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A RARE CASE OF PRIMARY SQUAMOUS CELL CARCINOMA OF THE KIDNEY: A CASE REPORT

General Surgery

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ABSTRACT

Background: Primary renal squamous cell carcinoma (SCC) is an uncommon condition that is frequently linked to infection, nephrolithiasis, and chronic irritation. Preoperative suspicion is frequently lacking due to its rarity, non-specific clinical indications and symptoms, and radiological findings. Individuals with renal pelvis SCC usually present with advanced-stage disease and have a dismal prognosis. There are currently no established treatment guidelines for SCC of the renal pelvis, and the majority of our knowledge comes from case reports or small case series. This article describes the histological, radiological, and clinical findings of this rare tumour. **Primary Aim:** To include the possibility of rare tumours including SCC in patients presenting with renal stone or staghorn calculi **Case History:** A 50-year-old male patient with right flank pain of 3 months presented to a health care facility with a radiological picture of right staghorn calculi with IV urography suggestive of non-excreting kidney. He had no other associated urinary complaints and underwent a right nephrectomy for improvement of his general condition which later turned out to be an incidental finding of squamous cell carcinoma of the right kidney. **Conclusion:** The rare and unusual location of a renal tumour underscores its importance in differential diagnosis, and our case report on the patient's therapy and the clinical outcome could aid in patient care.

KEYWORDS

Nephrolithiasis, Renal pelvis, Primary renal squamous cell carcinoma

INTRODUCTION

Primary squamous cell carcinoma (SCC) of the renal pelvis is a rare occurrence, accounting for only 0.5–7.0% of upper urinary tract tumours. Renal SCC is more frequently reported in the urinary bladder and male urethra than in the renal pelvis. Owing to its uncommon occurrence and correlation with nephrolithiasis and persistent inflammation, it may be difficult to diagnose it. Individuals may exhibit vague signs and symptoms, and further imaging tests may not be able to differentiate the disorder from other inflammatory or renal neoplasms. This case report addresses squamous cell carcinoma of the renal pelvis that was incidentally discovered following a nephrectomy for a chronically infected, non-functioning kidney.

Case Report

Case History

A 50-year-old male patient of weight 50 kg had come to surgery OPD with complaints of intermittent, localised, dull aching right flank pain and weight loss for 3 months, which was initially associated with nausea and vomiting and later subsided. It was associated with decreased appetite and generalised weakness for 2 months.

He had no haematuria, burning micturition, fever, or any other associated complaints. He had no significant past medical or surgical history or family history. He was an occasional cigarette smoker.

On general physical examination, the patient is conscious, and oriented, with no pallor, icterus, oedema, or generalized lymphadenopathy. The patient is vitally stable.

Per abdomen showed mild tenderness over right flank with no guarding, rigidity, or palpable lump. Hernial orifices are normal. Bowel sounds are adequate. Digital rectal examination was insignificant. No significant abnormality was detected in other systemic examinations.

Investigations

Routine hematological investigations including hemoglobin, total count, serum urea and creatinine, and serum electrolytes were within normal limits. Urine dipstick analysis showed 2+ leucocytes and nil protein. No bacteria were grown on the urine culture. Her C-reactive protein (CRP) was elevated at 88 mg/L. X-Ray KUB was done showing right renal stones. Ultrasonography showed right renal staghorn calculi and gross hydronephrosis. Contrast-enhanced intravenous urography was performed and suggested an enlarged right kidney (9.3 X7.8 X 11.8) cm (AP X TRA X CC) with heterogeneously enhancing renal parenchyma and staghorn calculi in mid calyx and pelvis, largest of size (33 X 40 X 46), with resultant gross hydronephrosis and completely obstructive nonexcreting right kidney. Lymphadenopathy in precaval, preaortic, right renal hilar region, and retroperitoneal space was present, with the possibility of squamous metaplasia likely. It shows normal excreting left kidney.

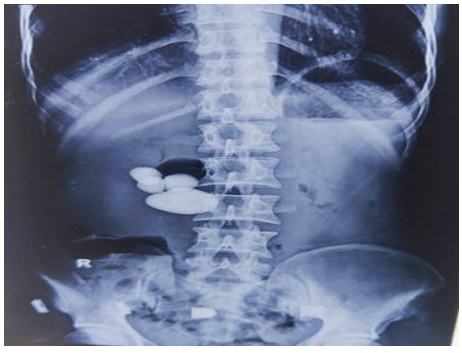

Figure 1: XRay KUB with right renal stones

Management

Given a non-functioning, obstructed kidney in the presence of urolithiasis, the patient underwent a right nephrectomy via a right transcostal incision. Intraoperative, the kidney was adherent to the surrounding structures but was dissected free of these organs. Due to the extensive adhesions, surrounding fibrotic tissue was excised with the kidney, and lymph node dissection was not performed.

The excised kidney was submitted for histopathological assessment. Macroscopically, the specimen consisted of a kidney with surrounding peri-renal adipose tissue which weighed 350 g. The kidney measured 6×10×4.5 cm firm in consistency. The renal capsule was intact. On the cut section of the kidney, the internal architecture was completely distorted with no clear demarcation between the cortex and medulla. Irregular cauliflower-like whitish growth of size 5x9x4 cm arising from cystic wall created by nephrolithiasis. Multiple cystic areas are seen with multiple stones, brownish in colour. Microscopic examination showed well-differentiated squamous cell carcinoma with changes of chronic pyelonephritis. Tumour limited to the kidney with no involvement of perinephric fat, renal capsule, and gerotas fascia, and no perineural and lymphovascular invasion. Pathological stage classification (PTNM, AJCC 8th edition) is pT1b.

Postoperatively, the patient was admitted to the Intensive Care Unit (ICU) for three days. His postoperative recovery was uneventful. Seven days following surgery, he was clinically stable and was discharged from the hospital while awaiting his histopathology report. He was scheduled for a follow-up visit 7 days after discharge for a review of his wound and further Oncology opinion. The patient had an episode of breathlessness and suddenly expired at home 4 days

following discharge (postoperative day 11). The patient's relatives were not willing for a post-mortem examination.

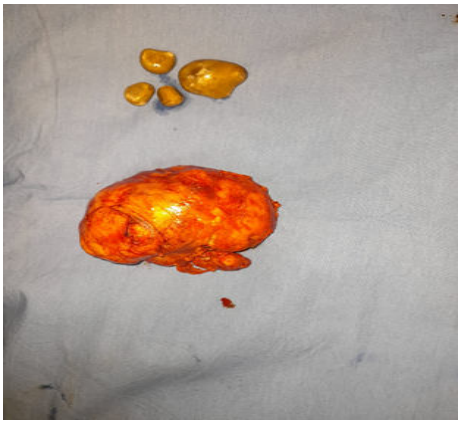

Figure 2: Excised right kidney with calculi

DISCUSSION

About 5–10% of all urothelial tumours are derived from the urothelium of the renal pelvis and ureter, making them comparatively uncommon neoplasms [1, 2, 4]. Urothelial carcinomas make up around 85–90% of these, but pure SCCs are far less common, making for about 0.5–7.0% of upper urinary tract malignancies [1–5]. Patients typically arrive between the fifth and seventh decade, with different studies showing varying gender preferences [1]. Renal stones, chronic infection, and inflammation are linked to squamous metaplasia, dysplasia, and ultimately SCC in cases of SCC of the renal pelvis [3–6]. Due to its rarity and vague symptoms, signs, and radiological findings, kidney SCC is seldom suspected or diagnosed before surgery. Individuals may exhibit fever, weight loss, flank discomfort, microscopic or macroscopic haematuria, or a palpable abdominal mass [5]. Additionally, paraneoplastic diseases such as hypercalcemia, leucocytosis, and thrombocytosis have been linked to SCC [7]. Our patient did not exhibit paraneoplastic symptoms or haematuria and fever; instead, he just had intermittent flank discomfort.

Radiological findings of renal pelvis SCC include a solid renal pelvic or ureteric mass, hydronephrosis, calcifications, or regional lymphadenopathy [5]. These are non-specific findings that may be difficult to distinguish from chronic inflammatory conditions such as xanthogranulomatous pyelonephritis (XGP), tuberculosis, or other neoplasms of the upper urinary tract [4]. An enhancing extra-luminal or intraluminal mass or exophytic mass may be a helpful finding in cases of SCC [8]. In the present case, the CT scan showed a heterogeneously enhancing renal parenchyma and staghorn calculi, hydronephrosis, and intra-abdominal lymphadenopathy.

The clinical preoperative diagnosis of our patient was that of xanthogranulomatous pyelonephritis. XGP is a rare chronic bacterial pyelonephritis that may mimic renal neoplasms [9]. The clinical signs and symptoms as well as the radiological findings of XGP are very similar to renal neoplasms, and in particular to that of renal SCC due to the association with nephrolithiasis [9]. Furthermore, the inflammation in XGP may extend beyond the kidney to involve surrounding structures [9]. Microscopically, primary renal SCC resembles squamous cell carcinomas at other sites. In our case, the tumour was identified in sections of the pelvis. Extensive tumour necrosis was documented.

Renal SCC patients often appear at an advanced stage, typically T3 or above [1-3, 5]. The patient in this case study was diagnosed with stage IV illness. It has been demonstrated that tumour recurrences usually progress quickly, which in our patient's circumstances were [6,7]. Compared to patients with urothelial cancer, the overall survival rate for patients with SCC of the upper urinary tract is significantly lower. However, there is no disease-specific 5-year survival difference between UC and SCC [2].

At present there is no treatment protocol for the management of patients with primary renal SCC. The cornerstone of care has been surgery, specifically a nephroureterectomy or radical nephrectomy [1, 4–7]. Accurate lymph node staging is lacking in the majority of loco-regional disease patients. Adjuvant chemotherapy based on cisplatinhas not shown to improve patient survival. Postoperative radiation treatment has also not been shown to improve survival. Nonetheless, some benefit has been proposed in conjunction with adjuvant chemotherapy for individuals suffering from upper urinary tract urothelial carcinoma. However, further research is needed to ascertain whether chemotherapy or radiation therapy would increase patient survival because there aren't many cases of squamous cell carcinoma and the disease has a low long-term survival rate.

CONCLUSION

Frequently clinically undetected or undiagnosed, primary renal squamous cell carcinomas are extremely rare tumours. To provide prompt, appropriate patient therapy, these tumours require extensive clinicopathological and radiological correlation in addition to a high index of suspicion and broad differential diagnosis. It is clear from this that kidney stones must be treated quickly in order to avoid this uncommon but dangerous consequence.

Consent For Publication

Written and informed consent was obtained from the patient's legal guardian for the use of the clinical history, radiological images, intraoperative macroscopic photographs, and histological tissue sections.

Conflict Of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper

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