CASE REPORT

Nephrectomy for infected stag horn calculus confounded by the presence of squamous cell carcinoma

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SUMMARY

Squamous cell carcinoma of kidney is a rare tumour of the many tumours seen in the kidney. It is usually associated with chronic irritation by a foreign body, which is mostly a stag horn calculus. Diagnosis of carcinoma in the presence of stag horn calculus is bizarre as it is seen in only <1% of patients. After imaging in this patient, the lymph nodes were enlarged and showed necrosis, which favoured the diagnosis of tuberculosis in a country where it is endemic. The pathological examination after surgery has amazed us by the presence of squamous cell carcinoma with lymph nodes positive with metastasis to vertebrae as the patient has presented to us with all symptoms of infection like pain and fever, which never made us think about malignancy preoperatively.

BACKGROUND

Squamous cell carcinoma (SCC) makes about less than 1% of all renal tumours.¹ SCC is more frequently reported in the urinary bladder compared with that in the renal pelvis. SCC in urinary tract is usually associated with inciting

Figure 2 DTPA showing a faint rim of tracer uptake in the part of left kidney in the delayed image.

factors usually a long-standing calculus; thus, when evaluating a urolithiasis, a remote chance of malignancy should be kept in mind. Other risk factors are chronic infection, endogenous and exogenous chemicals, radiotherapy and vitamin A deficiency. Usually, the imaging helps to identify the tumour, but in this case, it was misleading because of the central necrotic mass, which was mimicking like tuberculosis. The details are discussed further.

CASE PRESENTATION

A 60-year-old female patient came with complaints of fever and left loin pain for 3 weeks of duration. She was being treated with parenteral antibiotics for urinary tract infection as urine culture was positive by a family physician. As an ultrasonography (USG) done earlier showed left-sided hydronephrosis with a calculus in the pelvis, she was being treated suspecting pyelonephritis. As the symptoms were not completely resolved, she was referred to our hospital.

INVESTIGATIONS

Imaging was done with CT scan, which showed left-sided severe hydronephrosis with a stag horn calculus in the left renal pelvis. There are multiple calcifications in the calyces of left kidney and left para-aortic lymphadenopathy (figure 1). Diethylenetriaminepentaacetic acid (DTPA) was also done, which showed a faint rim of tracer uptake in the part of left kidney in the delayed image only (figure 2). Rapid diagnosis for tuberculosis by GeneXpert was done, which was negative on urine. Confirmatory tubercular culture on urine was awaited.

DIFFERENTIAL DIAGNOSIS

In view of necrotic lymph nodes and calcifications, the possibility of tuberculosis with pyelonephritis was considered as the patient was having fever not responding to medication. This was thought as

Figure 1 CT image with the left kidney, which is hydronephrotic with pelvic calculus and an enlarged lymph node in the para-aortic location with central necrosis.

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Figure 3 40× microscopic view of the squamous cell carcinoma in the nephrectomy specimen.

first diagnosis as our country is endemic for tuberculosis. Urine culture for tubercular bacteria was negative later as it takes 6 weeks and by that time surgery was done.

TREATMENT

In view of the above presentation and fever, nephrectomy was planned and done to remove the infective focus as a part of management. All the possibly enlarged nodes were cleared. This would also help us to confirm the diagnosis and further treat the patient accordingly.

OUTCOME AND FOLLOW-UP

After nephrectomy, histopathology turned out to be SCC of size $3.5 \times 2.5 \times 2$ cm with lymph node metastasis (figure 3). The tumour was arising from the renal pelvis and extending into the parenchyma of the kidney. No perirenal extension was noted. It was primarily staged as pT3N2. The chest imaging did not show any metastasis. Bone scan showed hot spot at L2 vertebrae (figure 4). As she was having back pain not controlled by medication, palliative radiotherapy was given as single fraction at the suspected metastatic vertebrae. Patient was offered adjuvant chemotherapy, but patient lost follow-up after surgery and came

Figure 4 Skeletal scan showing uptake at the region of L2 vertebrae.

Figure 5 CT image showing a mass with central necrosis at the left renal bed.

back only after 6 months. Thus, the imaging and chemotherapy was delayed until 6 months. At 6 months, the imaging showed local recurrence (figure 5). She was treated with six cycles of chemotherapy with cisplatin/etoposide with a palliative intent. After completion, the CT scan showed a little decrease in size, but there was no complete response. She expired at 16 months postdiagnosis and surgery, which shows the prognosis of this disease.²

DISCUSSION

SCC of upper urinary tract with involvement of renal tissue is a rare entity. When compared with other upper urinary tract malignancies, SCCs are highly aggressive by nature and present usually in an advanced stage and have a poor prognosis.² The factors that play in the pathogenesis of this malignancy are renal calculi, infections, exogenous and endogenous chemicals (eg, arsenic), prior history of renal stone surgery, analgesic abuse, radiotherapy and vitamin A deficiency.³ This diagnosis should be included in the differential diagnosis when evaluating any doubtful renal condition that is associated with renal calculi, which results in chronic irritation, which further progresses to dedifferentiation to dysplasias and this ends up in SCC. In this patient case, we have speculated that the tumour has arisen in a chronically inflamed hydronephrotic pelvis with long-term irritation by large calculi.

Upper tract renal SCC is usually present with dull aching flank pain, haematuria, fever, weight loss or any paraneoplastic syndrome.³ In this patient, the presenting features were left flank pain with fever. There is almost equal gender distribution, and common age of presentation is late adulthood.⁴ Coming to diagnosis of SCC by imaging (ie, CT scan) is difficult due to lack of any specific radiological feature. Thus, the diagnosis of the renal

SCC usually happens after surgical resection and histological analysis of resected specimen.⁵

Due to rarity of the tumour, there is no standard protocol for the management; however, radical nephrectomy may be curative if the disease is localised. As renal SCC is aggressive tumour and usually present at an advanced stage, a multidisciplinary approach including surgical treatment along with adjuvant chemotherapy and radiotherapy can be offered.

Learning points

- The chance of having a carcinoma should be kept in mind while a patient presents with long-standing calculi in the urinary tract even in the infective presentation.
- Radiology may be misleading in the presence of infection in the kidney, which may not reveal the malignant areas.
- Squamous cell carcinoma of the kidney has poor prognosis and poorly responds to chemotherapy.

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