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Research Article

Adult Kidney Cancer in the Thies Region: Epidemiological, Diagnostic and Therapeutic Aspects

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Abstract

Purpose: To study the epidemiological, diagnostic, and therapeutic characteristics and the monitoring of patients with kidney cancer seen in hospitals in the Thies region.

Patients and methods: We conducted a retrospective descriptive study over a period of seven years (2015-2021) collecting data on all cases of adult kidney cancer managed at the urology-andrology departments in the Thies region.

Results: We included 35 cases of adult kidney cancer. The average age of the patients was 53.3+/-30.7 years (Range: 19 to 84 years). We noted a slight female predominance (51.43%) and noted at least one risk factor for kidney cancer in 14 patients (40%). Hematuria (65.7%), lower back pain (54.3%) and lumbar mass (51.4%) were the main circumstances of discovery. All patients had an ultrasound and a uro CT-Scan. Tumor location was right kidney in 18 patients (51.4%) and left kidney in 17 patients (50.6%). Localized (34.3%) and locally advanced (42.9%) tumors were the most represented. Metastases were found in 6 patients (17.1%). Total nephrectomy was performed in 29 patients (82.9%). In the follow-up, we observed 30 setbacks (85.7%) after treatment and obtained 3 cases of death (8.5%) and 1 case of recurrence. The most common histological type was clear cells renal carcinoma (91.4%).

Conclusion: The discovery of renal tumors remains late in our regions. Open nephrectomy is still relevant in our context.

Keywords: Adult kidney cancer; Diagnosis; Epidemiology; Surgery; Thies

Introduction

Adult kidney cancer ranks third among urological cancers after prostate and bladder cancers [1-3]. It is the 12th commonest malignant tumor in the world [2]. Its incidence is clearly increasing in Europe and the United States [2]. Few publications have been reported in sub-Saharan Africa where this cancer is often discovered late in a locally advanced or metastatic stage [4-8]. Renal cell carcinoma is the most common renal tumor in adults, representing 80 to 85% of renal tumors [1]. The objective of this work is to describe the epidemiological, diagnostic, therapeutic characteristics and monitoring of patients with kidney cancer seen in hospitals in the Thies region.

Patients and Methods

We carried out a descriptive study from January 1, 2015 to December 31, 2021 collecting all cases of adult kidney cancer (patients over 18 years old) referred and treated within the urology-andrology departments of hospitals in the Thies region: public hospitals of Thies, Mbour, Tivaouane and the Saint Jean de Thies hospital. We excluded all patients for whom the pathological analysis of the tumor revealed a benign character, as well as patients without medical records. The initial diagnostic workup included a clinical examination, ultrasound and Thoraco-Abdominopelvic (TAP) computed tomography (CT). The treatment consisted of performing an Extended Total Nephrectomy (ETN) or partial open nephrectomy. The different parameters studied were epidemiological data (age, sex, risk factors, annual hospital incidence); clinical aspects; the results of additional medical imaging examinations (abdominal ultrasound, thoraco-abdominopelvic tomography, magnetic resonance imaging) which made it possible to specify the site, size, tumor stage according to the 2017 TNM classification of the International Union Against Cancer ; the treatment carried out and its results; the histological type of the tumor according to the WHO 2016 classification; the duration of hospitalization, the overall survival rate and the kidney cancer specific mortality rate. Data was entered and analyzed using Word and Excel 2016 software.

Results

In 7 years, 35 patients were treated for kidney cancer in the four urology departments in the Thiès region during the study period. The annual frequency was higher in 2018 with 8 patients registered. The average age of our study population was 53.3+/-30.7 years (Range: 19 and 84 years). The age group 50-60 years was the most represented, comprising 26% of cases and 65.7% of patients were over 50 years old. Sex ratio (M/F) was 0.92 in favor of women (51.43%) (Figure 1). No patient had a family history of kidney cancer. Fourteen patients (40%) presented a risk factor or a comorbidity. Among those who had a personal medical history, 57.1% of patients were monitored and treated for high blood pressure (hypertension) and 14.3% of patients were treated for chronic kidney failure. A notion of active or withdrawal smoking was noted in 28.6% of patients (Table 1). Hematuria was the most frequent revealing symptom found in 23 patients (65.7%). Low back pain and lumbar mass were the most common clinical complain with 54.3% and 51.4% of patients respectively. In one patient the discovery was incidental. The classic triad (hematuria + lumbar pain + lumbar mass) was noted in 6 patients (17.14%).

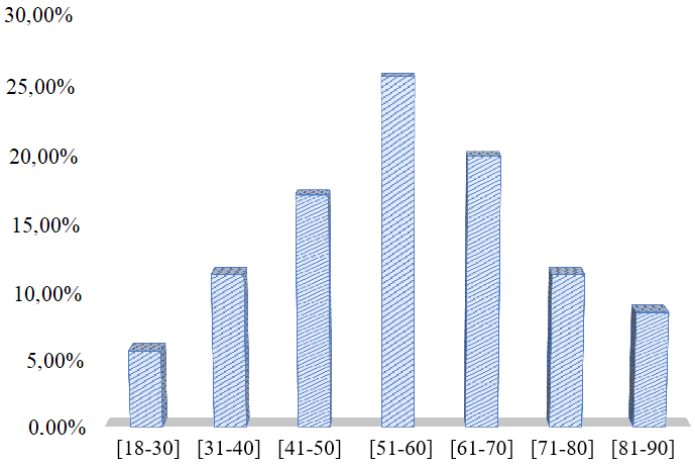

Figure 1 : Distribution of patients according to age groups.

Characteristics	Effective	Percentage
Mean age = 53,3+/-30,7ans		
Sex Male	17	48.57%
Féminine	18	51.43%
Risk factors (n=14)		
HTA	8	57.1%
Smoking	4	28.6%
chronic renal failure (dialysis)	2	14.3%
Circumtances of discovery		
Lower back pain	19	54.3%
Hematuria	23	65.7%
Lumbar mass	18	51.4%
Fortuitous	1	2.85%
Diagnostic aspect		
Renal tumor left	17	48.57%
Renal tumor right	18	51.43%
Average tumoral size	10± 4,4 cm	
Histological subtype		
Clear cell renal cell carcinoma	32	91.45%
Tubulopapillary carcinoma	2	5.70%
epidermoid carcinoma	1	2.85%

Table 1: Distribution of patients according to epidemiological and diagnostic characteristics.

All patients had an ultrasound and a uro-CT scan. Renal tumor was found on the right in 18 patients (51.4%) and on the left in 17 patients (50.6%). The average size of the tumors was 10±4.4 cm (range 4 to 26 cm). At the end of the disease spread assessment and according to the 2017 cTNM classification, the cancer was localized in 34.3% of patients, locally advanced in 40% of patients and metastatic in 25.7% of patients. Thirty patients (85.7%) underwent surgical treatment, 2 patients received antiangiogenic treatment (5.7%) and 1 patient (2.8%) received chemotherapy. Therapeutic abstention and monitoring were observed in 2 patients (5.7%). A total open nephrectomy was performed in 29 patients (82.9%) and a partial nephrectomy (PN) in one patient (2.85%). The most common histological type was clear cell renal cell carcinoma (91.4%). Postoperative recurrence at the renal compartment was observed in one patient (2.8%). The overall survival rate at 1 year was 77.1%. Three patients (8.6%) died after 6 months, due to progression of metastatic disease. No patient with a metastatic tumor at the time of diagnosis was alive after 2 years (Table 2).

Characteristics	Effective	Percentage
Tumor stage		
Localized kiney cancer	12	34.3 %
Locally avanced cancer	14	40 %
Advanced/métastatic	9	25.7%
Treatement		
Partial Néphrectomy	1	2.85%
Total Néphrectomy	29	82.85%
Chemothérapy	2	5.7%
Anti-angiogénic treatment	2	5.7%
Abstention et surveillance	2	5.7%
Evolution		
One year survival rate	27	77.1%
Mortality rate at 1 year	8	22.85%

Table 2: Distribution of patients according to tumor stage, treatment and progression.

Discussion

Epidemiology

We reported in the Thies region of Senegal, 35 cases of adult kidney cancer in 7 years, an annual frequency of 5 cases per year. The incidence of this cancer is low in Senegal as confirmed by some authors [4-6]. Tengue et al [8], in Togo, reported 32 cases in 5 years. Higher incidence rates have been observed in North America (10.9/100,000), Western Europe (9.7) and Australia (9.6) [9]. The average age of our patients was 53.3+/-30.7 years. This corroborates with the data published in most African series [4-8]. In Europe, age and sex are two non-modifiable risk factors, with a sex ratio of 1.5 and the peak incidence is between 60 to 70 years old age [1,9]. In our study the sex ratio (M/F) was 0.92 in favor of women. Hereditary forms of kidney cancer are rare [9]. In our series we did not explore any genetic factors. The risk of developing kidney cancer is twice as high in an active smoker as well as passive smoker [1,9]. High blood pressure and obesity have also been identified as being able to promote the occurrence of kidney cancer [10]. In primary prevention for kidney cancer, smoking cessation, physical activity and weight loss would be recommended

[11]. The risk of developing kidney cancer increases with the duration of dialysis [12].

Diagnosis

In our study, the discovery of kidney cancer was made at a symptomatic stage in relation either to a locally advanced tumor or to the presence of metastases. This trend has been reported in other African series [6,8,13-16]. In the literature, the classic triad associating hematuria, flank pain and lumbar mass is present in less than 10% of cases [17,18]. When it exists, the disease is often in the metastatic stage. In developed countries, due to the generalization of medical imaging methods, the incidental discovery by ultrasound and CT scan makes it possible to highlight tumors that are often localized and are small [1,4]. This discrepancy with countries in sub-Saharan Africa could also be explained by the low socio-economic level of our patients making it difficult to access care. Ultrasound is very effective for the study of kidney tumors. Its sensitivity is 85% in the event of a tumor larger than 3 cm; its specificity is low [1,9]. Computed Tomography (CT), in the absence of contraindication to iodinated contrast material, is the reference examination for the diagnosis of kidney cancer in adults and for locoregional extent assessment (Figure 2). Its sensitivity is 98% and its specificity is 90% [1]. Magnetic Resonance Imaging (MRI) may be indicated for the characterization of atypical solid and cystic masses indeterminate on CT, for the assessment of vascular extension and the follow-up of patients with familial hereditary cancer [1]. It was not carried out in our daily practice context due to its high cost for patients and its inaccessibility. However, abdominal and thoracic CT makes it possible to better assess the locoregional, venous, lymph node and metastatic extension of the tumor [1]. Renal biopsy can be done under local anesthesia, on an outpatient basis, under ultrasound or CT guidance. In the event of an inextirpable tumor, the Consensus Conference of the French Association of Urology (CCAFU) recommends using a 16-18 G coaxial needle to prevent the risk of tumor dissemination, avoiding biopsy in necrotic areas and taking at least two samples [1]. The most common histological type of kidney cancer in our series is clear cell renal cell carcinoma (% of cases). There is no significant difference compared to other series in the literature [4,13-16]. In our series, 40 % of tumors were high grade (Fürhman grade 3-4). In our series, the cancer was often locally advanced and we performed an extended total nephrectomy (ETN) in 82.9% of patients. ETN is the standard treatment for tumors larger than 7 cm [1]. Some authors [1,4] recommend performing a partial nephrectomy (PN) to treat tumors less than 4 cm in patients with low comorbidity factors. For others [1,4] PN could be considered in patients with a tumor between 4 cm and 7 cm if technical conditions allow it. The transperitoneal and retroperitoneal approaches are oncologically equivalent [1]. For metastatic cancers, cytoreductive nephrectomy should be considered in patients in good general condition prior to anti-angiogenic or interferon (IFN) treatment. In the event of a single and extirpable metastasis, some authors recommend performing a metastasectomy [1,13,19,20]. Active surveillance could be considered in elderly patients with significant comorbidities and in patients with small renal tumors [1].

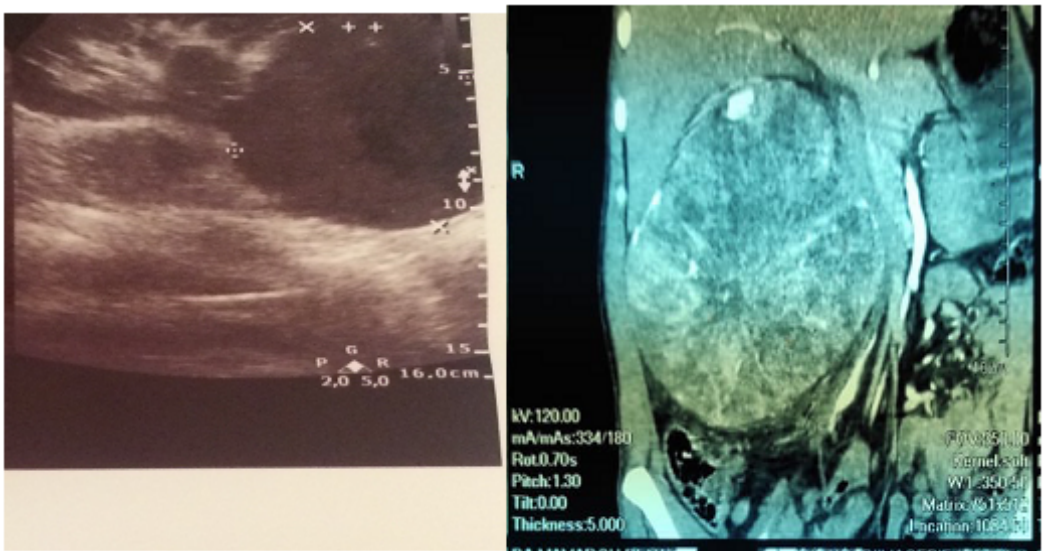

Figure 2: (A) Ultrasound aspect of renal mass (B) CT scan showing a right tumor in one of our patients.

Evolution

In our series, overall survival, all stages combined, was 79% at 3 years. Sanchez et al [21], in a population of 106 patients under 40 years treated for kidney cancer, reported a 5-year specific survival rate, all stages combined, of 66%. TNM stage and Fürhman grade are prognostic factors determining survival [1,17,18].

Conclusion

Adult kidney cancer in the Thies region, Senegal, is characterized by the predominance of locally advanced and metastatic forms. Stopping smoking, controlling blood pressure in hypertensive patients and physical activity as primary prevention could be beneficial in reducing the risk of kidney cancer.

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