International Journal of Research in Medical Sciences
Chavarkar SP et al. Int J Res Med Sci. 2017 Feb;5(2):697-699
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012

DOI: http://dx.doi.org/10.18203/2320-6012.ijrms20170176

Case Report

A rare case report of primary renal squamous cell carcinoma

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Received: 30 November 2016
Accepted: 23 December 2016

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ABSTRACT

Primary renal squamous cell carcinoma is a very rare entity. Only few cases are reported in the world literature. Most of the patients present at a late stage resulting in poor prognosis. We report a 44 year old female who presented with a history of lump in right flank accompanied with a dull intermittent pain for 2 months duration which intensified in the last 15 days. Antecedent risk factors like renal calculi, analgesic use were absent. Computed Tomography (CT) examination revealed a mass arising from the superior pole of kidney with extension to the posterior segment of liver. Histopathology following nephrectomy showed histological features of well differentiated squamous cell carcinoma.

Keywords: Carcinoma, Renal, Squamous

INTRODUCTION

Renal squamous cell carcinoma (RSCC) is a rare cancer with a variable incidence of about 0.5-15% of all urothelial cancers. The insidious onset of symptoms and lack of any pathognomic signs leads to delay in diagnosis and treatment. These tumours are highly aggressive, high grade, and locally advanced or metastatic at the time of presentation. There are only isolated case reports and scant case series of such cases in world literature. The strongest association has been reported with renal calculus disease, in some series up to 100%.[1] We hereby report a case of primary renal squamous cell carcinoma in a 44 year old female with no antecedent risk factors.

CASE REPORT

A 44-year-old female presented with a lump in right flank and dull, intermittent non-radiating pain, on and off for last two months. There was noticeable weight loss during this period. The pain intensified in the last 15 days. History of fever with associated urinary complaints, hematuria was also conspicuously absent. The patient was non-hypertensive and non- diabetic. The clinical examination revealed mild pallor, lump and associated mild tenderness in right flank. There were no palpable lymph nodes. On routine haematological examination, her haemoglobin level was 9.3g/dl, total leukocyte count was slightly raised, 12000/cmm and RBC's displayed normocytic hypochromic features on peripheral blood film examination. Serum urea and creatinine values were within normal limits. Urine analysis revealed mild pyuria which was sterile on culture. Serum total and direct bilirubin values were slightly raised.

Computed tomography (CT) scan revealed a large, exophytic, necrotic malignant mass lesion arising from the superior pole of right kidney measuring 8.8×8.2×6.4cm, also extending upwards contiguously involving posterior segment of liver. There was no associated hydronephrosis or calculi. Retroperitoneal lymph nodes were not enlarged. Also no distant metastasis was observed on CT. Histopathological correlation was advised. USG-guided FNAC from the liver extension revealed dysplastic squamous cells. Nephrectomy of the right non-functioning kidney was performed. On gross examination a firm gray white to tan mass of size 7.2×5.3×1.8cm was found infiltrating and replacing most of the renal parenchyma. Cut surface showed areas of haemorrhage and necrosis.

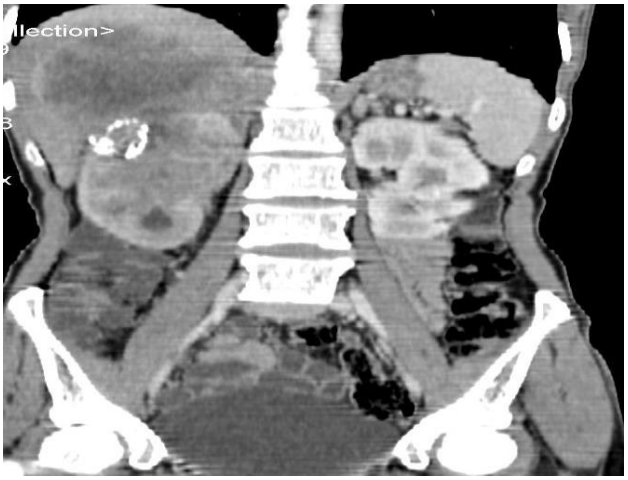

Figure 1: CT image: tumour mass at superior pole of right kidney contiguously extending to liver.

Figure 2: Gray-white tumour mass infiltrating renal parenchyma; necrotic zone superior pole (black arrow).

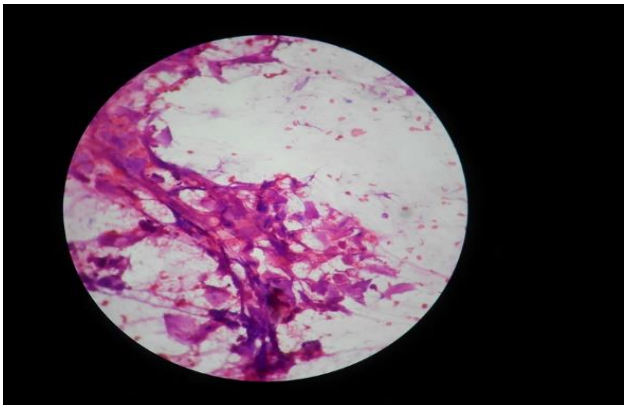

Figure 3: Cytology (Haematoxylin and eosin stain 400x): loosely cohesive cluster of dysplastic polygonal cells showing intercellular bridging, cellular pleomorphism with eosinophilic cytoplasm and nuclear atypia against a necro-haemorrhagic background s/o SCC.

A single circumscribed yellow necrotic area which was gritty to cut was found at the superior pole. The pelvis was thickened but no tumour identified on gross. Calculi or dilatation of the pelvicalyceal system was conspicuously absent. We also received hepatic biopsy of size 2.6×1.2×0.7cm.

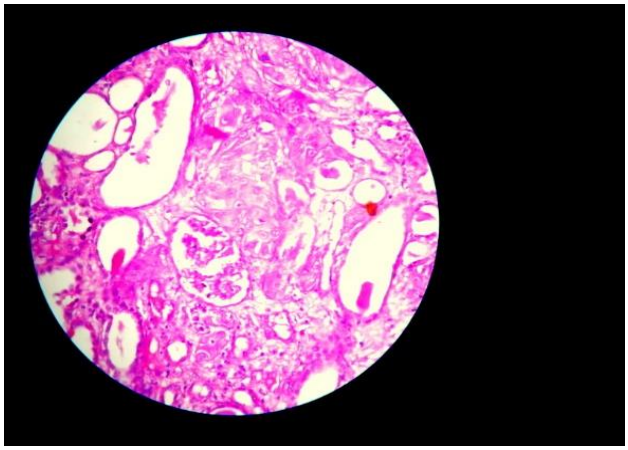

Figure 4: Histopathology (Haematoxylin and Eosin Stain 400x): SCC invading the renal parenchyma; a single glomerulus (centre) and collecting tubules seen.

Histological examination revealed well to moderately differentiated keratinizing squamous cell carcinoma infiltrating deeply into the renal parenchyma. Numerous keratin pearls were seen. Dysplastic transformation of the transitional cell epithelium of the pelvicalyceal system to stratified squamous epithelium was appreciated.

Sections from the upper pole which was necrotic on gross showed extensive calcification. The sections from the liver biopsy showed metastatic deposits of squamous cell carcinoma. The entire tumour showed exclusive squamous differentiation. No transitional element was found within the tumour. The regional lymph nodes were uninvolved and no distant metastasis was found.

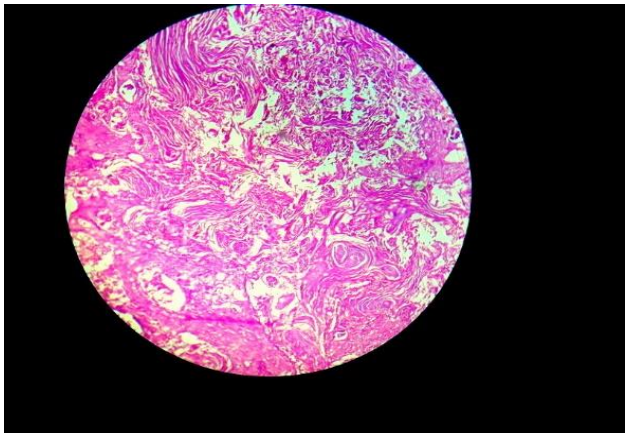

Figure 5: Histopathology (Haematoxylin and Eosin Stain 400x): Numerous Squamous pearls identified. Glomerulus (lower left corner).

DISCUSSION

Transitional cell carcinoma is reportedly the most common type originating in the renal pelvis followed by SCC which is relatively rare and affects predominantly women in the age group of 50 to 70 years. However, SCC of the renal pelvis usually presents at an advanced stage with infiltration of adjacent tissue though both usually tend to have similar prognosis at later stages.[2] Squamous cell carcinoma of the urinary tract is more frequently reported in urinary bladder and male urethra and rarely encounterd in renal pelvis.[3-6] The involvement is unilateral, equally common on the right and left sides. Tumour may present as loin pain, hematuria, abdominal lump or with anorexia and weight loss in advanced cases.[1] SCC of the urothelial tract is thought to arise through a process of metaplasia. A large percentage of patients have squamous metaplasia of the adjacent urothelium. Various etiological factors have been held responsible for squamous metaplasia and subsequent carcinoma. Of these, renal calculi and infection are the leading ones. Other factors implicated include exogenous and endogenous chemicals, vitamin A deficiency and hormonal imbalance, schistosomiasis and smoking.[2]

There have been very few instances when squamous cell cancer of renal pelvis has been observed in the absence of renal calculi or other risk factors.[1] In present case no preceding factors were found, thus it was an atypical presentation. Significantly, due to nonspecific and insidious presenting symptoms, lack of specific radiological features, and rarity of this tumour, most cases of RSCC are undiagnosed preoperatively and diagnosis is only made by histopathological examination of the operated nephrectomy specimen.[3,4]

Insidious onset of the disease, lack of any pathognomic sign or symptom and nonspecific findings on imaging leads to delay in diagnosis. Hence, most of the patients present with advanced disease, accounting for poor prognosis. The outcome of RSCC patients is poor with median survival of only 5-7 months after surgery and a 5 year survival of less than 10 %.[1]

The current primary treatment of renal squamous cell carcinoma is nephroureterectomy. Nephrectomy is necessary even in the face of metastatic disease; to establish a histological diagnosis, for control of symptoms such as pain, fever and hematuria or to eliminate the source of infection before systemic chemotherapy can be instituted. Cisplatin based adjuvant chemotherapy and radiotherapy are usually given due to the advanced stage and poor prognosis in most patients but have shown no survival benefits, highlighting the need for early diagnosis.[1,5] Check cystoscopy is rarely performed in these patients, as its rare for renal squamous cancer to present with bladder tumour in follow-up.[1]

CONCLUSION

Primary renal squamous cell carcinoma (SCC) is a rare entity. It is mostly seen in association with renal calculi. The uniqueness of this case report lies in the fact that there was neither antecedent history of renal calculi nor any urinary symptoms for e.g., hematuria. CT played an important role in diagnosis. The differential diagnosis of SCC should be kept in mind when any patient presents with a renal mass and surgery should be undertaken as early as possible.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Chavarkar SP, Agrawal AK, Shrivastava AC, Shrikhande AV. A rare case report of primary renal squamous cell carcinoma. Int J Res Med Sci 2017;5:697-9.