

Epidemiological, Clinical, Paraclinical and Therapeutic Profile of Prostate Tumors at Panzi Hospital, Democratic Republic of the Congo

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How to cite this paper: John, K.M., Cikwanine, B.J.-P., Bafunyembaka, M.A., Nanga, B.D., Baraka, B.R., Alumeti, M.D., Luhiriri, N.L., Amisi, M.E. and Ahuka, O.L.A. (2023) Epidemiological, Clinical, Paraclinical and Therapeutic Profile of Prostate Tumors at Panzi Hospital, Democratic Republic of the Congo. *Open Journal of Urology*, 13, 259-269.

<https://doi.org/10.4236/oju.2023.137030>

Received: May 19, 2023

Accepted: July 28, 2023

Published: July 31, 2023

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Abstract

Tumor pathologies of the prostate gland are represented by benign prostate tumor and prostate cancer and are generally seen after 50 years. The objective of this work was to study the epidemiological, clinical, paraclinical and therapeutic aspects of prostate tumors at the General Reference Hospital of Panzi (DRC). **Patients and Methods:** Retrospective cross-sectional study on 70 patients followed in hospital or on an outpatient basis for prostate tumor in the urology department of the General Reference Hospital of Panzi from January 1, 2013 to December 31, 2017. The epidemiological, clinical and paraclinical parameters (pathology with Gleason score, prostate volume on ultrasound, urinary impact on ultrasound, urea level, creatinine level and PSA level) and therapeutics were studied. **Results:** Prostate tumors represent 3.84% of surgical pathologies. The average age of the patients was 68.2 years with the extremes of 47 and 90 years old. The patients were transferred in 78.6% of the cases. Acute urine retention was the most common reason for consultation with 42.8%. The PSA rate > 4 ng in 92.9% of the cases. Benign prostatic hyperplasia was found in 62.8% of patients against 35.7% of prostate adenocarcinoma and 41.7% of prostate cancers were moderately differentiated. The prostate volume was 41 - 60 g in 35.7% of the cases. No urinary impact in 71.4% of patients. Surgical treatment was in 85.7% and RTUP was the most used at 40%. A hospital stay between 15 and 21 days in 30% of cases. The cure rate was 81.4% and 14.3% developed urethral stenosis. **Conclusion:** Prostate tumors are common in people over the age of 50 who see for acute retention of urine. Benign enlarged prostate is the most common. Treatment is codified

and in the event of a complicated prostatic tumor, surgery remains the choice for the comfort of the patients and the popularization of an early detection of these pathologies is necessary for the prevention of complications.

Keywords

Prostate, Hyperplasia, Adenocarcinoma, PSA, Panzi

1. Introduction

Tumors pathologies of the prostate gland are represented by benign prostate tumor and prostate cancer. The IPSS (International Prostate Symptom Score) allows the monitoring of the main causes of lower urinary tract symptoms, which are prostate pathologies, a real public health problem [1]. Benign prostatic hypertrophy is a frequent pathology favored by aging and linked to the development of a prostatic adenoma responsible for a clinical obstacle to bladder emptying [2]. The development of the histological features of benign prostatic hypertrophy depends on the bioavailability of testosterone and its metabolite, dihydrotestosterone [3]. This condition is extremely common. It is the first cause of cervical-urethral obstruction in elderly men [4]. In Africa, according to some studies, prostatic adenomectomy is the leading surgical activity in urology departments [5]. Benign prostatic hypertrophy affects more than half of the men over 60 years of age and starts at the age of 35 years with the appearance of microscopic nodules in the stroma around the periurethral glands [6].

Prostate cancer should not be confused with benign prostatic hypertrophy, which is a non-cancerous increase in the size of the prostate. Prostate cancer is the most common cancer in men. At first, prostate cancer usually causes no symptoms. Studies suggest that PSA screening may reduce prostate cancer deaths by 20%, but this is controversial [7]. Prostate cancer is also the number one cancer affecting males in Central Africa and the DRC after liver cancer. Prostate cancer is one of the leading causes of death in men worldwide [8].

It is in this context that we ask whether community-based screening with PSA testing and the use of surgical treatment could reduce the morbidity and occurrence of complications of prostate tumors?

2. Materials and Methods

2.1. Framework of Study

The hospital in Panzi (eastern DRC) served as the setting for our study. It is a general referral hospital with a capacity of 450 beds, 70 of which are in the surgical department; it is also a university hospital for training students and doctors in specialization.

2.2. Methodology

Our work is a retrospective cross-sectional study of 70 patients with a prostate

tumor who either consulted on their own or were transferred for investigations and better management in the urology department of the General Hospital of Panzi, over a period of 5 years, from January 1 2013 to December 31 2017. We included in the study the patients who were followed in hospital or in ambulatory for prostatic tumor whose diagnosis was confirmed by the clinical and paraclinical means during our period of study, operated or not, in the service of urology of the department of surgery of the RGH/PANZI. Not included in the study were 106 patients hospitalized for prostatic tumor during our study period but who had not benefited from an anatomico-pathological examination and those whose medical records were incomplete. We studied the following parameters: age, profession, mode of admission, place of origin, reason for consultation, elements of the digital rectal examination, surgical history and medical history, prostate volume on ultrasound, urinary impact on ultrasound, urea level, creatinine level and PSA level, pathology with Gleason score, the main treatment, intraoperative complications, postoperative complications, hospital stay and discharge modalities We evaluated the relationship between different parameters. All data were collected using SPSS v20 software and analyzed using the latter. They are presented in the form of tables and texts the significance level was set at $p \leq 0.05$.

3. Results

3.1. Socio-Demographic Aspects

In this study, the overall frequency of prostate tumors in the surgical department was 3.84%. Considering only urogenital surgical pathologies, prostatic tumors represented 35.6% of cases. Most patients were transferred for better management of a prostate tumor (78.6%). The age group most affected by prostatic tumor was 71 - 80 years (35.7%) and the mean age of patients was 68.2 ± 9.4 years with the extremes of 47 and 90 years. The majority of our patients were unemployed (54.3%). 80% of the study patients were from outside the urban area of Bukavu (**Table 1**).

Clinical aspects: Type 2 diabetes mellitus (8.5%) was the most common associated medical condition and inguinal hernia (15.7%) the most common surgical condition. Acute urine retention (42.9%) and dysuria (40%) were the most

Table 1. Distribution of patients by age groups.

Age groups	Workforce	Percentages
<51	1	1.4
[51 - 60]	17	24.3
[61 - 70]	22	31.4
[71 - 80]	25	35.7
[81 - 90]	5	7.2
TOTAL	70	100

common reasons for consultation.

Digital rectal examination: All patients had an enlarged prostate. The other elements of the digital rectal examination are listed in **Table 2**.

3.2. Paraclinical Aspects (Table 3)

PSA: The mean level was 149.6 ng/ml with extremes of 1.5 ng/ml and 2145 ng/ml and standard deviation of 421.5 ng/ml.

Creatinine: the mean was 149.6 µmol/L with extremes of 61.7 µmol/L and 1415 µmol/L and standard deviation = 183.9 µmol/L.

Uremia: the mean was 9 mmol/L with extremes of 2.5 mmol/L and 53.8 mmol/L and standard deviation = 9.7 mmol/L.

Prostate volume on ultrasound: The mean volume was 58.9 g with extremes of 29 g and 185 g and standard deviation of 27.6 g.

Anatomopathology: **Table 4** below classifies patients according to anatomopathological findings.

Table 2. Distribution of patients according to the elements found on digital rectal examination.

Rectal touch	Features	Workforce	Percentages	TOTAL
Prostatic consistency	Flexible	46	65.7	100 (70)
	Hard	24	34.3	
Prostatic contour	Poorly limited	7	10	100 (70)
	Well limited	63	90	
Prostate sensitivity	Painful	13	18.6	100 (70)
	Not painful	57	81.4	
Prostatic surface	Regular	65	92.9	100 (70)
	Irregular	5	7.1	

Table 3. Distribution of patients by prostate specific antigen level.

PSA (ng/ml)	Workforce	Percentages
≤4	5	7.1
[5 - 40]	39	55.8
[41 - 100]	10	14.3
[101 - 200]	4	5.7
[201 - 300]	2	2.9
[301 - 400]	1	1.4
[401 - 500]	1	1.4
[501 - 600]	2	2.9
[701 - 800]	1	1.4
>800	5	7.1
TOTAL	70	100%

Table 4. Distribution of patients according to prostate biopsy results.

Anatomopathology	Workforce	Percentages
BPH	5	7.2
BPH + Chronic Prostatitis	39	55.7
Adenocarcinoma of the Prostate	24	34.3
Adenocarcinoma of the Prostate + BPH	1	1.4
Chronic Prostatitis	1	1.4
TOTAL	70	100

Most patients (41.7%) had moderately differentiated prostate adenocarcinoma according to the Gleason score.

3.3. Therapeutic Aspects

The majority of our patients had undergone surgical treatment (85.7%) and of all those operated for prostate tumor, 40% had undergone Transurethral Resection of the Prostate. There were no intraoperative complications in all 60 patients operated on for prostate tumor.

This **Table 5** shows us that there is no significant correlation between the PSA level and the anatomopathological type of the prostate tumor ($p > 0.05$).

In all patients admitted for prostate tumor and after management; 14.3% developed urethral stricture. The average hospital stay was approximately 3 days with extremes of 3 days and 111 days and a standard deviation of 17.8 days. Thirty percent of the patients had a hospital stay between 15 - 21 days. The cure rate was 81.4% (**Table 6**). The type of surgery was dictated by the PSA level and prostate volume of the patients, the postoperative complications are specific to each type of surgery. There was no significant correlation between the PSA level and the anatomopathological type of the prostate tumor.

Table 7 shows the association between the type of surgery and the PSA level.

The type of surgery was also dictated by the patients' PSA level ($p < 0.05$). The higher the PSA level, the more bilateral orchiectomy was preferred.

4. Discussions

The majority of our patients were transferred, 78.6%. This is explained by the fact that urinary signs dominate the clinical picture of prostatic tumors and usually appear in the advanced stages of these diseases [1] where surgery would take precedence [9] over medical treatment alone, which requires complexity in the best management, which can only be done in a well-equipped hospital specialized for these purposes. Patients consult late and many come from rural areas (80%) where the hospital is considered a last resort; often they come at the stage of complications or after failure of indigenous treatments.

In our study, the age group most affected by prostatic tumor is [71 - 80 years] with 35.7% of cases compared to 31.4% for [61 - 70 years]. The average age is

Table 5. Association of pathology type with PSA level.

Variables	BPH	BPH + PC	Adenocarcinoma	Adenocarcinoma + BPH	PC	Total
≤4	0	5	0	0	0	5
[5 - 40]	3	25	10	0	1	39
[41 - 100]	2	7	1	0	0	10
[101 - 200]	0	1	2	1	0	4
[201 - 300]	0	1	1	0	0	2
[301 - 400]	0	0	1	0	0	1
[401 - 500]	0	0	1	0	0	1
[501 - 600]	0	0	2	0	0	2
[701 - 800]	0	0	1	0	0	1
>800	0	0	5	0	0	5
Total	5	39	24	1	1	70

	Value	ddl	P
Pearson's Chi-square	47,317	36	0.098

Table 6. Distribution of patients according to the specificity of the surgical treatment.

Surgical treatment	Workforce	Percentages
Transvesical adenomectomy of the prostate	21	35
Trans-urethral resection of the prostate	24	40
Bilateral Orchidectomy	15	25
TOTAL	60	100

68.2 ± 9.4 years with extremes of 47 - 91 years. Our results are similar to those of Daubisse *et al.* in France [10], Benatta *et al.* in Algeria [11], Tengue *et al.* in Togo [12], Mubenga *et al.* in DRC [13] who respectively found a mean age of 69 years for the extremes of 48 - 93 years, found a mean age of 70.4 ± 8.7 with a lower limit of 33 years, a mean age of 70.4 ± 8.7 with a lower limit of 33 years and an upper limit of 94 years, a mean age of 68.5 ± 9.6 years for the extremes of 47 - 97 years and an upper limit of 94 years, and a mean age of 68 ± 8.5 years.

We found that the majority of our patients are unemployed with a total of 38 out of 70; that is 54.3% of total cases. This is explained by the fact that the majority of our patients (80%) come from rural areas where they are mainly engaged in handicraft work.

Most of our patients (42.9%) consulted for acute retention of urine, one of the preoperative complications of prostate tumors. This is explained by the fact that acute urinary retention dominates the clinical picture of prostate tumors in their advanced or complicated stages [14] and in our series many patients were transferred for better management, which implies a transfer for the last and severe

Table 7. Association between the type of surgery and the PSA level.

Variables	Transvesical adenomectomy of the prostate	RTUP	Bilateral Orchidectomy	Total
≤4	1	3	0	4
[5 - 40]	16	17	2	35
[41 - 100]	4	3	1	8
[101 - 200]	0	1	2	3
[201 - 300]	0	0	2	2
[301 - 400]	0	0	1	1
[401 - 500]	0	0	1	1
[501 - 600]	0	0	1	1
[701 - 800]	0	0	1	1
>800	0	0	4	4
Total	21	24	15	60

	Value	ddl	P
Pearson's Chi-square	43,531	18	0.001

sign of prostatic impact on the lower urinary tract. Kanté in Mali [10] found that pollakiuria was the most frequent sign, 37.3%, followed by dysuria at 24.1% and acute retention of urine at 19.9%, this is explained by the fact that more than half of his patients consulted on their own and therefore at the beginning of the urinary symptoms.

According to this study, 34.3% of the prostates suspected on RT were histologically malignant (especially with regard to the assessment of prostatic consistency). Benatta *et al.* in Algeria [11] found that 44.2% of the prostates suspected on RT were histologically malignant.

We found that 6 out of 70 patients admitted for prostatic tumor were diabetic; that is, 8.5%. And 2.9% had high blood pressure. This can be explained by the fact that prostate tumors [2], diabetes and hypertension remain, until proven otherwise, pathologies of the elderly. We also found that 11 out of 70 patients had a personal history of inguinal hernia, *i.e.*, 15.7% of total cases, and vaginal hydrocele 2.9%: prostatic tumors are a risk factor for inguinal hernias following micturition. Botcho *et al.* in Togo [15] noted hypertension in 43.21% of cases, compared to 25% of cases for diabetes, coexistence of diabetes and hypertension in 15.79% and 3.95% for COPD. They also found that a simultaneous inguinal hernia repair was performed in 26.3%. Mubenga *et al.* in DRC [13] found that the most frequent comorbidities were hypertension (42%) and type 2 diabetes (41%).

In all patients, enlarged prostate; among them, 35.7% had a prostate volume between 41 - 60 g. The mean was 58.9 ± 27.6 g with extremes of 29 g and 185 g. Mubenga *et al.* in DRC [13] found a mean prostate volume of 53.2 ± 22 grams.

The most frequent urinary impact of prostate tumors was acute cystitis at 12.9%. This is explained by the fact that most of the patients came in complicated stages with lower urinary tract symptoms and acute retention of urine and therefore it would not miss those with urinary impact on ultrasound [16].

According to the pathology results: 55.7% of patients had benign prostatic hypertrophy associated with chronic prostatitis. In 34.3% of the cases, it was an adenocarcinoma of the prostate. Most patients (41.7%) had a moderately differentiated prostate adenocarcinoma according to the Gleason score. Benatta *et al.* in Algeria [11], Rachida *et al.* in Algeria [17], Troh [18] *et al.* in Ivory Coast, Mugisho [19] Luhiriri *et al.* in DRC [20] found respectively that 49.2% of biopsies revealed prostate adenocarcinoma, while more than half of the biopsies showed a benign tumor of which 50.8%, 100% of prostate cancer cases were histologically adenocarcinoma, 93.67% of prostate cancer cases were histologically adenocarcinoma, detection rate of fibroleiomyoadenomatous hyperplasia alone at 18.3%; 32.3% associated with chronic prostatic, 33.9% with epithelial neoplasia and 15.5% with prostate cancer and on 100% benign tumors; 40% of cases it was pure adenofibroleiomyomatous hyperplasia, and associated with prostatitis in 27% of cases and with PIN 1, PIN 2, PIN 3 foci respectively with 19.2%, 9.6% and 3.8%.

According to the Gleason score for prostate adenocarcinomas found in our study, 41.7% of tumors were moderately differentiated (Gleason 7). Benatta *et al.* in Algeria [11], Tengue *et al.* [12], Darre *et al.* [21] in Togo found respectively 59.7%, 34.5% and 29.58% of moderately differentiated tumors. On the other hand, Hounasso *et al.* in Benin [22], Dehayni *et al.* in Morocco [23] and Kévin in France [24], found respectively 40%, 57.4% and 58% of well-differentiated tumors.

In our series, the majority of our patients received surgical treatment, 85.7%.

This is due to the fact that the majority of our patients were transferred, *i.e.* at stages of complications where only surgery [9] remained the best management for the comfort of the patients.

No complications were recorded in all patients operated on for prostate tumor. Botcho *et al.* in Togo [15] found that in 3 cases out of 76, intraoperative incidents were noted including peritoneal breaches repaired immediately and hemorrhage controlled rapidly by hemostasis and transfusion.

After surgical management, 14.3% of patients had developed urethral stricture. In all patients admitted for prostate tumor and after management: 81.4% of patients were discharged as cured; 17.2% were discharged with status quo clinic, and no deaths were recorded in the department.

In the late stage of prostate tumors, they are potentially disabling and require sustained and adequate management, although complications are often unavoidable either after medical or surgical treatment due to the chronicity of these pathologies [9].

30% of the patients had an inpatient stay of 15 - 21 days (2 - 3 weeks). The

prolonged stay of the patients is explained by the complexity of the management of complicated prostate tumors, many of our patients come from rural areas and are generally poor in financial means and about 20% of patients presented complications after management, and also the presence of comorbidities.

The type of surgery was dictated by the patients' PSA level and prostate volume, with postoperative complications specific to each type of surgery. There was no significant correlation between the PSA level and the anatomopathological type of the prostate tumor.

5. Conclusion

Prostatic tumors are chronic pathologies that usually occur after 50 years of age and potentially constitute the main causes of lower urinary tract symptoms. Most patients consult at stages of complications caused by prostatic tumors, which makes acute urinary retention the main reason for consultation. Patients have a high PSA level and the rectal examination remains the only essential physical examination for early screening of prostatic tumors. Only histopathology remains the reference examination for the real distinction between benign prostatic hyperplasia and prostate cancer. Benign prostatic hyperplasia is the most common and is frequently associated with chronic prostatitis. Adenocarcinoma of the prostate is the most represented of prostate cancers and the Gleason score remains a histo-prognostic tool. The treatment of prostatic tumors is codified, the majority of patients with TP are surgically managed for the improvement of symptoms or even the quality of life of these patients. To cope with their morbidity and mortality, it is necessary to popularize means for raising awareness among male populations and thus early screening of these diseases for early and more ideal management. In surgical management, less invasive and less disabling techniques are increasingly to be considered/favored to objectively meet the comfort of patients.

Conflicts of Interest

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

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