Squamous Cell Carcinoma Of Renal Pelvis- A Rare Case Report

S. S. Inamdar*1, Sainath K. Andola2, Viral B. Laheru3

1Professor, 2Professor & HOD, 3Post graduate student, Department of Pathology, M. R. Medical College, Sedam Road, Gulbarga – 585 105, Karnataka, India.

ABSTRACT
The kidney is not an uncommon site for malignancy. In the majority of cases, renal cell carcinoma dominates lesion from renal cortex and transitional cell carcinoma from collecting duct system. Besides these neoplasms, squamous cell carcinomas from renal pelvis are detected occasionally and particularly rare. They usually presents at advanced stage and notorious for aggressive course. Here we report case of localised squamous cell carcinoma of renal pelvis which was found in male patient aged 78 years. He presented with hematuria since 15 days and he is regular smoker since around 35 years. Radiologic imaging showed presence of solid mass arising from lower pole of the right kidney. He underwent nephrectomy and histomorphological features were consistent with diagnosis of squamous cell carcinoma.

KEYWORDS: Renal pelvis, Squamous cell carcinoma

INTRODUCTION
Squamous cell carcinoma (SCC) of renal pelvis is rare tumor because it represents only 0.5% to 8% of malignant renal tumors [1]. There are only isolated case reports and scant case series of such cases in the English literature [2]. This tumor is centrally placed in renal pelvis & secondarily invades the renal parenchyma. It is often associated with chronic inflammation or infection, analgesic overuse and renal calculi. Cigarette smoking appears to be most significant acquire risk factor for upper-tract urothelial cancers [3]. It is suggested that 70% of these tumors in men & 40% in women can be attributable to smoking [3].

CASE REPORT
78 years old male patient presented with hematuria since 15 days with no other associated complaints. Past history was not significant. He was regular smoker since past 35 years. He underwent orthopaedic surgery for lower limb following trauma around 2 months ago, for which patient had taken analgesics for 6 weeks.

Investigations: Routine examination; Blood: Hb - 7.1gm/dl, TLC: 10,800, neutrophils-82%, lymphocytes-18%, ESR-135mm/hr; Urine: Reddish in appearance and turbid: pus cells-18-20/hpf, RBCs-plenty/hpf; Blood urea-88.2mg/dl and Serum creatinine-2.7mg/dl. There was no other significant biochemical abnormality.

Radiological findings: USG showed solid hypo echoic mass arising from lower pole of right kidney measuring around 8x8 cms. Left kidney was normal. CT abdomen showed hypo dense predominantly solid mass at lower pole of right kidney; minimal extension was noted into right proximal renal vein, but no extension was seen in inferior vena cava. Contrast CT showed minimal enhancement.
**Gross:** Irregular renal mass with perinephric fat, without ureter and any vessel. Cut section showed poorly circumscribed tumor mass measuring around 8x8 cms and areas of necrosis. Normal renal parenchyma noted at both ends [Figure: 1]. Mass was infiltrating into renal parenchyma and completely covered by kidney.

**Figure 1:** Nephrectomy specimen shows poorly circumscribed mass measuring around 8 cms with normal renal parenchyma at both ends

![Nephrectomy specimen](image)

**Microscopy:** Sections revealed poorly differentiated tumor comprising of polygonal cells with abundant eosinophilic cytoplasm [Figure: 2], irregular hyperchromatic nucleus with moderate pleomorphism. Clusters of cells showed individual cell keratinisation [Figure:4] and occasional epithelial pearls were seen [Figure:3]. Mitoses and areas of necrosis were noted. Lymphatic and vascular tumor embolisation was present. Adjacent renal parenchyma showed features of pyelonephritis.
Figure 2: Section from tumor mass revealed sheets and groups of polygonal cells with abundant eosinophilic cytoplasm (H&E; 4x)

Figure 3: Tumor cells with epithelial pearl formation (H&E; 40x)
DISCUSSION

Cancers of the kidney and renal pelvis are the 9th most common malignant cancer and form the 12th most common cause of all cancer-related deaths. Of all urothelial tumors, only 5-6% occurs in the upper urinary tract (renal pelvis and ureter). Squamous cell carcinoma (SCC) of renal pelvis is rare tumour and represents less than 0.5–8% of malignant renal pelvic tumors [1].

Squamous cell carcinoma of the urothelial tract is thought to arise through a process of metaplasia of the urothelium. A majority of the patients have squamous metaplasia of the adjacent urothelium [9]. The predisposing factors leading to development of RSCC are chronic irritation due to pre-existing renal stones (most commonly of the staghorn type) or prior surgery for renal stones, analgesic abuse, cigarette smoking or radiotherapy [4]. Other etiological factors include exogenous and endogenous chemicals, vitamin A deficiency, hormonal imbalance and schistosomiasis. There are also few studies which reported SCC of renal pelvis with tuberculosis, horse-shoe kidney etc [4].

Clinically, these patients generally presents with abdominal pain, hematuria, constitutional symptoms, and palpable mass. Preoperative recognition of SCC is very difficult since the symptoms will be obscured by other disease processes.

In the literature, there are few reports which showed association of paraneoplastic syndromes associated with squamous cell carcinoma. Coskun HS et al has reported the association of paraneoplastic syndromes (eg hypercalcemia, leukocytosis & thrombocytosis with squamous cell carcinoma of renal pelvis [7]. However present case did not show any of such association. The clinically important point is that squamous cell carcinoma in the renal pelvis is aggressive and prognosis is usually poor. Even CT imaging does not help in exact diagnosis, but may provide helpful information regarding the anatomical extent of the tumor [1,8]. Detection of these in preoperative urine cytology would help early diagnosis.

They may not be radiologically detectable and the first indication of malignancy might come incidentally on histological examination of nephrectomy specimens. This emphasizes the necessity of assessment for renal tumors. Histologically, nearly a fourth of RSCC also shows other histological patterns focally including micropapillary, lympho-epithelial, small cell, and sarcomatoid.
RSCC with solid and papillary pattern has been seen in 14% of cases in one large series by Holmang et al., and most cases are high grade [5].

In a study which was done by Lee et al. [10], primary renal squamous cell carcinoma was classified into two categories based on the location of the tumor – the central and the peripheral types. The central type had more rates of lymph nodal metastasis and the peripheral type showed parenchymal thickening with perirenal infiltration. The central type had poorer survival rates. The present case was a peripheral type of primary renal squamous cell carcinoma as per Lee et al.

Nativ et al. performed a study in which renal squamous cell carcinoma was divided into three groups. The report of the study stated that the one and two year survival rates of locally invasive renal squamous cell carcinoma were 33% and 22% respectively [11].

Nephrectomy with or without ureterectomy is performed in such cases. Nephrectomy is necessary even in the face of metastatic disease; to establish a histological diagnosis, for the control of the symptoms such as – pain, fever and haematuria, or to eliminate the source of the infection before a systemic chemotherapy can be instituted. Cisplatinum based chemotherapy and palliative radiotherapy has been advocated for the control of the local symptoms in metastatic disease, but they have failed to show any survival benefit [14]. Holmang et al. compared RSCC with urothelial carcinomas (UCs) and found that Most SCCs of the renal pelvis are moderately or poorly differentiated and typically present at an advanced stage. Surgical resection and adjuvant chemoradiotherapy are rarely curative [5].

Their general poor prognosis can be attributed to a typically advanced stage at diagnosis, but stage for stage prognosis is similar for squamous and usual urothelial carcinoma [13]. 94% of the renal squamous cell carcinomas usually present in an advanced stage at the time of the initial diagnosis. 21% of the patients are reported to be not eligible for surgery due to associated co-morbidities or advanced diseases [5,12]. An early metastatic spread is common and The prognosis is dismal with a 5-year survival rate of less than 10% [5,6]. A median 5-11 month survival has been reported in a previous case series. Unlike transitional cell carcinoma, SCC is usually detected with extensions into the renal vein, inferior vena cava or even with distant metastasis. Thus it has very aggressive course of disease and poor prognosis.

CONCLUSION

The present article emphasizes the importance of a combined clinical, radiological, surgical and histopathological approach. Squamous cell carcinoma of the renal pelvis is a rare neoplasm, often unsuspected clinically due to its rarity and ambiguous clinical and radiological features, and hence patients present at advanced stages resulting in poor prognosis.

Owing to the lack of symptoms suggesting a malignant condition, these tumors are rarely seen when the growth is small or localized to the renal pelvis. Squamous-cell tumors of the renal pelvis probably results, in most cases, from chronic irritation, are highly malignant, rapidly involve the renal parenchyma and neighboring tissues, and readily metastasize. Its aggressive course is reflected in the poor prognosis of squamous cell carcinoma of the renal pelvis.

REFERENCES


*Corresponding author: Dr. S. S. Inamdar
E-mail: shiv.inamdar2013@gmail.com