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A Rare Cause of Renal Mass; A Case Study

Elbarghati L, Azzouz L, Adiga K, Sallam S

Department of Pathology, Medical School, Al Fateh University, Tripoli, Libya.

Abstract; A seventy five year old gentleman with the clinical diagnosis of renal tuberculosis was found to have renal squamous cell carcinoma. The clinical presentation and management are being discussed..

Key words: *Squamous cell carcinoma, Renal tuberculosis, kidney.*

Case presentation

A seventy five year old Libyan man was seen in the urology department of Tripoli Medical Centre, Tripoli, Libya with six month history of left loin pain. The patient noted a mass in the left loin two days before he was assessed in the hospital. Also he started to vomit. There was no history of haematuria. He reported an episode of cough and fever twenty years ago. He smokes 20 cigarettes/day. On examination, the patient was pale and had a mass in the left loin. Liver and spleen were not enlarged. No ascites and no lymphadenopathy were found. The rest of the systemic examination was normal.

The urine analysis revealed pus cells, protein, and no sugar, but urine culture yielded no bacterial growth. Serum electrolytes, urea, creatinine, and calcium were normal. Liver function tests showed slightly elevated alkaline phosphatase at 160 IU/L (44 to 147 IU/L), and lactate dehydrogenase at 152 IU/L (105-333 IU/L). Full blood count revealed haemoglobin of 8.3g%, (13-15g%), white cell count of 14.7x103/mm3 (4-11x103/ mm3), and platelets of 3.4 x105/ mm3 (1.5-4.5 x105/ mm3). The patient's vomiting subsided with proton pump inhibitors, but the loin pain showed partial response to analgesic. Abdominal CT-scan showed an irregular mass in the upper pole of left kidney. No calculi were noted (Figure 1). The patient was posted for partial nephrectomy with the provisional diagnosis of renal tuberculosis or renal infarction involving upper pole.

Pathologically, the kidney was noted to have greyish white soft tissue mass, firm in consistency measuring 6x4x2 cms, with adjacent dilated calyces. The well circumscribed tumour appeared to be invading the calyses. Cut section revealed pink mass with foci of necrosis. The renal resection margin and external surface appeared free of tumour (Figure 2). Microscopically, the tumour consisted of pleomorphic squamoid cells arranged in nests and sheets with few foci of epithelial pearl formation and keratinisation. Areas of necrosis and frequent mitosis were noted. The malignant cells nore were seen to infiltrate the adjacent renal parenchyma as nests of cells and also focally renal capsule (Figure 3 & 4). The dilated calysis showed areas of squamous metaplasia and severe dysplasia with focal invasion of basement membrane into renal parenchyma to form the tumour (Figure 5). The renal tissue towards resection margin shows the features of chronic pyelonephritis. No granuloma was seen. The histological diagnosis of moderately differentiated squamous cell carcinoma was made.

Postoperative chest x-ray (pre-operative chest x-ray was normal) revealed massive pleural effusion in the left lower lobe (Figure 6). The pleural tapping yielded haemorrhagic fluid and was cytologically negative for malignancy. Pleural biopsy showed mild non-specific chronic inflammation. Bronchoscopy was positive for malignancy. However, no histological typing is available as tissue showed only necrotic material with scanty malignant cells. He was put on cisplatin and sunitinib on the suspicion of primary lung tumour and showed no response. He continued to have pain in left loin and radical nephrectomy was advised. The patient refused further surgery.

Diagnosis

The patient was suspected clinically to have renal tuberculosis and was later found to have renal squamous cell carcinoma with possible lung secondaries.

Figure 1 Abdominal CT-scan revealing left renal mass in the upper pole.

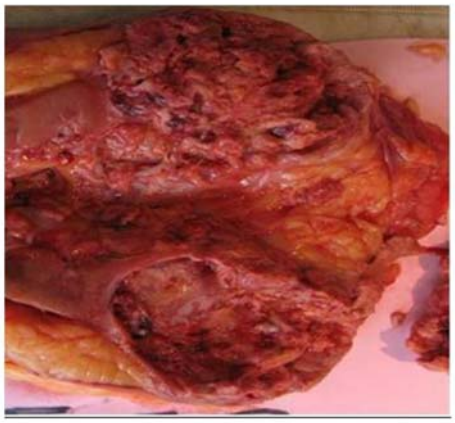

Figure 2 Partial nephrectomy specimen showing tumour in the upper pole.

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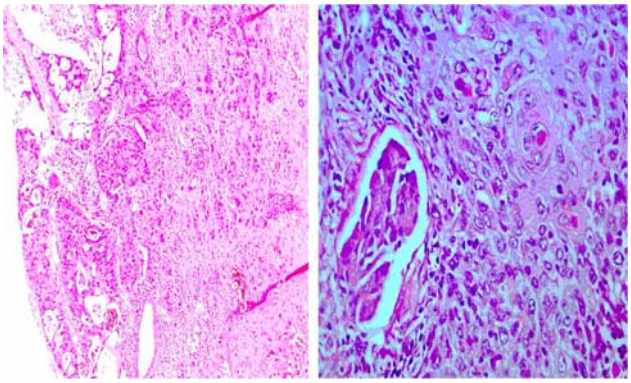

Figure 3 Photomicrograph revealing calyseal subepithelial invasion of malignant cells (left) and invasion of renal parenchyma adjacent to glomerulus with epithelial pearl formation (right).

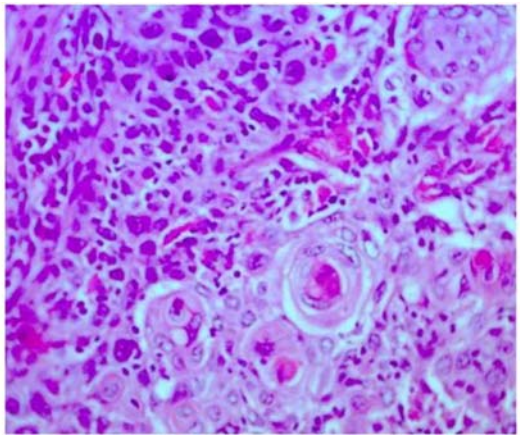

Figure 4 Photomicrograph revealing keratin pearls under high power (x40).

Discussion

The common renal malignancy in adults is of clear cell type, followed by papillary carcinoma and chromophobe cell carcinoma [1,2]. The kidney is an unusual site for squamous cell carcinoma. It is known to arise from renal collecting system [3]. Primary neoplasms of the renal collecting system are rare, accounting for less than 5% of urothelial tumours in urinary system [4,5]. The transitional cell type is the most frequent (85%-95%), followed by squamous cell carcinoma (6%-15%) and adenocarcinoma (7%) [6]. Usually, renal squamous carcinoma is highly aggressive and of a high grade at presentation. Haematuria, the classical presenting complaint of renal cell carcinoma, is not common in this entity as in this case. The incidence of co-existing stone was reported in a wide range of 18% to 100% [1]. Our patient did not have urinary calculi. Squamous metaplasia adjacent to carcinoma is observed in 17% to 33% of the patients [7]. The present case demonstrates the transition from calyseal urothelium to squamous metaplasia, dysplasia and invasive squamous malignancy. These features helped to differentiate from metastatic bronchogenic carcinoma. There is a well known association between chronic pyelonephritis, renal pelvic stones, phanecetin ingestion and radiotherapy with squamous cell carcinoma [8]. The current case shows the association with chronic pyelonephritic features without calculi. The case was clinically suspected as renal tuberculosis because of sterile pyuria and past history of cough with fever. The renal malignancy was not considered due to loin pain and absence of haematuria as the renal cell carcinoma classically presents as painless haematuria.

The tumour can be difficult to diagnose by imaging modalities as the usual features are the presence of calculi and hydronephrotic changes with ureteral obstruction [3]. Filling defects or obstructive lesions in the renal pelvis by intravenous/retrograde urography or detection of a solid mass by ultrasonography can be the signs of the tumour [9]. Tomographic imaging reveals these findings more specifically. In our case, the tumour was seen in the upper pole of the kidney.

Lee and colleagues reported retrospectively 15 patients with squamous cell carcinoma of the kidney. They classified the tumour into two groups according to localisation: central and peripheral. Central renal squamous cell carcinoma presents more with intraluminal components and is usually associated with lymph node metastasis whereas peripheral renal squamous cell carcinoma presents with prominent renal parenchymal thickening and might invade the perirenal fat tissue before lymph node or distant metastasis could be identified. The present case is of peripheral type invading renal capsule and with lung metastasis. The survival of patients with central renal squamous cell carcinoma was reported to be significantly shorter than those with peripheral renal squamous cell carcinoma.

Nativ and colleagues reported that patients with locally invasive renal squamous cell carcinomas had 1 and 2 year-survival rates of 33% and 22%, respectively. The current primary treatment of renal squamous cell carcinoma is nephroureterectomy. If metastasis develops, adjuvant chemotherapy or irradiation has little effect on the unfavourable prognosis [9]. Our patient underwent partial nephrectomy because of suspicion of renal tuberculosis and was later found have pulmonary metastasis.

In conclusion, this patient presented with lion pain and a mass without haematuria and was found to have renal squamous cell carcinoma with lung metastasis. As renal calyseal tumours could present with atypical features, a proper preoperative workup may help in better management though outcome is short lived.

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