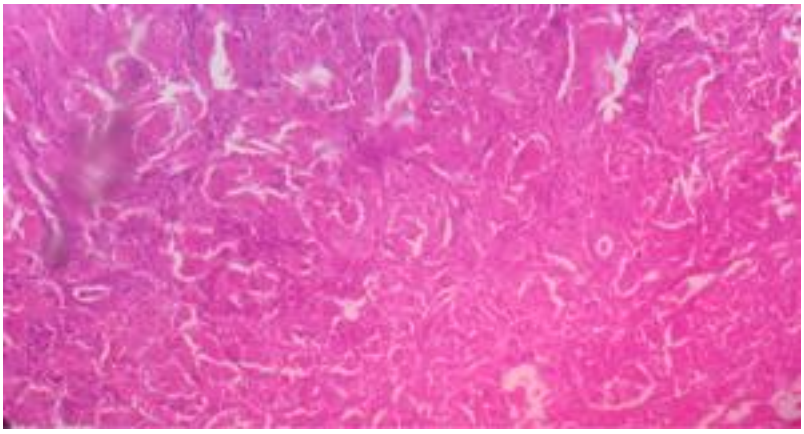

Fig 1: a

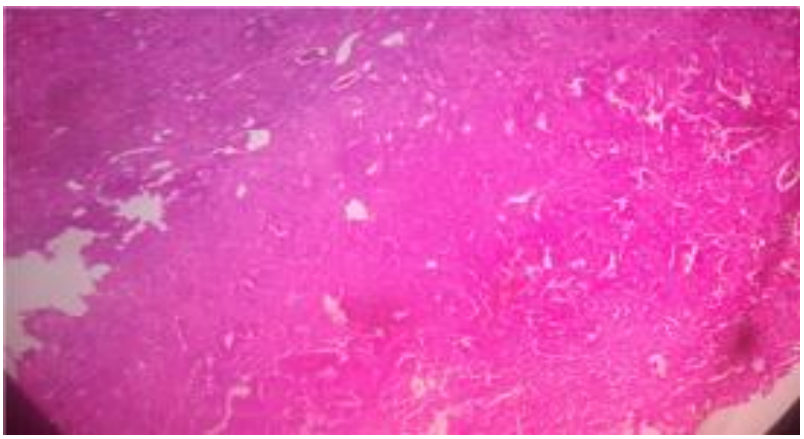

Fig 1:b

Figure 1: a (HPE slide of case 1) White lesions of renal pelvis shows extensive squamous metaplasia with focal dysplasia. Tumour cells are seen infiltrating the underlying stroma in the form of sheets and nests. Cells are highly pleomorphic. b.: Tumour cells seen infiltrating into the renal parenchyma.

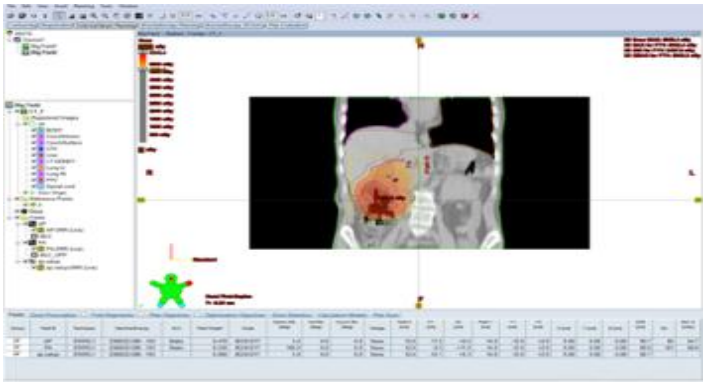

Fig 2: a

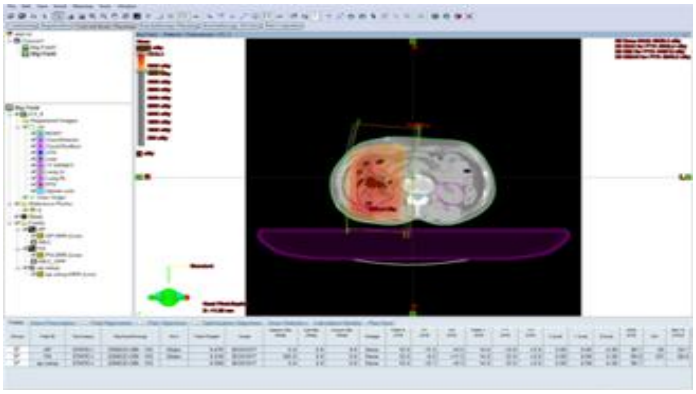

Fig 2: b

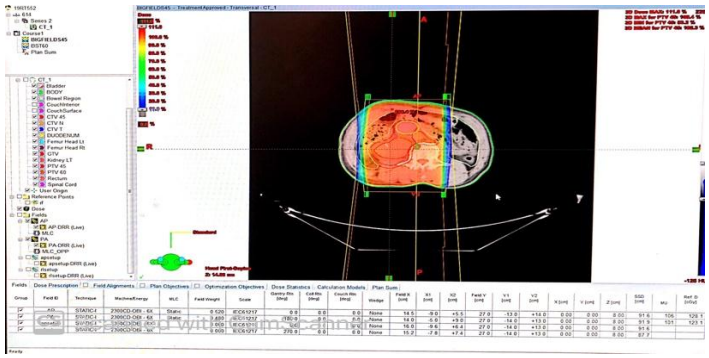

Fig 2: c

Figure 2: a: Coronal section of case 1 showing 95% isodose covering the tumour bed and node. b: Axial section of case 1 showing fields covering the tumour bed and nodal region. C: Axial section of case 2 showing fields covering the tumour bed and nodal region.

DISCUSSION

Squamous cell carcinoma of the renal pelvis is a very rare tumor, accounting for only 0.5–8.0% of malignant renal tumours.[1] Women are more commonly affected predominantly in the age group of 50 to 70 years.[2] Symptoms include hematuria, flank pain and occasionally hydro nephrosis. It is most often related to an underlying kidney stone or infection. The coexistence of renal calculi has been reported in 87–100% of cases.[3,4,5] It has also been associated with tuberculosis, chronic pyelonephritis, radiation therapy, chronic rejection in a transplanted kidney, analgesic abuse with phenacetin, immunosuppression with azathioprine and previous percutaneous nephrolithotomy.[6] The underlying mechanisms involve inflammation induced by calculus irritation and infection at the foci. Several tumour-supporting cytokines are possibly secreted during the inflammation.[7]

Squamous cell carcinoma of the renal pelvis tends to be sessile, ulcerated, and infiltrative at the time of diagnosis. The presence of necrotic material and keratin debris in the surface is a relatively constant feature.[8] It is a malignant neoplasm derived from the urothelium showing histologically pure squamous cell phenotype. Pure squamous cell carcinomas are usually high grade and high stage tumours invading the kidney and survival for 5 years is rare. The pathogenesis is assumed to begin with urothelial metaplasia due to chronic irritation and this leads to de-differentiation and finally Squamous cell carcinoma.[4]

It is presumed that high stage Squamous cell carcinoma become symptomatic when the tumors are large, invasive and often incurable and these symptoms cannot be differentiated from those of calculi, infection and chronic irritation and should be investigated thoroughly so that early diagnosis could be made.

Many treatments have been tried in patients who suffer from Renal Squamous cell carcinoma. The treatment approaches should be selected based on the age and general condition of the patient, the grading and staging of the cancer, as well as patient compliance. Among these choices Radical Nephrectomy with Total Ureterectomy including a bladder cuff around the ureteral orifice are the main ways to treat Renal Squamous cell carcinoma.[5] Some people suggest Radical Nephrectomy and only Partial Ureterectomy.[9] When distant metastasis occurs surgery is not necessary. Radiotherapy, Chemotherapy or Immunotherapy could be adopted, but the effect is limited and no survival benefit has been demonstrated from these treatments.[10] In our case series one patient was treated with Radical Nephrectomy and Adjuvant Radiotherapy and another patient was treated with Right open nephroureterectomy followed by Adjuvant Radiotherapy. Furthermore, most tumours are high grade with 84% showing locally

advanced or metastatic disease with 1 and 2 year survival rates of locally invasive renal SCC to be 33% and 22%, respectively.[11] Prognosis is so poor that the 5-year survival rate is not more than 10% and most patients die within 1 year of surgery.[12]

CONCLUSION

In conclusion, primary Renal Squamous cell carcinoma is an aggressive tumor with poor prognosis, which are strongly associated with renal stones. The patients with renal stones and non-functioning kidney should be carefully examined with newer imaging modalities for early detection of the tumor, and aggressive treatment with surgery followed by adjuvant combination chemotherapy-radiotherapy depending on the patient's compliance which may result in better outcome.

Informed Consent: Written informed consent was obtained from patients who participated in this study.

Conflict of Interest: No conflict of interest was declared by the authors.

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