International Journal of HIV/AIDS Prevention, Education and Behavioural Science
2016; 2(1): 1-3
http://www.sciencepublishinggroup.com/j/ijhpebs
doi: 10.11648/j.ijhpebs.20160201.11

Renal Transitional Cell Carcinoma in an Aids Patient on Long Term Combined Antiretroviral Therapy: Case Report

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To cite this article:

Enow-Orock George Enownchong, Eyongeta Divine Enow. Renal Transitional Cell Carcinoma in an Aids Patient on Long Term Combined Antiretroviral Therapy. Case Report. *International Journal of HIV/AIDS Prevention, Education and Behavioural Science*. Vol. 2, No. 1, 2016, pp. 1-3. doi: 10.11648/j.ijhpebs.20160201.11

Received: March 30, 2016; **Accepted**: April 6, 2016; **Published**: May 17, 2016

Abstract: Malignant tumours of the kidney are rare. Some of these tumours have been associated with AIDS. Renal transitional cell carcinoma is not only rare, but has been rarely reported as an associated AIDS lesion. We report the case of a multifocal, unilateral, renal transitional cell carcinoma found in an acquired cystic,nephrolithiasic, non-functional kidney in an AIDS patient on combined Anti RetroviralTherapy (cART) for 10 years. This case clearly illustrates the transition from a physical lesion (renal calculi) through a dystrophic condition (cystic kidney) to malignant transformation (transitional carcinoma) in a background of immune depression (AIDS) and cART. It is not clear if the immune depression is a risk factor for the tumour. The interaction between the conditions was not investigated in this report. Further studies are required to document the relationship between cystic degeneration, AIDS, cART and progression to transitional cell carcinoma of the kidney, as seen in this case.

Keywords: HIV, AIDS, cART, Transitional Cell, Carcinoma, Kidney

1. Case Report

Mrs F.D is a 56-year-old widow, hypertensive and HIV positive for 10 years on combined Anti Retroviral Therapy (cART). She was on effavirenz and lamivudine 1 tablet each daily for the period of ten years. A control test revealed an HIV infection with a CD4 count of 302 cells/mm [3.] She consulted a few months earlier for severe intermittent left flank pains associated with fever and vomiting, all of five years duration. Also, she reported occasional gross hematuria with frequent episodes recently for which she decided to seek medical attention.

Physical examination revealed a mildly ill-looking bulky woman, BP 130/80, pulse 78, temperature to 37.5 degree Celsius. There was marked abdominal fat pad and tenderness on left upper and lower quadrants. The rest of the physical examination was unremarkable. Kidney function tests were normal (BUN 25 mg/dl, serum creatinine 0.9 mg/dl), Hb 11 g/dl, WBC 6.800/mm3, platelets 310.000 /mm3, urine culture isolated Escherichia coli for which a 10-day course of ciprofloxacin was administered based on sensitivity tests. Ultrasound scan showed marked hydronephrosis of left kidney with cortical thinning of less than 5 mm with a solid mass of 40mm attached to its wall (see figure 3). Computed tomography scan confirmed huge left ureterohydronephrosis on a 10 mm distal ureter stone. The left kidney was non functional Our patient was female, and within the reported predominant age group for the disease (56 years). She is an African female, housewife, with a 5cm diameter, unassociated, multifocal, transitional cell carcinoma, in a kidney with cystic andmyxoid degeneration. The tumour was located within the renal medulla (see Figure 1). The kidney was non functional at the time of diagnosis, this was caused by a stone obstructing the upper urinary tract. However, there was contrast enhancement of the tumor consistent with a malignancy. After thorough preoperative evaluation, a radical left nephro-ureterectomy was performed.

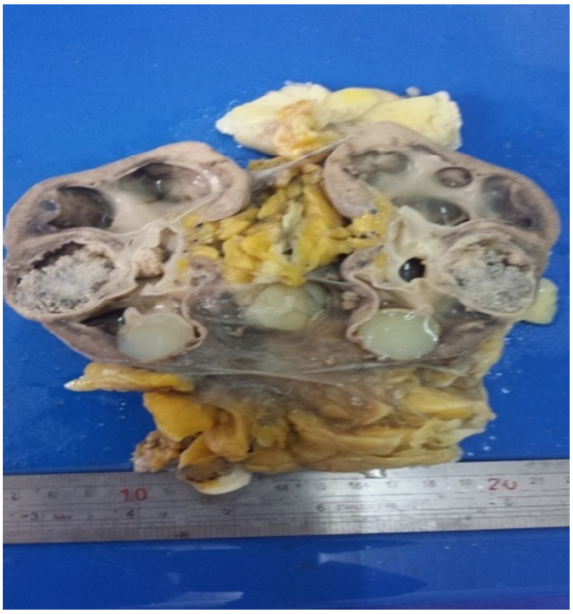

Figure 1. *Macroscopy of left neprhrectomy specimen showing a cortico-medullary multi focal tumour in a polycystic kidney with myxoid degeneration.*

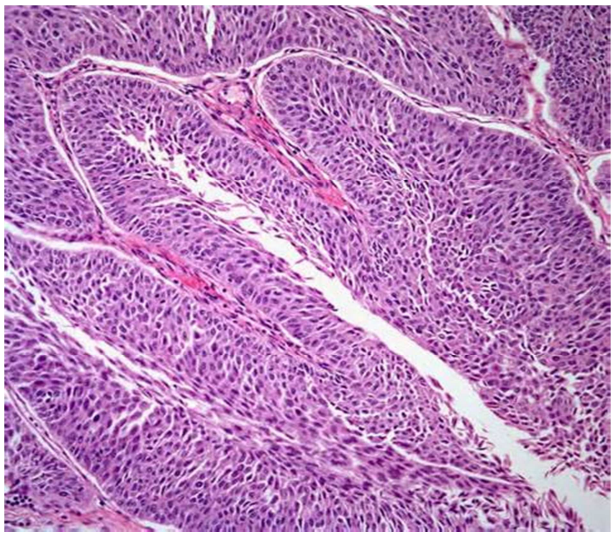

Figure 2. *Photomicrograph showing histology of transitional cell carcinoma made of fibrovascular core overlaid by numerous layers of atypical transitional cells.*

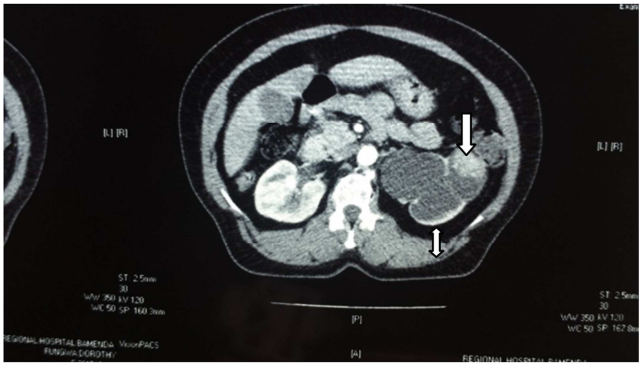

Figure 3. *CT scan showing hydronephrotic kidney with a thin cortical tissue (doubble-ended arrow) and tumour (single broad arrow).*

2. Discussion

Renal cancer is not amongst the well-established AIDS-defining malignancies like non-Hodgkin's lymphoma, Kaposi sarcoma, cell carcinoma of the cervix, even though the disease has been reported to be associated with HIV infection [1]. Although there is an increased incidence of some urological nonAIDS-defining malignancies amongst people with HIV [2], unlike renal cell carcinoma, transitional cell carcinoma has not been reported to be associated with AIDS. Transitional cell carcinoma is the most common tumor of the renal pelvis but few cases have been reported.

There are a few reports of renal cell cancer (RCC) amongst people with HIV. Some reports have indicated that there is a mildly increased relative risk of RCC in HIV, attributed to impaired immune surveillance [3-6]. Most epidemiological investigations of non-AIDS-defining malignancies have not described the risk of renal cancer, presumably due to very low number of cases, and at present it is not possible to speculate on the influence of HAART on this risk. Our patient had been on HAART for a period of 10 years, though we did not investigate the influence of her cART on the tumour she developed One large epidemiological study had estimated the relative risk of kidney cancer in people with HIV to be 1.5 (1.2-1.8) [6]. This study used data from the pre-HAART era and also found no association between the risk of kidney cancer and progression to AIDS. However, many authors estimate that the prevalence of RCC was 8.5 times greater amongst people with HIV, with an average age of occurrence approximately 15 years younger than reported in the general population [7].

Five individual cases of concomitant HIV infection and renal cell carcinoma were described in the pre-HAART era [8-12]. The only previously published series of patients on HAART is a Nigerian study of 74 patients with RCC diagnosed between 1989 and 1999, which includes seven (9%) patients who were HIV-positive, however, no further details are available on these patients [13].

In an-8-year population study in Cameroon, Enoworock et al[14] found kidney cancer to account for about 1% of the total cancer burden in the population, although the incidence of renal malignancies is reportedly slightly higher in African Americans than in other races [12]. No case of transitional cell carcinoma was found to be associated with AIDS in the Yaounde study [14]. In another report, in the same population, the crude rate for renal cancer was found to be 0.69 and 0.35 for males and females respectively [15], with predominance of the disease in the age group 0-14 years (55%), and a slight male predominance of 52,7% [15].

Other studies have reported tumours of the renal pelvis to be rare before age 40 years, with peak incidence in the 60-70 years age group. In this study men were affected approximately 2 times as frequently as women [16].

The exact cause of upper urinary tract transitional cell carcinoma is not known. However, several risk factors for the disease have been identified. These include amongst others; exposure to various chemicals, infections, drugs, genetics,

diet and cigarette smoking [17, 18]. This last appears to be the most significant acquired risk factor for upper urinary tract urothelial cancer where it accounts for 70% and 40% of the disease in men and women respectively. The cause of the disease in the present case is not known. Although her background of chronic obstruction, AIDS and long term cART could be attributed to this.

Chronic bacterial infection with urinary calculus and obstruction may predispose to the development of urothelial cancer [17]. We found these lesions in the kidney of our patient although it was difficult to conclude on their sequence and influence of the finding(s) on the eventual apparition of cancer. However, in these cases, a squamous cell carcinoma is usually the most common entity. Schistosomiasis also may predispose to this. The effect of cART has never been studied. Renal stones, analgesic abuse and chronic infections are more likely risk factors in our community, though this has not been investigated. In the case of our patient, a transitional cell carcinoma was found in a background of AIDS-associated immune depression and long term cART.

In figure 2 above, a microscopic image that illustrates the histology of transitional cell carcinoma is shown with multiple atypical transitional cell layers lining a fibrovascular core. Most transitional cell carcinomas are single or multiple and usually papillary and a nephroureterectomy is effective for localized disease [19, 20] as our case was treated.

3. Conclusion

Renal transitional cell cancer is rare and not amongst the common cancers associated with HIV/AIDS. Our case illustrates the possible interaction of physical lesions (stones) resulting in organ dysfunction and the apparition of cancer. Further interest in this case is the background of immune depression by AIDS and long term treatment with cART. In-depth studies to find out the influence of AIDS-associated immune depression on incidence of renal transitional carcinoma is emphasized.

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