Management of Adult Renal Tumours: Review of Nine (9) Years Experience

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**ABSTRACT**

**Background:** Renal tumours appear to be relatively uncommon in our routine urological practice compared to other urological malignancies of bladder and prostate origins. Their presentations are often late despite increasing availability and affordability of routine imaging modalities for early detection. This therefore poses management challenge in our environment. This study aims to review our 9-year experience with the management of renal tumours at the Urology Unit of a tertiary health facility in North-western Nigeria.

**Methodology:** A retrospective review of 20 patients managed for renal tumours at our facility from September 2009 to August 2017. Data of all adult patients managed for renal tumours was retrieved and analyzed using SPSS 20.0 version for windows. The results were presented in percentages and mean ± SD as well as charts.

**Results:** Twenty (20) patients were managed for renal tumours during the review period. The mean age of patients was 39.94 ± 12.19 years with median of 35 years and male to female ratio of 1:2. Nineteen (19) patient (95%) and 1(5%) had malignant and benign renal tumours respectively. Clinical presentations were flank mass seen in 18 patients (90%), flank pain 16 (80%), haematuria 10(50%), cough 2(10%), and pleural effusion 2(10%). Only clinical stages III and IV tumour were seen. 70% were clear cell variety while 5% was angiomylipoma. Sixteen (80%) of patients had radical nephrectomy and two (10%) with inoperable tumour benefited from targeted molecular therapy preoperatively using Sorafenib.

**Conclusion:** Late presentation of patients with renal tumours to our facility despite the availability of imaging facilities such as ultrasound scanning is still the norm. This makes surgery which offers best chance of survival and quality of life difficult and challenging. Targeted therapy using sorafenib, if available and affordable in our environment will be useful in management of patients with inoperable tumours.

**Keywords:** Renal tumours, experience, late presentation, management.

I. **INTRODUCTION**

Renal tumours whether benign or malignant in our environment appear to be relatively uncommon in our routine urological practice compared to other urological malignancies of bladder and prostate origins [1], [2]. They account for about one per cent of new urological cases seen annually in our practice “unpublished” [3]. The rarity of these tumours has been reported by many researchers in our sub-region as well as across the globe [4]-[7]. There is also male preponderance over female with male female ratio of 2:1 as opposed to some reports in our environment [8]-[10]. The presentations are often late despite increasing availability and affordability of routine imaging modalities for early detection [11], [12]. A recent increase in number of cases seen in our facility may be as a result of increasing awareness of related mortality attributable to cancer of any part of the body. It is in view of this that we review our experience with management of adult renal tumour over the last 9 years.

II. **METHODOLOGY**

This is a cross-sectional retrospective review of all adult patients managed for renal tumours over a period of nine years from August 2009 to September 2017 at the Urology Unit of a tertiary health facility in North-western Nigeria. Data retrieved were patient’s age, tumour type, site of tumour, clinical stage of the tumour, histology types, treatment and follow up. Data obtained was analyzed using
SPSS version 20.0 and presented using percentages and charts.

III. RESULTS

A total of 20 patients were managed for renal tumours during the review period. The mean age of patients was 39.94 ± 12.19 years with median of 35 years and male to female ratio of 1:2. Nineteen patients (95%) and 1 patient (5%) had malignant and benign renal tumours respectively. The clinical presentations were flank mass seen in 18 patients (90%), flank pain 16 (80%), haematuria 10 (50%), cough 2 (10%), and pleural effusion 2(10%). The tumour type, site of tumour, clinical stage of the tumour, histological types, treatment and follow up are depicted in the Figures 1 to 6 below. One patient (5%) developed primary haemorrhage which was salvageable. The Figure 7 shows intraoperative picture of a resected huge renal tumour commonly encountered in our practice. The clinical photomicrographs of a patient with angiomyolipoma and clear cell variant of renal cell carcinoma are shown in Figures 8 and 9 respectively.
Fig. 6. Follow up.

Fig. 7. Typical resected intraoperative renal tumour specimen.

Fig. 8. Photomicrograph of patient with angiomyolipoma showing admixture of mature adipocytes (green arrow), thick walled blood vessels (black arrow) and smooth muscle (yellow arrow) (H&E Mag. x 100).

Fig. 9. Photomicrograph of a patient showing clear cell variant of renal cell carcinoma disposed in cellular nest (A) & papillary patterns (B) having regular round hyperchromatic nuclei and abundant clear cytoplasm. H&E Mag. x 200.

IV. DISCUSSION

A total of 20 patients were managed for renal tumour during the study period revealing the fact that renal tumour is not a common disease in our environment. Similar findings were reported by studies done on renal tumour at some centers in Nigeria [11]-[14]. The mean age of the patients from this study was 39.94 years, this was similar to the mean age reported by Aghaji and Ozoemena in Enugu [14] as well as Badmus et al in Ife [15]. At Nnewi, Nigeria, the mean age of 52.6 years was reported [11] similar to that reported by Gueye et al in Senegal which was 51 years [16]. However, the reported mean age was less than 61 years in Asians [17] and Caucasians [15], [18] while some studies done in Asia and white America reported mean ages of 63 and 66 years respectively [9], [19]. The lower mean age in this study which is similar to other parts of our continent and the higher mean age in the more developed Asian and Western nations may be due to younger age of populations and the higher life expectancies in the latter nations. The male to female ratio of 1:2 from this study revealed that renal tumours were found more in females compared to males, this was similar to the reported findings by Mbaeri et al [11] and Odubanjo et al [12], [20]. However, most other studies revealed renal tumours to be commoner in males [9], [10], [12], [13], [20]-[22]. The female preponderance of adult renal tumours was also reported in studies from Zaria and Ibadan, Nigeria [23], [24]. The reason for this disparity in the gender incidence of renal tumours between different centres in our country is not clear. However, most genitourinary tract tumours are found commonly in males with the exception of urethral tumours found commonly in females [25]. Thus, our study shared similarity with urethral tumours in terms of being found predominantly in females.

Flank mass was the commonest presentation seen in 90% of the patients studied, this was in keeping with the findings from most studies done in Africa on renal tumours [10]-[13], [15]-[17]. Haematuria was seen in 50% of the patients studied, this was similar to the reported findings by Mbaeri et al [11] and Badmus et al [15] but contradicts the report from Aghaji and Ozoemena that reported haematuria in 86.5% of the patients studied [14]. This contrast may be due to the higher sample size by Aghaji and Ozoemena where a total of 74 patients were involved in their study. Majority of the patients studied (55%) presented with
stage 4 tumours, this finding was similar to what was reported by most studies done in Nigeria and Africa on renal tumours [11], [16], [17], [25], thus revealing why most of these patients can only receive palliative form of treatment with poor prognosis. The late presentation of renal tumours in this study reflects the poor access to specialist healthcare in our practice unlike findings in other parts of the world where incidental findings of renal masses during routine abdominal imaging have led to discovery of small sized organ-confined tumours that are amenable to nephron-sparing surgeries [26], [27]. In this study, bilateral renal tumours were not present in these patients, however, there was a predominance of right sided tumours as has been reported by Muhammed et al [23] and Guo et al [28]. The reason for this predominance of tumours in the right kidney is not clear, however further research is needed to establish which kidney is more prone to tumour formation. However, Ndiiaye et al in Senegal reported that renal tumour was more frequent on the left than right in their study [29].

Malignancy was the most common cause of renal mass in this series of patients. Only 5% of the patients with renal mass were of benign aetiology and of renal angiomylipoma (RAML). Renal angiomylipoma is a rare benign mesenchymal tumour that comprises of varying amount of dysmorphic blood vessels, smooth muscle and mature adipose tissue which may mimick renal tumour in clinical presentation and on ultrasound imaging [30]. Conventional ultrasound though readily available, does not involve significant radiation risk to the patient, though it is poor in distinguishing RAML from renal cell carcinoma (RCC), however, contrast-enhanced ultrasonography has been reported useful in differentiating this benign renal tumour from malignant RCC [31]. RAML is distinguished by its intra-tumoural fat on Computerized tomography scan (CT) images, however, some variations of this tumour have low fat contents thus making distinction from RCC difficult [32]-[34]. This phenomenon could have accounted for the lone case RAML in this study which was pre-operatively diagnosed as RCC based on CT imaging.

Renal cell carcinoma was the histological diagnosis in 85% of the patients studied thus buttressing the fact that renal cell carcinoma is the commonest malignant renal tumour in adults [13], [18], [35], [36]. The commonest histological subtype of malignant renal tumour from this study was clear cell carcinoma that was seen in 70% of the patients and this result is similar to reports from other parts of the country and other centres in the world [23], [26], [37], [38]. Majority of the patients (80%) had radical nephrectomy as the form of treatment offered which was in keeping with already known fact that surgery is the mainstay of treatment for renal tumour either for cure or as for palliation of symptoms as this tumour has very poor response to radiotherapy, chemotherapy, or hormonal therapy [39], [40].

Only 10% of our patients who presented with metastatic disease were placed on sorafenib. This agent is a multikinase inhibitor which has been applied worldwide as first choice treatment of metastatic renal cell carcinoma due to its inhibition of cell proliferation and tumour angiogenesis [41], [42]. The greatest limitations of its use in our practice are availability and most importantly, the cost especially due to poverty, the near-absence of viable health insurance coverage of most of the population. Even among the subjects with some form of national health insurance coverage, this therapy is not in the list of agents that may be obtained from the health insurance.

Ten percent of the patients in this study died in the process of resuscitation as a result of late presentation in very advanced metastatic disease with the associated very poor performance status before institution of definitive therapies thus further highlighting the delayed presentation of these patients who mainly come from distant rural hospitals where they had earlier been managed by low-cadre, poorly trained and non-specialist health workers.

From this study, a total of 84% of the patients had follow up for less than 6 weeks revealing poor outcome following treatment for this carcinoma. This finding was similar to that reported by other African studies [11], [12], [13], [16], [17], [25]. However, this contradicts reports from developed countries [43] as most of the cases in these studies were detected at early stages 1 and 2 of the disease, thus they had better prognosis.

V. CONCLUSION

Adult renal tumours in our practice occur more frequently in females, commonly of clear cell variety and patients present with advanced disease. Radical nephrectomy is usually offered for palliation of symptoms. Use of targeted therapy for inoperable, metastatic disease in our practice is low due to low availability and cost.

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