Case Report

Primary Squamous Cell Carcinoma of Renal Pelvis: A Masquerade

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ABSTRACT

Squamous cell carcinoma (SCC) of the renal pelvis is a rare tumour with myriad of presentations. We report a case who presented with perinephric abscess and diagnosis of Squamous cell carcinoma was made only after histopathologicalexamination. Case is being reported to highlight the unusual presentation of this very rare neoplasm and stress the importance of high degree of suspicion of squamous cell carcinoma of renal pelvis in cases of nephrolithiasis who present with loin pain and a suspicion of perinephric abscess. Squamous cell carcinoma of the renal pelvis is a masquerader which can present in any form and must be considered in the differentials in patients who have a history of renal stones and present with vague symptoms.

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Introduction

Squamous cell carcinoma (SCC) of the renal pelvis is a rare tumour with myriad of presentations. We report a case who presented with perinephric abscess and abscess was drained in a peripheral hospital. Squamous cell carcinoma was diagnosed by histopathological examination of the excised necrosed tissue and nephrectomy specimen. She also gave a history of nephrolithiasis in the past. Case is being reported to highlight the unusual presentation of this very rare neoplasm and stress the importance of high degree of suspicion in cases of nephrolithiasis who present with loin pain and perinephric abscess.

Case Report

A 50 year old female presented with 3 month history of loin pain,low grade intermittent fever of twomonth duration and burning micturition on and off of one month duration. She had been operated for left renal calculus 8 years back. She had also been operated and had undergone abdominal hysterectomy eight years back for fibroid uterus. She was a hypertensive on anti-hypertensives and a diabetic on medication. She was initially managed at a peripheral hospital where ultrasonography (USG) of the abdomen revealed nephrolithiasis left kidney with large renal abscess with perinephric and subcutaneous extension and (Rt) mild hydroureteronephrosis with (Rt) ureterocele.? Emphysematouspyelonephritis/neoplastic pathology.

Incision and drainage along with excision of necrotic tissue was done atthe peripheral center however she started discharging pus from the wound and was referred to our hospital. Her routine hematological and biochemical investigations were within normal limits. Urine examination showed few pus cells (<3/hpf)

Histopathological examination of necrosed perinephric tissue revealed well differentiated squamous cell carcinoma.

CECT Abdomen and Pelvis revealed 10x9.3x6.5 cm sized, solid, isodense (28-35 HU), heterogeneously enhancing (48-69 HU), focal mass seen arising from superior pole of the left kidney suggestive of Renal Cell Carcinoma. This mass was seen to infiltrate the posterior perinephric space and posterior renal fascia and psoas muscle. There was no evidence of left renal vein involvement. Lt(T3NoMx)

Left radical nephrectomy was done. Per-operatively, there was 20x20cm irregular and necrotic mass which was seen to be infiltrating the posterior abdominal wall, diaphragm and skin posteriorly. Gross examination showed an irregular grey white tumour measuring 10x9.7x9cm, distorting the architecture of the kidney involving the renal parenchyma and extending to pelvis, and infiltrating the perinephric and pelvic fat. The tumour was excised piecemeal. Postoperative period was uneventful.

Microscopic examination of hematoxylin and eosin stained sections showed well differentiated squamous cell carcinoma involving the kidney, pelvis and extending to the perinephric fat. There were keratin pearls and individual cell keratinization. Large areas of necrosis were seen. Extensive sampling did not reveal associated urothelial carcinoma (Fig1,2).The tumour was seen infiltrating the renal capsule and perirenal fat. No lymphovascular invasion was seen. Large areas of necrosis werenoted.

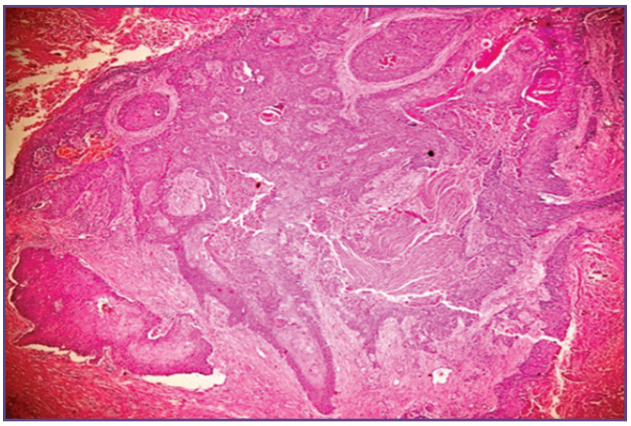

Fig. 1. Photomicrograph (H&E, X100) showing well differentiated squamous cell carcinoma of renal pelvis.

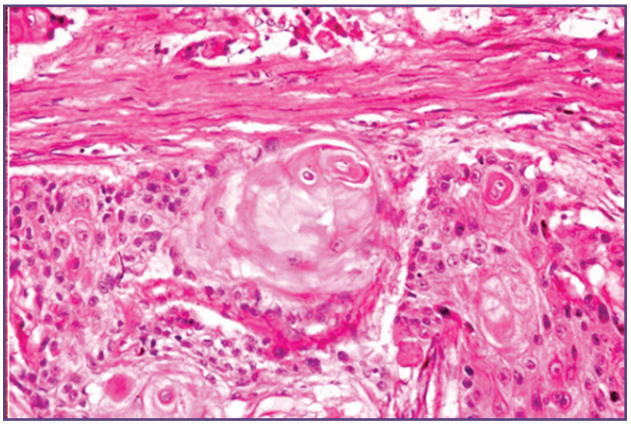

Fig. 2. Photomicrograph (H&E, X400) showing individual cell keratinisation and keratin pearls

Discussion

Primary squamous cell carcinoma of the renal pelvis is a rare tumour and comprises less than 1% of urinary tract neoplasms. It is postulated that SCC arises due to squamous metaplasia of the urothelium[1,2] Renal calculi, infection, exogenous and endogenous chemicals, smoking, vitamin A deficiency, hormonal factors and schistosomiasis have been incriminated in causing squamous metaplasia.

[3]Association with renal calculi has been reported to be 87-100% in various studies. Squamous cell carcinoma has also been found to be associated with chronic pyelonephritis, transplanted kidney with chronic rejection, phenacetinabuse, and tuberculosis.[4]

It is very difficult to differentiate SCC from other conditions and tumours of the kidney by radio imaging and may lead to diagnostic dilemma as in this case.Histopathology is the mainstay of diagnosis in these cases.

In a study, it was found that squamous cell carcinoma presents in pTa/T1/T2 stage in only 4% of the cases. Overall survival in these patients is inferior to patients with transitional cell carcinoma. However, No difference was found in prognosis between urothelial carcinoma and squamous cell carcinoma stage for stage.[5,6]

Generally these tumours are moderately to poorly differentiated and are aggressive[5], but our case was unusual as this tumour was well differentiated with presence of individual cell keratinization and keratin pearls.

Primary squamous cell carcinomas of the renal pelvis arising from the superior pole of the kidney are rare but have been reported.[7]

One of the main differentials is Urothelial Carcinoma with squamous differentiation. Squamous differentiation, defined by the presence of intercellular bridges or keratinization, occurs in 21% of urothelial carcinomas of the bladder, and in 44% of tumours of the renal pelvis.[8] The diagnosis of squamous cell carcinoma is reserved for pure lesions without any associated urothelial component, including urothelial carcinoma in situ. Cases which have associated urothelial carcinoma are diagnosed as urothelial carcinoma with squamous differentiation.[9]

Therefore extensive sampling is required to rule out urothelialcarcinoma with squamous differentiation. This tumour was purely well differentiated squamous cell carcinoma.

Extensive sampling of the tumour revealed squamous metaplasia of the transitional epithelium (Fig 3). This finding rules out metastatic squamous cell carcinoma and primary squamous cell carcinoma of the kidney.

Conclusion

In conclusion, SCC of renal pelvis is a rare tumour associated with renal stones. Patients may present with vague symptoms like loin pain. A high degree of suspicion, including history of renal calculi, supplemented by radioimaging CT may help in diagnosing this tumour. It is also important to rule out urothelial carcinoma with squamous differentiation. Exact cause of this tumour is not known, however as it is known in patients of renal calculi , close follow up of these individuals is warranted.

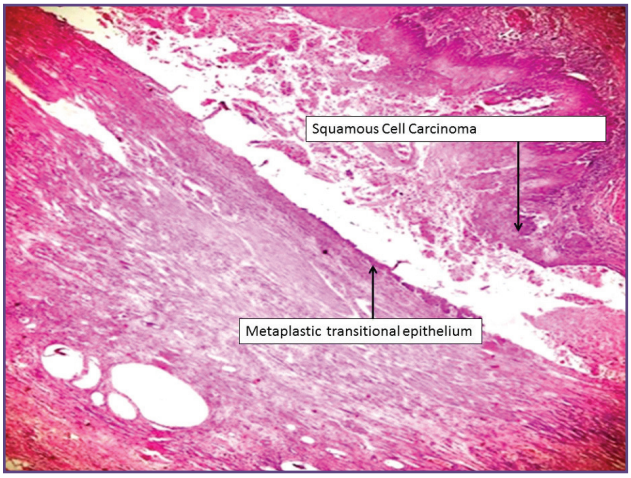

Fig. 3: Photomicrograph (H&E, X100) of the renal pelvis showing transitional epithelium in the lower part and invasive squamous cell carcinoma in the upper part.

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Competing Interests

None declared

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