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CASE REPORT

Incidental Diagnosis and Treatment of Renal Cell Carcinoma in a Kidney Pre-Transplant Recipient

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ABSTRACT

Introduction: Renal cell carcinoma (RCC) accounts for 80–90% of all kidney cancers with peak age incidence between 60–70 years. The three commonest symptoms are haematuria, flank pain and flank mass. The best treatment option for chronic kidney disease is renal transplantation. Chronic kidney disease is one of the risk factors for RCC. Most cases are diagnosed after renal transplantation; diagnosis during work up for renal transplantation in an asymptomatic patient is rare, especially in environment where patients hardly receive cure for kidney cancer because most cases are diagnosed late, at the advanced stage of the disease. **Case Presentation:** A 62-year-old male on management for chronic kidney disease who was diagnosed with right renal tumour during work up for renal transplantation. He had right radical nephrectomy with histology report revealing localized RCC (clear cell variant). He is currently on observation for 2 years before transplantation. **Conclusion:** Diagnosis of RCC in an asymptomatic patient during work up for renal transplantation is rare. The prognosis of this disease is improved significantly if diagnosed and treated before renal transplantation.

Descriptors: Renal Cell Carcinoma; Transplantation; Diagnosis.

INTRODUCTION

Renal cell carcinoma (RCC) accounts for 80–90% of all kidney cancers. Kidney cancers account for 5% of all cancers in men and 3% in women, with a peak incidence between 60 and 70 years of age.[1,2] Kidney transplantation is widely regarded as the best treatment option for patients with kidney failure. Compared with remaining waitlisted in dialysis, kidney transplantation is associated with improved survival[3,4] and quality of life,[5,6] , and entails a lower cost for the society.[7]

An early single centre study where routinely ipsilateral native nephrectomy was performed at transplantation detected RCC in 4.2% of kidney transplant recipients.[8] Evaluation to exclude cancer during preparation for kidney transplantation is for two main reasons: To avoid aggravating the prognosis of any cancer with immunosuppressant and to avoid kidney transplantation in patients with short life expectancy as donor organs are scarce resources.[9] Clear cell RCC is the commonest subtype (75–85%) followed by papillary type 1 and 11 (10–15%), chromophobe, and several less common subtypes.[10] Chronic kidney disease of any cause uniquely predisposes to RCC through accumulation of cystic degenerative changes in the native kidneys, with RCC developing from the cyst walls, such as acquired cystic

kidney disease is reported in 5–20% of patients initiating dialysis, and in close to all patients after 10 years of dialysis independent of the cause of chronic kidney disease and dialysis modality.[11,12]

The main symptoms of RCC are haematuria, flank pain and flank mass.

Radiology (computerized tomography scan or magnetic resonance imaging) before and after intravenous contrast is used to demonstrate enhancement of renal masses indicating the presence of a solid tumour (versus benign cyst) although differentiating malignancy from the benign oncocytoma or fat free angiomyolipoma may require biopsy.[1]

Treatment options for RCC include surgery, ablation, targeted therapies, and immunotherapy, with active surveillance as an option for slowly growing small lesions in patients at high surgical risk.[1] Patients enter observation period of 2 years after treatment for RCC before entering renal transplant waiting list.

CASE PRESENTATION

A 62-year-old male on management for chronic kidney disease secondary to hypertensive nephropathy was on three times weekly haemodialysis. He has been on haemodialysis for 2 years prior to work up for kidney transplantation. He was being worked up for kidney transplantation and the pretransplant abdominopelvic ultrasound scan revealed a solid mass at the inferior pole of the right kidney. This was followed by abdominopelvic magnetic resonance imaging that revealed a round solid T1/T2 hypo/isointense lesion measuring about 3.7 × 4.4 cm in the inferior pole of the right kidney (Fig. 1).

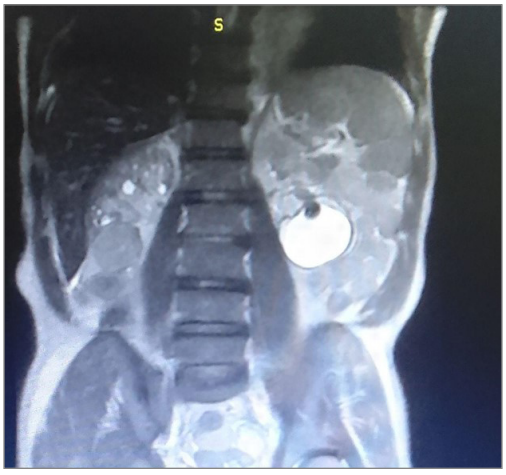

Figure 1. Abdominopelvic magnetic resonance imaging revealing right renal tumour.

There was no associated haematuria, right flank mass, and flank pain or extrarenal symptoms. There was no personal or family history of past cancer diagnosis. Physical examination revealed no positive findings.

He was counselled and worked up for right radical nephrectomy. Intraoperative findings were multiple tumours distributed over the right kidney with the largest tumour located at the inferior pole (Fig. 2) He had uneventful post operative recovery and was subsequently discharged.

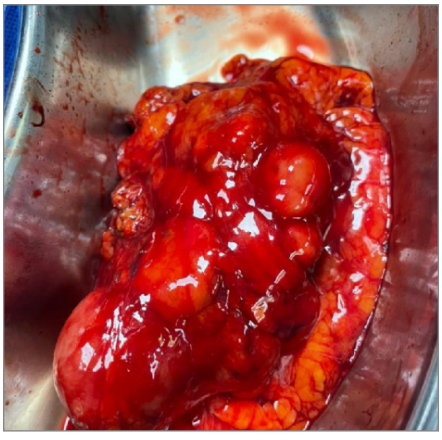

Figure 2. Intraoperative findings of multiple right kidney tumours.

Histopathology report revealed tumour cells consistent with RCC (clear cell variant) with no extracapsular spread, involvement of the right renal vessels and ureter. He was subsequently placed on observation for 2 years before entering renal transplantation waiting list.

DISCUSSION

The index patient was 62 years old, which fell within the reported peak incidence age range for kidney cancers.[1,2] He has been on management for chronic kidney disease which is one of the reported risk factors for the development of RCC.[11,12] The renal tumour was diagnosed during work up for kidney transplantation, and diagnosing RCC incidentally in patients on work up for kidney transplantation has been reported to be uncommon, reported to be 4.2%.[8] Treating it at this early stage is very important because the patient has a chance at getting a cure, and the prognosis will not be worsened by the use of immunosuppression drugs after the transplant. The diagnosis of renal tumour was made by the use of abdominopelvic ultrasound scan and magnetic resonance imaging of the abdomen which are part of the recommended imaging modalities for the diagnosis of renal tumours. The differential diagnosis of RCC from these imaging findings are renal oncocytoma, lipid-poor renal angiomyolipoma, renal lymphoma, solitary fibrous tumour and multilocular cystic nephroma. The intraoperative findings revealed multiple tumours in the right kidney, which was not picked from the imaging studies. The studies picked only the inferior pole tumour which was the largest tumour from the intraoperative finding. This revealed that the standard imaging modalities are not hundred percent accurate in diagnosing renal tumours as some can still be missed by them.

The histology report after radical nephrectomy revealed clear cell RCC which was reported as the commonest histologic variant of RCC.[10] The tumour did not spread beyond the renal capsule and there was no involvement of the renal vessels so surgery alone was curative for the index patient as the renal tumour was still localized.

The patient was placed on observation for 2 years before kidney transplantation, in line with the recommended observation period of 2–5 years, to avoid aggravating the risk of early recurrence.[13]

Owing to lack of direct evidence, general cancer screening in kidney transplant recipients is not recommended but should be tailored to individual patients taking into account the individual risk of cancer and prognosis following cancer treatment.[9] In the index patient, due to lack of personal or family history of cancer and good prognosis following kidney cancer treatment as the cancer has not spread beyond the kidney, there is no recommendation on post-transplant cancer screening and the follow-up after kidney transplantation will be no different than a patient without a diagnosis of kidney cancer before kidney transplantation.

FINAL CONSIDERATIONS

Patients with chronic kidney disease are at increased risk of developing RCC. Although the occurrence of RCC amongst this group of patients is rare, missing the diagnosis before renal transplantation can worsen the prognosis of RCC.

Detailed screening for renal cancers prior to renal transplantation is thus pertinent to avoid missing the diagnosis when present. Diagnosing RCC at this early stage will not only improve the prognosis of this disease but also offers the patient a chance at cure from this disease.

AUTHORS' CONTRIBUTION

Substantive scientific and intellectual contributions to the study: Onwuasoanya UE; **Conception and design:** Onwuasoanya UE; **Data analysis and interpretation:** Onwuasoanya UE, Olatise OO and Igbokwe MC; **Writing of the article:** Onwuasoanya UE, Adetunbi AR and Orji DO; **Critical revision:** Igbokwe MC and Olatise OO; **Final approval:** Onwuasoanya UE, Olatise OO, Igbokwe MC, Adetunbi AR and Orji DO.

AVAILABILITY OF RESEARCH DATA

Not applicable.

CONSENT FOR PUBLICATION

A written consent to publish images and clinical details was obtained from the patients.

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