Scientific Research Publishing

Open Journal of Urology, 2026, 16(3), 100-118
https://www.scirp.org/journal/oju
ISSN Online: 2160-5629
ISSN Print: 2160-5440

Challenges in the Management of Adults' Kidney Cancer in Kinshasa Hospitals: Current Situation and Descriptive Analysis

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How to cite this paper: Yalibi, R.B., Mazoba, T.K., Mafuta, A.T., Mbey, P.M., Diangienda, P.K.D., Loposso, M.N., Punga, A.M.M.-L. and Moningo, D.M. (2026) Challenges in the Management of Adults' Kidney Cancer in Kinshasa Hospitals: Current Situation and Descriptive Analysis. *Open Journal of Urology*, **16**, 100-118.
https://doi.org/10.4236/oju.2026.163011

Received: January 31, 2026
Accepted: March 20, 2026
Published: March 23, 2026

Abstract

Introduction: Kidney Cancer is one of the deadliest urological tumors. In the Democratic Republic of Congo (DRC), epidemiological and clinical data remain limited. This study aims to describe the diagnostic and therapeutic hindrance related to the management of KC in Kinshasa hospitals. **Methods:** This was a retrospective, multicenter, and descriptive study with analytical aims, conducted from June 1, 2017, to May 31, 2025 in six hospitals in Kinshasa. Data were collected from the medical records of 38 adult patients diagnosed with renal cancer. Statistical analyses were performed using SPSS 24.0 with a significance threshold set at $p < 0.05$. **Results:** The mean age of the patients was 47.2 ± 14.5 years, with a female predominance (55.3%). Hypertension was the main risk factor (21.1%). An abdominal mass was the most frequent presenting symptom (36.8%). The classic triad was present in 34.2% of patients. One-third of the patients had pulmonary and hepatic metastases at the time of diagnosis. Clear cell carcinoma was the most frequent subtype (66.7%). Total nephrectomy was the only surgical treatment performed. Targeted systemic therapy was only available to some patients (7/16 patients) due to its high cost. The overall mortality rate was 23.7%. **Conclusion:** KC remains an emerging public health problem in Kinshasa, marked by late diagnosis and limited access to systemic therapies.

Keywords

Kidney Cancer, Nephrectomy, Metastases, Management, Systemic Therapies

1. Introduction

Kidney Cancer (KC) is defined as a primary malignant tumor arising from the kidney parenchyma, excluding tumors of the upper urinary tract and secondary tumors. Malignant tumors account for more than 90% of renal tumors, of which approximately 85% are renal cell carcinomas (RCCs), the most common histological type [1] [2]. These carcinomas are mainly subdivided into subtypes: clear cell (70% - 80%), papillary (10% - 15%), chromophobic (5%), and other rarer forms [3].

KC accounts for 3 to 4% of adult cancers [4], ranking third among urological cancers after prostate and bladder cancer [1] [5], but remains the most lethal with a high mortality/incidence ratio [6], due to late diagnosis and therapeutic resistance in advanced forms [7]. Its incidence has been increasing for three decades due to smoking, obesity, hypertension, and the increased use of medical imaging [8]-[10]. In 2020, 431,288 new cases were recorded worldwide, with predominance in Europe, North America, and Australia [4] [5].

Clinically, the majority of patients are asymptomatic in the early stages, and the disease is often discovered incidentally [1] [11]. Approximately one-third of cases are diagnosed at a metastatic stage [6] [12]. Treatment is primarily based on surgery (nephrectomy) for localized forms [13]. Anti-angiogenic targeted therapies improved survival in patients with metastatic cancer [14] [15] before the advent of immunotherapies with checkpoint inhibitors (anti-PD-1, anti-PD-L1, anti-CTLA-4) [16]-[18].

However, their high cost limits their accessibility in low-resource countries: approximately $2,000/month for sunitinib and $7,000 for pembrolizumab [19] [20], exacerbating inequalities in access to care [21].

In the DRC, the reliable incidence remains unknown due to the absence of a national registry; treatment suffers from diagnostic delays, insufficient specialized infrastructure, and limited human resources [22]. The National Cancer Control Council (NCCC) only recently began centralizing data, without any studies specifically dedicated to KC [23]. This study aims to identify the obstacles to the management of adult KC in Kinshasa hospitals, in order to improve local strategies, strengthen capacities and guide health policies towards better integrated and equitable care.

2. Methods

2.1. Nature, Study Framework, and Period of the Study

This was a multicenter; retrospective, descriptive, and analytical study conducted using the medical records of patients treated for KC. Data from patients followed over a nine-year period, from June 1, 2017, to May 31, 2025, in six hospitals of Kinshasa, including the University Hospital of Kinshasa, the Ngaliema Clinic, the Central Police Hospital, the Pointe-à-Pitre Clinic in Matete, Saint-Joseph Hospital in Limete, and the Center for Diagnostic and Expertise in Medical and Interventional Imaging, were collected retrospectively.

2.2. Study Population

The target population included patients aged 18 years and older being treated for KC.

- **Inclusion Criteria:**

Any patient with histologically confirmed KC by CT-scan or magnetic resonance imaging (MRI).

- **Exclusion Criteria:**

Any patient with an incomplete or unusable medical record or with a condition other than primary KC, including urinary tract cancer and non-primary KC.

2.3. Sampling

Convenience sampling was used, and recruitment was exhaustive and consecutive, based on consultation and hospitalization records. A total of 38 records were collected.

2.4. Data Collection

Sociodemographic, clinical, biological, radiological, histological, and therapeutic data were collected on a standardized form from the medical records of participants related to the criteria of inclusion.

2.5. Variables of Interest

Variables included: Sociodemographic data (age, sex, occupation, marital status), Clinical data (medical history, symptoms, physical signs), Laboratory tests (complete blood count, kidney and liver functions, blood ionogram), Radiological data (location, size, metastases), Therapeutic data (abstention, surgery, targeted therapy, complications), Histological data (type, grade, stage), Post-therapeutic data (remission, recurrence, death, follow-up).

2.6. Operational Definitions

The following definitions were used in this study:

- Renal cancer: defined according to the EAU definition as any malignant tumor arising from the renal parenchyma (excluding tumors of the upper urinary tract, such as urothelial carcinoma) and staged according to the TNM classification (8th edition AJCC/UICC).
- Localized cancer: tumor confined to the kidney (≤T2N0M0).
- Locally advanced cancer: T3 - T4 tumor without metastasis.
- Metastatic cancer: M1, confirmed clinically or radiologically.
- Stage I cancer: size less than or equal to 7 cm, limited to the kidney: T1, N0, M0.
- Stage II cancer: size greater than 7 cm, limited to the kidney: T2, N0, M0.
- Stage III cancer: local extension (perirenal tissues or venous system) or lymph node involvement, but no metastases: T3, N0, M0 or Any T, N1, M0.
- Stage IV cancer: extension beyond Gerota's fascia, adrenal gland involvement,

or presence of distant metastases: T4, Any N, M0 or Any T, Any N, M1. Cancer was confirmed by histological examination, and cancer was suspected based on the presence of typical lesions on imaging (CT/MRI) in the absence of histological confirmation.

- The histoprognostic grade used was the ISUP/Furhman grade and applied to the clear cell and papillary cell subtypes.
- Response to systemic therapies was evaluated and defined according to RECIST 1.1.2009 criteria.
- Complete remission: absence of clinical, biological, or radiological signs of cancer after treatment.
- Recurrence: reappearance of the disease after a documented period of complete remission, either locally or at a distant site.
- Partial remission: significant reduction (greater than 30% according to RECIST 1.1.2009 criteria) in tumor size or the volume of measurable lesions, without complete disappearance.
- Disease stability: neither partial response nor disease progression.
- Disease progression: an increase of more than 20% in the sum of the diameters of lesions or appearance of new lesions.
- Patient lost to follow-up: a patient whose medical follow-up is no longer documented in the chart beyond 6 - 12 months after the last known consultation or hospitalization.

2.7. Statistical Processing and Analysis

The collected data were entered into Excel 2016 and then analyzed using SPSS software, version 24.0. Qualitative variables were expressed as absolute and relative frequencies and compared, as appropriate, using Pearson's chi-squared test or Fisher's exact test. Quantitative variables were expressed, according to their distributions, as mean ± standard deviation (SD) or median (interquartile range [IQR]), and compared, as appropriate, using Student's t-test or the Mann-Whitney U test. The Kaplan-Meier curve was used to assess overall patient survival. We combined this with the log-rank test to measure the difference. For all tests performed, the threshold for statistical significance was $p < 0.05$ with a 95% confidence interval (CI).

Temporal origin: Diagnosis of kidney cancer: Survival Analysis after KC diagnosis:

- Reference Time: Overall survival (OS) was defined as the time from the date of diagnosis (T_0) to the date of death from KC or the date of last follow-up.
- Survival Time: Patients were followed retrospectively for a median duration of 1 year. Follow-up data were obtained from medical records.
- Censored Patients (data): Patients who were alive at the end of the study period were censored at their last known follow-up date. Patients lost to follow-up were censored at the date of their last documented contact.
- Kaplan-Meier analysis: Survival probabilities were estimated using the Kaplan-Meier method. The primary endpoint was overall survival (OS). The 1-year survival rate was calculated from the Kaplan-Meier survival curves.

- Log-rank Test: Comparisons between survival curves were performed using the log-rank test. A p-value < 0.05 was considered statistically significant.

2.8. Ethical Considerations

The study respected the confidentiality and anonymity of the data. Any personal identifiable information was not used for analysis.

3. Results

3.1. Sociodemographic Data

The study population included 38 patients, with a mean age of 47.2 ± 14.5 years (range 18 - 79 years). Females were highly in the majority (55.3%), the sex ration Female/Male was 1/3. The patients came primarily from Kongo Central (28.9%) and Kasai (18.4%). More than one half of patients were unemployed (52.6%), married (60.5%), and had a secondary education (76.8%). About 52.6% of patients were treated at the University hospital of Kinshasa, secondarily by Ngaliema Clinic and HCP (13.2% each). Other hospitals treated only a few patients. (Table 1)

Table 1. Sociodemographic characteristics and distribution according to hospital of management (n = 38).

Variables	N (%)/Mean (SD)
Age (years)	47.2 (14.5)*
Age range (years)	
< 40	9 (23.7)
40 - 59	20 (52.6)
≥ 60	9 (23.7)
Sex	
Female	21 (55.3)
Male	17 (44.7)
Main provincial Origin	
Kongo Central	11 (28.9)
Kasaï	7 (18.4)
Hospital of Management	
CUK	20 (52.6)
Ngaliema	5 (13.2)
HCP	5 (13.2)
CPAP	4 (10.5)
CDSI	3 (7.9)
HSJ	1 (2.6)
Others	
Jobless	20 (52.6)
Maried	23 (60.5)
Secondary level	29 (76.8)

3.2. Anthropometric Parameters and Medical History

The median BMI was 21.8 [20.1 - 23.0] kg/m^2, and the majority of patients had a normal nutritional status (65.7%). Hypertension (21.1%) was the most common medical history, followed by obesity (10.5%). (Table 2)

Table 2. Anthropometric parameters and patient history (n = 38).

Parameters	N (%)/Median [IQR]
Median BMI	21.8 [20.1 - 23.0]*
BMI range	
18.5 - 24.9	25 (65.7)
<18.5	5 (14.3)
≥25	8 (20)
Medical History	
Hypertension	8 (21.1)
Obesity	4 (10.5)
CKD and Dialysis	0
Others	
Alcohol	10 (26.3)
Tabacco	3 (7.9)

3.3. Distribution of Kidney Cancer Diagnoses by Diagnostic Approach

All kidney cancer cases were initially suspected based on imaging (CT scan or MRI), highlighting the central role of radiological examinations in guiding the diagnostic process. However, only 63.2% of cases were confirmed by histopathology, which constitutes the definitive diagnostic method, while 36.8% were not submitted for anatomopathological analysis (Table 3).

Table 3. Distribution of KC diagnoses by diagnostic approach.

KC Diagnosis	N (%)
KC suspected on CT-Scan/MRI	38 (100)
KC confirmed by histopathology	24 (63.2)
KC not confirmed (not submitted to histopathology)	14 (36.8)

3.4. Circumstances of Disease Discovery and Clinical Signs at Diagnosis

An abdominal mass was the most frequent symptom (36.8%), followed by lumbar pain (26.3%), and the discovery was incidental in 18.4% of cases. Lower back pain (71.1%), an abdominal mass (68.4%), and general malaise (42.1%) were the main signs. The classic triad (lower back pain, hematuria and mass) was observed in 34.2% of cases (Table 4).

Table 4. Circumstances of discovery and clinical signs at the time of diagnosis.

VARIABLES	N (%)
Circumstances of discovery	
Abdominal mass	14 (36.8)
Lower back pain	10 (26.3)
Hematuria	7 (18.4)
Accidental	7 (18.4)
Clinical signs	
Abdominal mass	27 (71.1)
Lower back pain	26 (68.4)
Altered general condition	16 (42.1)
Hematuria	14 (36.8)
Classical triad	13 (34/2)

*: means clinical triad, that includes lower back pain, hematuria ahd abdominal mass.

3.5. Biological and Radiological Data

Anemia was found in 77.8% of patients, with a median hemoglobin level of 10 g/dL. Serum creatinine was abnormal (≥1.5 mg/dL) in 34.2% of cases. (Table 5)

The left kidney was predominantly affected (63.2%), often at the upper pole (55.3%).

Metastases were present in 34.2% of patients, mainly lung and liver metastasis (53.8% each). Stages III and IV accounted for 60.5% of patients. (Table 6)

Table 5. Biological parameters.

Variable	Overall (n = 38)	N (%)/Median [IQR]
White cells (number/mm^3)	28	6050 [5125 - 8863]
Hemoglobin (g/dL)	27	10.0 [8.0 - 11.0]
Hemoglobin range (g/dL)		
<12	27	21 (77.8)
12 - 16	27	6 (22.2)
>16	27	0
Blood Creatinine (mg/dL)	38	1.0 [1.0 - 2.0]
Blood Creatinine range (mg/dL)		
Normal < 1.5	38	25 (65.8)
Abnormal ≥ 1.5	38	13 (34.2)

Table 6. Radiological characteristics.

VARIABLES	N (%)
Affected side	

Continued

Bilateral	1 (2.6)
Right	13 (34.2)
Left	24 (63.2)
Site	
Upper pole	21 (55.3)
Middle	6 (15.8)
Lower pole	11 (28.9)
Infiltration	
Perirenal fat	15 (39.5)
Kidney vein	10 (26.3)
Nodes	13 (34.2)
Metastasis	13 (34.2)
Metastatic sites	
Liver metastasis	7 (53.8)
Lung metastasis	7 (53.8)
Bone metastasis	6 (46.2)
Others	0
TNM classification	
Stades I and II	15 (39.5)
Stades III and IV	23 (60.5)

3.6. Surgical and Histological Aspects

Among the 23 patients who underwent surgery, the subcostal approach (43.5%) was the most frequently used. All patients underwent total nephrectomy. Intraoperative complications occurred in 17.4% of cases and anemia was the main complication. Postoperative complications were dominated by anemia (30.4%) and wound infections (21.7%) (Table 6). Clear cell carcinoma was the most frequent histological subtype at 66.7%, with ISUP/Fuhrman grades 2 - 3 being the most common in 85.7% of cases. The tumor grade was not specified in 14.3% of cases (Table 7).

Table 7. Surgical and histological aspects (n = 38).

Parameters	Overall (n = 38)	N (%)
Patients undergone surgery	38	23 (60.5)
Surgical approach		
Sub-costale	23	10 (43.5)
Median	23	7 (30.4)
Lombotomy	23	6 (26.1)

Continued

Type of surgery		
Total nephrectomy	23	23 (100)
Partial nephrectomy	23	0
Perioperative complications*		
Présent	23	4 (17.4)
Absent	23	19 (82.6)
Postoperative complications		
Anaemia	23	7 (30.4)
Parietal infection	23	5 (21.7)
No complications	23	16 (69.6)
Preoperative Kidney biopsy		
Performed	38	4 (11)
Non performed	38	34 (89)
Histopathology		
Clear cell carcinoma	24	16 (66.7)
Papillary carcinoma	24	3 (12.5)
Others	24	5 (20.8)
ISUP stage/Furhman		
Stage 1	21	0
Stage 2	21	4 (19)
Stage 3	21	14 (66.7)
Stage 4	21	0
Unprecise	21	3 (14.3)

*: means that perioperative complications such as anaemia, vascular lesions.

3.7. Systemic Therapies and Therapeutic Response According to RECIST 1.1, 2009 Criteria

Systemic therapy was indicated for 16 patients. It was intended as palliative treatment in 13 patients with metastatic cancer, and administered as adjuvant therapy following surgery in 3 patients with locally advanced cancer. The therapy was predominantly based on sunitinib (81.2%). Access to the drug remained limited (7 out of 16 patients, 43.8%). Furthermore, no patient received immunotherapy with checkpoint inhibitors, nor radiotherapy. However, 3 patients were treated with interferon-alpha, which is part of older immunotherapy regimens (Table 8).

The majority of patients for whom targeted therapy was indicated did not undergo a complete response assessment (56.2%); most of them were either lost to follow-up or unable to obtain the prescribed medications. Eighteen percent of patients experienced stable tumors, and lesion progression was observed in 25% of cases (Table 8).

Table 8. Systemic therapies and therapeutic response according to RECIST 1.1 criteria, 2009.

Variables	Overall (n = 16)	N (%)
Therapeutic protocol		
Sunitinib	16	13 (81.3)
Bevacizumab + Interferon	16	3 (18.7)
Therapeutic issues		
Complete	16	0
Partial	16	0
Lesions' stability	16	3 (18.7)
Lesions' progression	16	4 (25)
Non assessed issue*	16	9 (56.2)

*: means non assessed issue such as no follow-up and non-available drugs.

3.8. Patient Survival

The Kaplan-Meier survival curve showed a clear difference in survival between patients with and without metastases. Patients without metastases (blue curve) exhibited higher and stable cumulative survival over the observation period, with very few events. In contrast, patients with metastases (green curve) showed a more rapid decline in cumulative survival, indicating an increased risk of death. The Log-Rank test was significant (p = 0.001), confirming that the difference in survival between the two groups was statistically significant (Figure 1).

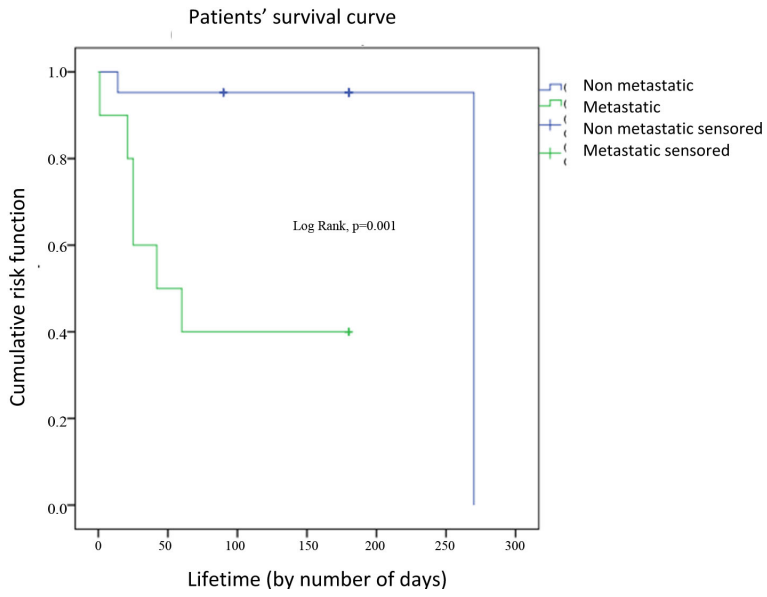

Figure 1. Kaplan Meier survival curve.

3.9. Overall Patient Outcome

During the follow-up period, 23.7% of patients died. Two patients experienced a

relapse, while 39.5% were in remission and 5.3% were progression-free. Approximately one-quarter of patients (26.3%) were lost to follow-up, reflecting the difficulty of monitoring (Table 9).

Factors Associated with Death. Death was significantly associated with poor general condition (p = 0.041) and the presence of metastases on imaging (p = 0.002). In contrast, age, sex, medical history, and substance abuse did not significantly influence mortality (Table 10).

Table 9. Overall patient outcome after 6 - 12 months follow-up.

Variables	Overall (n = 38)	N (%)
Death	38	9 (23.7)
Alive with recidivism	38	2 (5.3)
Alive with complete recovery	38	15 (39.5)
Alive without progression	38	2 (5.3)
No follow-up	38	10 (26.2)

Table 10. Factors associated with death.

Variables	Death n (%)	Alive n (%)	Total (n)	p-value
Sex				0.885
Female (n = 15)	5 (33.3)	10 (66.7)	15	
Male (n = 13)	4 (30.8)	9 (69.2)	13	
Hypertension				0.944
Yes (n = 6)	2 (33.3)	4 (66.7)	6	
No (n = 22)	7 (31.8)	15 (68.2)	22	
Tabac				0.207
Yes (n = 3)	0 (0.0)	3 (100)	3	
No (n = 25)	9 (36.0)	16 (64.0)	25	
Alcool				0.815
Yes (n = 7)	2 (28.6)	5 (71.4)	7	
No (n = 21)	7 (33.3)	14 (66.7)	21	
Low back pain				0.159
Yes (n = 20)	8 (40.0)	12 (60.0)	20	
No (n = 8)	1 (12.5)	7 (87.5)	8	
Haematuria				0.507
Yes (n = 10)	4 (40.0)	6 (60.0)	10	
No (n = 18)	5 (27.8)	13 (72.2)	18	
General condition				0.041*
Bad (n = 11)	6 (54.5)	5 (45.5)	11	
Good (n = 17)	3 (17.6)	14 (82.4)	17	

Continued

Metastasis (Imaging)				**0002***
Present (n = 8)	6 (75.0)	2 (25.0)	8	
Absent (n = 20)	3 (15.0)	17 (85.0)	20	

4. Discussion

The current study which is focused on the challenge of managing KC, revealed some results that we discussed in comparison with data from the literature.

4.1. Sociodemographic Parameters (Table 1)

The mean age (47.2 years) in our series is lower than that of Western cohorts (60 - 65 years) [24] but is consistent with African data: Sanusi and Ogundira [25] in Nigeria report respective means of 45 and 41.8 years, while in Sudan, Ecancermedicalscience [26] mentions a median of 50 years. This early diagnosis could be explained by the youth of the African population and by environmental or genetic factors. Unlike international series reporting a clear male predominance (sex ratio 2:1) [1] [4], our series shows a slight female predominance. This imbalance could be attributed to the small sample size, women's greater access to imaging examinations, or local factors that are still poorly understood.

4.2. Clinical Characteristics (Anthropometric Parameters, Medical History, and Clinical Signs) [Table 2 and Table 4]

The median BMI (21.6 kg/m^2) is significantly lower than that observed in South Africa (30.4 kg/m^2 according to Singh *et al.*) [27] and in Western (26 - 29 kg/m^2) [28] or Asian (24 - 25 kg/m^2) [29] countries. This low BMI is consistent with the African nutritional profile, where malnutrition and tumor cachexia are more prevalent, highlighting the need for systematic nutritional assessment in the management of colorectal cancer.

Hypertension (21.1%) and smoking (7.9%) were the main comorbidities identified. These rates are lower than those observed in South Africa (58% and 71% respectively, Singh *et al.*) [27] but close to those in Nigeria (15.7% for hypertension and 11.8% for smoking, Salako & Badmus) [30]. The absence of dialysis patients reflects the rarity of this condition in our setting, unlike in Europe and Japan where prolonged dialysis is a recognized risk factor for colorectal cancer [31]. These differences could be related to the under-detection of comorbidities and the lack of systematic screening in sub-Saharan Africa.

An abdominal mass (36.8%) was the main reason for consultation, and lower back pain (71.3%) was the most frequent clinical sign at the time of diagnosis; the classic triad (lower back pain, hematuria, mass) was found in 34.2% of cases. This symptomatic presentation contrasts with high-income countries where incidental findings have become the majority (>60%) [1] [11] and where the complete triad has become rare (<10%) [32].

Our results are consistent with those of Adem *et al.* [33] in Ethiopia (65% lower

back pain and 13% incidental findings) and Kajerero [34] in Tanzania (classic triad in 40% of cases). This trend confirms the diagnostic delay in Africa, where patients often consult at an advanced stage due to limited access to imaging and low awareness.

4.3. Biological Data (Table 5)

Anemia was frequent (78% of patients, median Hb 10 g/dL), a higher proportion than in Western series (25% - 52%) [35] [36]. It reflects late diagnosis, large tumors, and impaired nutritional status. Anemia, a poor prognostic factor, is associated with reduced survival [35] [36].

Elevated serum creatinine (≥1.5 mg/dL) in 34% of patients indicates pre-existing or tumor-related functional renal impairment. In the Congolese context, the high prevalence of chronic kidney disease [37] could contribute to this finding. These abnormalities argue for a multidisciplinary approach integrating nephrology.

4.4. Radiological Data (Table 6)

Left KC was predominant (63.2%) and at the upper pole (55.3%). These results differ from the majority of international series. Indeed, large cohorts, particularly those from the SEER database, report a nearly balanced distribution between the right and left kidneys, sometimes with a right predominance [1] [38], while available African series, mainly from Senegal and Tanzania, also confirm this homogeneous distribution [39] [40].

Perirenal fat infiltration (39.5%) and regional lymphadenopathy (34.3%) are consistent with African series [41] [42] but exceed Western data (15% - 20%) [43].

Metastases (34.2%) primarily affected the liver and lungs, as in the observations of Motzer *et al.* [43] (50% - 60% pulmonary). The majority of patients were at advanced stages (III - IV: 60%), a proportion comparable to that reported in Cameroon (Fomete) [42] and Nigeria (Ogbonna) [41], but the opposite of Western series where localized forms predominate (>60%) [1] [11]. These results confirm that African colorectal cancers are often diagnosed late.

4.5. Biopsy and Histology (Table 7)

Only 11% of patients underwent a renal biopsy, highlighting the rarity of this procedure due to a lack of technical resources or expertise in interventional imaging. This trend aligns with observations in Africa, where biopsy is rarely performed before nephrectomy.

It is essential to reinforce this practice to tailor treatment, particularly in cases of complex partial nephrectomy with a risk of complete nephrectomy or suspected metastatic lesions.

Clear cell carcinoma accounted for 66.7% of cases, a proportion close to that reported in Western (70% - 80%) [44] [45] and African (55% - 63%) series [46]-[48]. ISUP/Fuhrman grades 2 and 3 were predominant (85.7%), comparable to

international observations. The grade was undetermined in 14.2% of cases, a deficiency already noted in Niger [46] and Kenya [48], often due to technical shortcomings or the absence of histopathological review.

4.6. Surgical Treatment and Complications (Table 7)

Open total nephrectomy remained the standard of care: subcostal (43.5%), midline (30.4%), and lumbotomy (26.1%) approaches. No patients underwent partial nephrectomy or laparoscopic surgery, which can be attributed to late diagnosis, surgeons' established practices, and the absence of minimally invasive surgery. These results are consistent with those from Nigeria [49] and Cameroon [50], where open surgery remains the predominant approach.

The most frequent postoperative complications were anemia (30.4%) and wound infection (21.7%). These rates are comparable to those reported in Western (10% - 30%) [51] and African [52] [53] series. The low postoperative mortality and favorable overall outcome demonstrate satisfactory surgical control despite local constraints.

4.7. Systemic Treatment (Table 8)

Among eligible patients (42.1%), only 44% actually received targeted therapy, primarily sunitinib (81.2%). The remainder could not access treatment for economic or logistical reasons. These obstacles are similar to those reported in India [54] and Nigeria [55]. Conversely, in high-income countries, immunotherapy + anti-angiogenic combinations are now the standard of care [18] [56] [57].

Thus, the predominant use of sunitinib in our series, while consistent with previous practices, appears out of step with current standards and underscores the need to improve access to innovative therapies.

4.8. Strengths of the Study

This study is the first Congolese series exclusively dedicated to KC, incorporating a multi-continental comparison. It highlights local epidemiological and clinical characteristics and contributes to enriching African data on KC.

4.9. Limitations of the Study

The limitations of this study lie in the small sample size, incomplete records, the high proportion of patients lost to follow-up, and the retrospective nature, which restricts multivariate analyses and the generalizability of the results. However, these data provide a solid basis for future prospective studies and for the establishment of national urological cancer registries.

5. Conclusion

Clear cell carcinoma is the most common subtype of KC in Kinshasa. It remains an emerging public health problem in Kinshasa, characterized primarily by its relatively young age of onset. Late diagnosis is hampered by limited access to sys-

temic therapies, resulting in high mortality, especially in its metastatic forms. Improving patient care requires strengthening early detection and making innovative therapies available at reduced cost.

Contributions

BR: Study design, data collection, and manuscript writing;

MT: Statistical analyses;

BK: Manuscript revision;

MD: Study design, revision, and approval of the final version;

All authors participated in the manuscript revision and approved the final version for publication.

Acknowledgements

The authors express their sincere gratitude to all the staff of the University Clinics of Kinshasa as well as to those of the other hospitals that served as the setting for this study, for their valuable collaboration and contribution.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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