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Research Article

Preliminary Carcinological Results of Radical Prostatectomies at Treichville University Hospital from 2019 to 2023 (Abidjan, Cote D'Ivoire)

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Abstract

Background: Radical prostatectomy (RP) is the gold standard treatment for localised prostate cancer. It is performed at a low rate because of the difficulty in selecting patients. Patients are generally diagnosed at the metastatic stage. In the Ivorian literature, there are few reports on RP. We propose to describe an initial series. *Objective:* The aim of our study was to report the carcinological results of radical prostatectomy at Treichville University Hospital. *Methods:* We conducted a retrospective cohort from August 2019 to March 2023 at the Urology Department of Treichville University Hospital. We included all patients who had radical prostatectomy after being diagnosed with localised prostate cancer. *Results:* A total of 20 cases were selected. The mean age was 61.5 years. The most common Gleason score was 6 (3+3). 50% of patients were classified as pT3 and had a positive resection margin. Biological recurrence was observed in 75% of cases with positive resection margins after 6 months' follow-up. A 12-month recurrence-free survival analysis curve of the Klaplan Meier type was performed. *Conclusion:* The pT3 stage was associated with a positive resection margin and favoured biological recurrence. Later, we will expand the cohort. We are considering a research protocol on long-term functional outcomes.

Keywords

Carcinology, Prostatectomy, Recurrence

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1. Introduction

Prostate cancer is the most common cancer in men and the second most common cause of cancer-related death. [1]

Radical prostatectomy is the gold standard treatment for localised prostate cancer. [2]

This surgical treatment is also recommended for high-risk, locally advanced or oligometastatic cancers. [3, 4]

Radical prostatectomy was first described by Young in 1904, and was improved by the understanding of anatomy with the possibility of preserving the vasculo-nervous bands in 1980. [5]

In our context, this surgery is still performed at a low rate. It is difficult to select eligible patients because they are diagnosed at an advanced stage of cancer.

Approximately one third of cancers identified on radical prostatectomy (RP) specimens are locally advanced (pT3). [1]

Half of patients with a pT3 tumour will have a biological recurrence at ten years. [2, 6]

In Cote d'ivoire, there are no data on radical prostatectomy in the literature.

The aim of our study was to report the carcinological results of our first radical prostatectomy series.

As specific objectives, these were:

1) Describe the epidemiological and clinical characteristics of the population.
2) Determine the rate of positive resection margins.
3) Identify biological recurrence.

2. Materials and Methods

This is a retrospective cohort study from August 2019 to March 2023. It took place in the urology department of Treichville University Hospital.

Data were collected on a standardised survey form from the consultation register and patient files. They were transferred to a 2018 Excel sheet.

We included all patients who had undergone radical prostatectomy for localised prostate cancer. The diagnosis was established by prostate biopsy after digital rectal examination and total PSA. Extension was assessed radiologically with multiparametric MRI of the prostate and thoracic-abdominal-pelvic CT.

Patients with missing pathological data on prostate biopsy and prostatectomy were excluded.

The variables studied were: clinical characteristics (age, clinical stage), anatomopathological data from the biopsy (Gleason grade of the biopsy), data from the surgical specimen (pathological stage, presence or absence of positive margins), and postoperative data.

Quantitative variables were described using the numbers and percentages calculated on the data provided. Qualitative variables were described by means and standard deviation using SPSS software version 7.0.1.

A 12-month recurrence-free survival analysis curve of the Klaplan Meier type was performed.

The decision on surgical treatment was always taken in a multidisciplinary consultation meeting.

All patients underwent open retro pubic surgery with conservation of the neurovascular bands. Extensive lymph node dissection was systematically performed after removal of the prostato vesicular block (Figure 1). Extemporaneous pathological examination was not possible. Total PSA was measured 1 month postoperatively. Complementary hormonal therapy was only given in the event of biological recurrence.

Figure 1. *Posterior view of a prostato vesiculectomy specimen.*

We have defined carcinological surgery as the total removal of cancerous tissue by surgery.

3. Results

A total of 20 cases were selected.

The age group 65 and over was the most represented (8 cases/20). The mean age was 61.5 years, with extremes of 51 and 66 years.

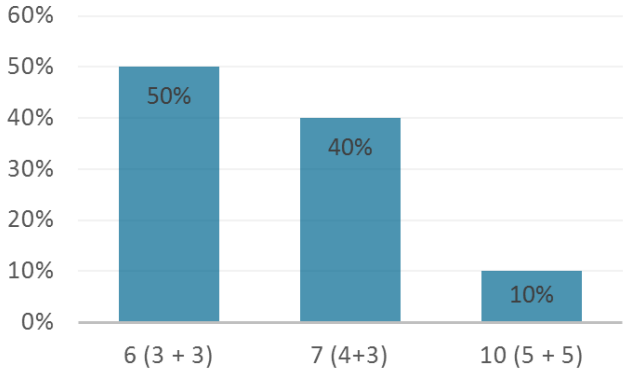

Figure 2. *Distribution of patients according to preoperative Gleason score.*

The most common Gleason score was 6 (3+3).

The mean PSA at diagnosis was 29.092 +/- 16.63 ng/ml.

Six patients had clear preoperative capsular invasion on MRI.

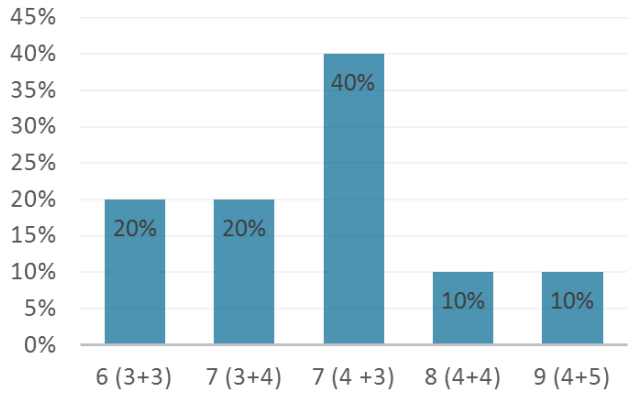

Figure 3. *Distribution of patients according to the Gleason score of the surgical specimen.*

The Gleason score was relatively higher on the prostatectomy specimen than on the prostate biopsies.

The PSA value measured at M1 post-op was normal in all patients, with a mean of 0.36ng/mL.

Table 1. *Distribution of patients according to pTNM classification and resection margin.*

pTNM Classification	Number	Positive resection margin (R1)
pT2bN0	08	00
pT2cN0	02	00
pT3aN0	06	06
pT3bN0	04	04
Total	20	10

Half of the patients had capsular effusion on the prostato vesiculectomy specimen. All cases of capsular effusion had a positive resection margin (R1).

In patients with a negative resection margin (R0), 03 patients had a biological recurrence at 1 year.

In patients with a positive resection margin (R1), 8 patients had a biological recurrence at 1 year.

In cases of biological recurrence, radio-hormone therapy was proposed at the multidisciplinary consultation meeting, after a whole-body MRI had been performed.

No deaths were recorded after 1 year of follow-up.

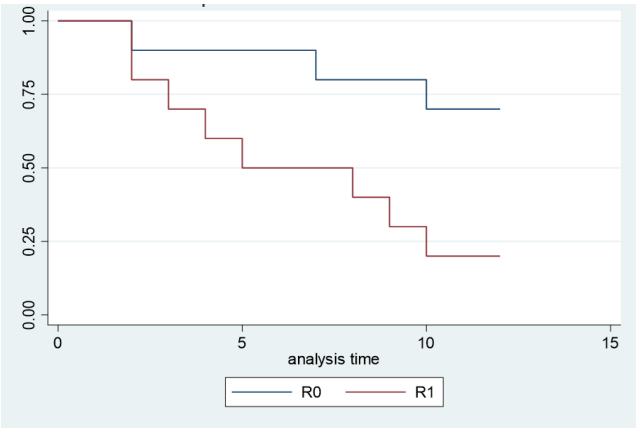

Figure 4. *Recurrence-free survival at 12 months according to resection margins.*

4. Discussion

The age group 65 and over was the most representative in our study. These data are consistent with several studies showing that prostate cancer is a disease that occurs in the elderly.

Our results are identical to those of Basga in Mali, where the age group most affected was 70 years and over with 58.6%. [7]

The mean age at diagnosis was 72 years, with extremes of 43 and 99 years.

The N'Zamba study, carried out in 2020 in the Ivory Coast, revealed that at histopronostic level, the Gleason score was greater than or equal to 7 in 70% of patients. According to the D'Amico classification, 53.5% of patients were classified as high risk. [8]

However, in our study, the predominant postoperative Gleason score was 7 (4+3) in 40% of cases. We found only 20% of aggressive tum ours with Gleason scores of 8 and 9. In general, the pre- and post-operative Gleason scores are roughly proportional.

Classification was between pT2 and pT3. None of our patients had pelvic adenopathy.

We obtained 50% negative margins. On the other hand, we believe that some positive margins may have gone unnoticed.

It has been shown that the rate of positive margins increases by 12% when section slices of 2 to 3 mm are used for anatomopathological analysis, compared with slices of 4 to 5 mm as is traditionally the case. [9]

Conversely, other patients without biological recurrence had a high probability of recurrence: this is the case in one of our patients with positive margins.

Here again, several hypotheses can be put forward: ischemic necrosis of residual cancerous tissue, latent cancerous tissue, insufficient follow-up or even false positive margins.

We observed 50% tumor recurrence in our patients.

After radical prostatectomy, PSA normally becomes undetectable within 4 to 6 weeks. [10]

In our series, the PSA level was less than 1 in all patients. A biochemical recurrence was diagnosed in half of our patients. The majority of these cases had locally advanced cancer or high D'Amico risk.

Delongchamps et al. report 52% biochemical recurrence. [11]

Also all our positive margins were initially classified pT3.

Several hypotheses can explain this recurrence. Among these patients, some were probably already micrometastatic during the procedure.

Indeed, a negative ilioobturator dissection is not synonymous with localized disease. Some teams carrying out extensive lymph node dissection find nearly 25% of positive lymph node dissections compared to 5 to 7% for traditional lymph node dissection. [1, 12-14]

Using immunohistochemical techniques, some teams have demonstrated unnoticed invasion of the ilioobturator lymph nodes (false negatives) in 3 to 4% of cases. [10, 15]

The risk of progression of the PSA level in the event of a PSA above 0.2 ng/ml postoperatively is 86% at one year and 100% at three years. [15]

According to Roehl et al., the preoperative PSA value, the tumor stage, the Gleason score and the histological results of the surgical specimen would be predictive factors of biological recurrence. [16]

Indeed Ritch et al. report that the African-American population is more likely to develop biochemical recurrence after radical prostatectomy. [9]

However, radical prostatectomy is an effective method in the management of high-risk D'Amico localized or locally advanced prostate cancer. In fact, Vickers et al. say that radical prostatectomy provides a benefit by reducing the relative risk of death from cancer. This is estimated between 0 and 25% depending on age, Gleason score and clinical stage. [17]

In our study nodal invasion was not found. Xylinas et al. report a rate of 17 to 31% of lymph node invasion. [18]

Solomon et al., emphasize that the rate of positive surgical margins was 32.5%, 18.5% and 26.4% respectively for the retropubic, perineal and laparoscopic approaches. [19]

The retropubic approach used in our study presented a difficult dissection of the prostatic apex. The apex is the first site of positive surgical margins. Plausible therapeutic options in the face of positive surgical margins are: monitoring, radiotherapy and/or adjuvant hormonal therapy. [20]

5. Conclusions

Radical prostatectomy is rarely performed in our context due to delay in diagnosis. which reflects our low numbers. The oncological results are related to the clinico-pathological parameters.

The presence of positive margins in patients operated on for prostate cancer is a poor prognosis factor. It is established that: a preoperative PSA above 10, a pathological stage above pT3, the location of the cancer at the apex, the experience of the surgical team are predictive of positive margins. A study will be carried out on a larger sample and a longer survival period. This will enable us to measure overall survival and functional complications after total prostatectomy.

Abbreviations

M1	1st Month
MRI	Magnetic Reasoning Imaging
PSA	Prostate Specific Antigen
R0	Healthy Resection Margin
R1	Positive Resection Margin
RP	Radical Prostatectomy

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Author Contributions

Evrard Kouamé Yao: Conceptualization

Gnakouri Alain Pacome Gnabro: Data curation, Formal Analysis

Tawakaltu Bolasadé Adebayo: Formal Analysis, Methodology

Legnima Sekou Michel Tuo: Data curation, Investigation

Bitti Adé Odo: Methodology, Resources

Donafologo Daouda Yeo: Investigation, Resources, Visualization

Noel Coulibaly: Methodology, Project administration, Validation

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Data Availability Statement

Not applicable.

Conflicts of Interest

The authors declare no conflicts of interest.

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Biography

Evrard Kouamé Yao is a military urologist and officer in the Ivory Coast army. He is an assistant professor at the Felix Houphouet Boigny University (Abidjan). He is head of clinic at the urology department of the Treichville university hospital. He has published works on surgical complications of renal transplants in the Ivory Coast and variations in the renal pedicle during renal transplants.

Research Field

Evrard Kouamé Yao: Kidney Transplantation, Onco urology, Andrology, Uro Gynecology, Urological trauma

Gnakouri Alain Pacome Gnabro: Onco urology, Emergency in urology, Urinary stones, Lower urinary tract syndrome, Endo urology

Tawakaltu Bolasadé Adebayo: Urinary Stones, uro infectiology, Onco urology, Endo urology, Andrology

Legnima Sekou Michel Tuo: Andrology, Onco urology, Kidney

transplantation, Urology imaging, Urinary stones

Bitti Adé Odo: Onco urology, Onco gynecology, Radiotherapy, Geriatric, Pediatric oncology

Donafologo Daouda Yeo: Onco urology, Uro gynecology, uro pediatric, Neuro urology, Urodynamic

Noel Coulibaly: Onco urology, Kidney transplantation, Urinary stones, Neuro urology, Endo urology