

Diagnostic and Therapeutic Aspects of Penile Cancer at Yalgado Ouédraogo University Teaching Hospital

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Abstract

Penile cancer is a rare malignancy. After conducting a retrospective study in our department over a period of 16 years, this report presents the diagnostic and therapeutic aspects of penile cancer. During the study, 13 cases of penile cancer were diagnosed and managed. Worthy of note is that the diagnostic profile was mainly characterized by a delayed presentation. Moreover, the diagnosis was generally established at an advanced stage of the disease, thereby limiting the therapeutic options. Although performed at a low rate, penectomy was the main therapeutic indication in our patients. However, due to psychosocial considerations, penectomy remains difficult to perform in our setting, and many patients refuse to show up at follow-up sessions because of the aforementioned considerations.

Keywords

Penile Cancer, Squamous Cell Carcinoma, Lymphoma, Penectomy

1. Introduction

Penile cancers are uncontrolled cellular proliferations arising from the tissues of the penis. According to Globocan, approximately 36,068 cases were recorded worldwide in 2020, corresponding to an incidence of 0.8 per 100,000 population [1]. Geographic disparities in the distribution of this cancer have been observed, with the highest incidences reported in Central Africa, Latin America, and Asia [2]. In sub-Saharan Africa, penile cancer may account for up to 3% of urological cancers, and diagnosis is most often delayed [3]-[7]. This diagnostic delay complicates management [8]-[10]. These considerations justified the present study,

which aims at reporting and analyzing the diagnostic and therapeutic aspects of penile cancer in our setting. This study is relevant because there are very limited data on this disease in the sub-region.

2. Patients and Methods

We conducted a retrospective and descriptive study from January 2007 to December 2022 of all cases of penile cancer diagnosed and managed in the Department of Urology-Andrology at the Yalgado Ouédraogo University Teaching Hospital (henceforth, CHU-YO) in Ouagadougou. Patients with histologically confirmed cancer and available sociodemographic, diagnostic, and therapeutic data were included in the study. The variables studied were the frequency, the age group, the duration of disease progression, the risk factors, the clinical as well as paraclinical findings, and the therapeutic aspects.

3. Results

From January 2007 to December 2022 (a 16-year period), approximately 8,125 patients were managed in the department, among whom 13 cases of penile cancer were identified, corresponding to an annual incidence of 0.81 cases. The mean age at diagnosis was 56 ± 12.02 years, ranging from 30 to 82 years. The various risk factors identified in our patients are summarized in **Table 1**.

Table 1. Distribution of patients according to risk factors.

Risk Factors	Frequency (n = 13)	Percentage (%)
Uncircumcised or late circumcision	9	69.23
HPV infection	2	15.38
HIV infection	3	23.08
Multiple sexual partners and polygamy	11	84.62
Tobacco use	3	23.08
Phimosis	1	7.69
Low socioeconomic status	8	61.54

All patients presented with a chronic penile ulcer, some of which were associated with an inguinal ulcer. In four (4) patients, the chronic penile ulcer resulted in acute urinary retention (**Figure 1**). The mean duration of symptoms before the first urological consultation was 24 ± 18.58 months, ranging from 4 to 60 months.

All patients presented with a single, extensive lesion. Lesions located on the glans appeared as ulcerative, exophytic cauliflower-like masses (**Figure 2** and **Figure 3**), whereas lesions involving the penile shaft presented as ulcerative plaques, sometimes associated with necrosis (**Figure 4**).

Most patients (11/13) had lesions involving the distal penis, whereas only two (2) patients had lesions located on the penile shaft. At the time of diagnosis, tumor



Figure 1. Penile cancer localized to the glans with inguinal lymphadenopathy in a 45-year-old patient.



Figure 2. Penile cancer localized to the glans in a 54-year-old patient.

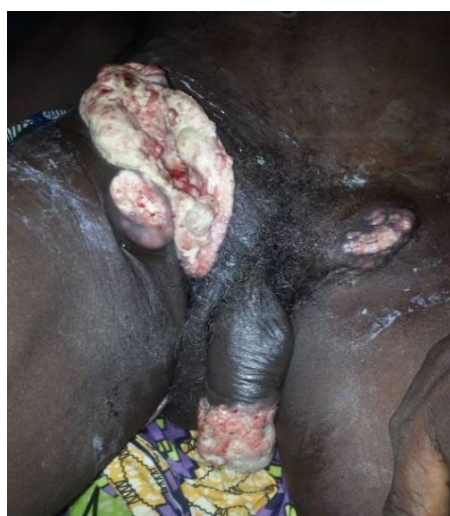


Figure 3. Penile cancer localized to the glans with a cauliflower-like appearance and bilateral inguinal lymphadenopathy. Fistulized lymphadenopathy on the right-side.



Figure 4. Penile cancer localized to the penile shaft in a 58-year-old patient.

staging was based primarily on clinical examination and abdominopelvic ultrasonography, which was performed in all patients. Thoraco-abdomino-pelvic computed tomography (TAP-CT) was performed in only two (2) patients, while pelvic magnetic resonance imaging (MRI) was unavailable and therefore not performed in any patient. Intraoperative findings subsequently confirmed the extent of the disease in several cases.

Accordingly, 12 patients were classified as T3, with tumor extension to the corpora cavernosa, while 6 others exhibited extension to the corpus spongiosum and urethra. However, no patient presented with extension to the perineum or scrotum. One patient was classified as T1.

Regarding nodal involvement, 11 patients were classified as at least N2, presenting with bilateral superficial inguinal lymphadenopathy, including fistulized inguinal lymph nodes in 2 patients (**Figure 1** and **Figure 3**). Moreover, 2 patients were classified as N0.

Worthy of note is that among the 2 patients who underwent TAP-CT, one presented with bone and liver metastases (M1).

Histopathological examination revealed squamous cell carcinoma in 12 patients (92.3%) and one case of plasmacytic lymphoma (7.7%) (**Figures 5-7**).

Therapeutically, total and/or partial penectomy was indicated in nearly all patients (92.3%). However, only two (2) patients underwent partial penectomy. One patient underwent biopsy with complete excision of a lesion that had not extended to the corpora cavernosa. Histological examination confirmed negative surgical margins. Again, two (2) patients underwent biopsy combined with circumcision, both of whom had positive surgical margins.

Overall, 10 of the 12 patients for whom penectomy was indicated refused surgery, corresponding to a refusal rate of 83%. No patient underwent inguinal lymph node dissection, chemotherapy, or radiotherapy.

Following surgical management, three (3) patients were considered disease-free on the basis of clinical examination and ultrasonographic follow-up after more than three years. However, among the patients who refused penectomy,

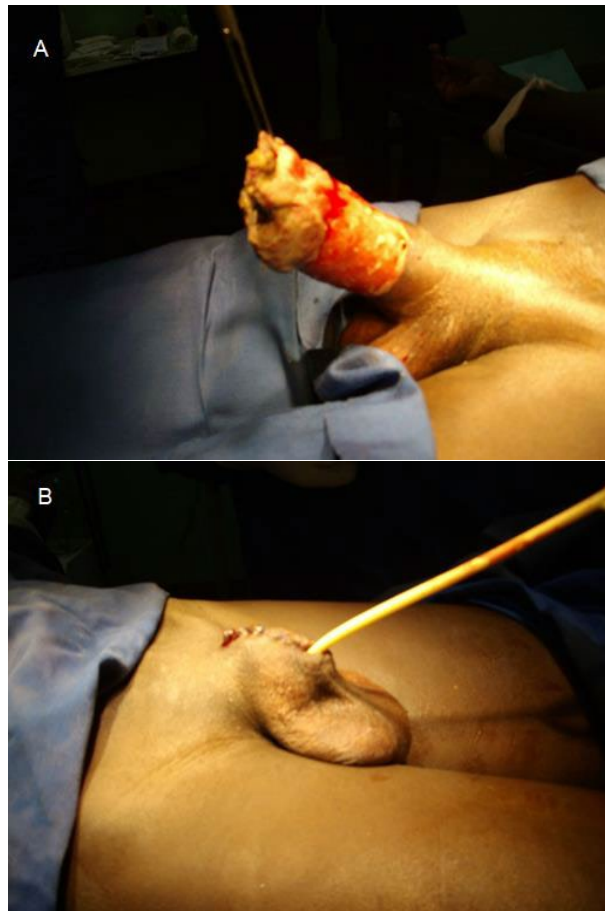


Figure 5. Penile lymphoma in a 48-year-old patient. (A) Preoperative image; (B) Postoperative image after partial penectomy.

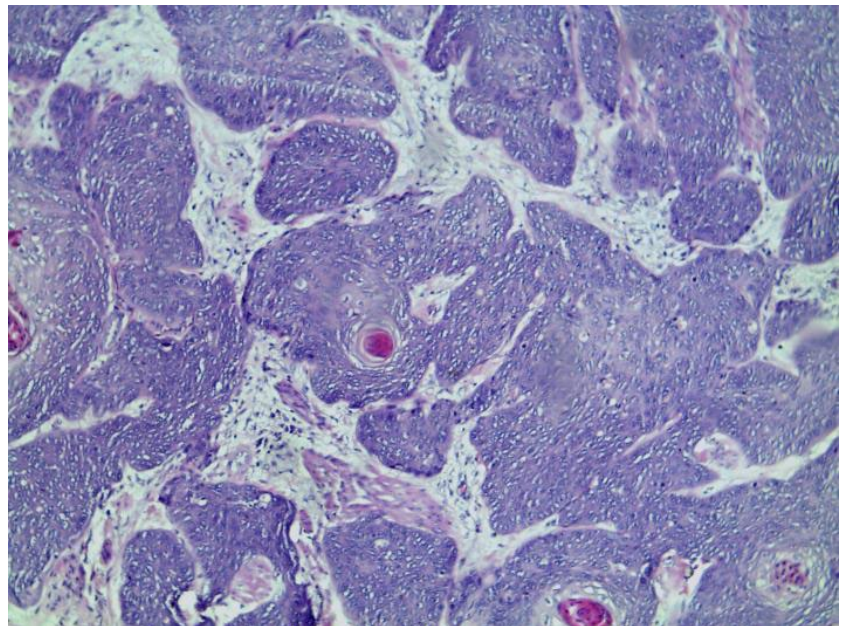


Figure 6. Intermediate magnification (×100) showing tumor lobules, some of which are centered by keratin pearls.

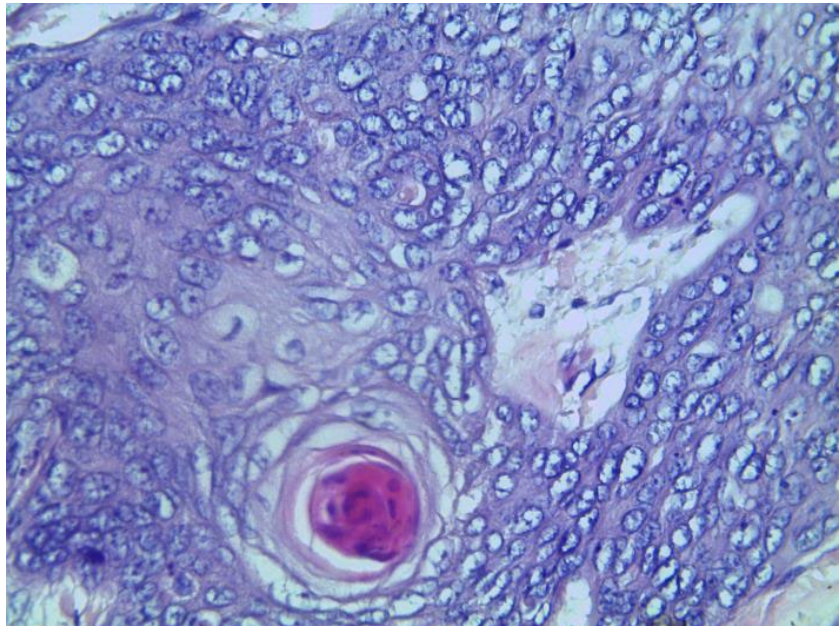


Figure 7. High magnification ($\times 400$) showing cellular details: large polygonal or oval cells with slightly eosinophilic cytoplasm and large nuclei, dispersed chromatin, and prominent nucleoli.

three (3) received palliative care during hospitalization until death. Two (2) were discharged against medical advice, with a mean hospital stay of three months. The remaining five (5) patients were subsequently lost to follow-up without providing any reason.

4. Discussion

The objective of this study was to investigate the diagnostic features and therapeutic challenges associated with penile cancer in the Urology Department of CHU-YO. This retrospective study has an important limitation related to the small number of cases included, making the study population insufficiently representative of the general population.

Penile cancer remains a rare malignancy in Burkina Faso, as previously reported by Kirakoya *et al.* [3] and Kambou *et al.* [10]. The annual incidence observed in our study (0.81 cases/year) further confirms the rarity of this disease. In our setting, this low incidence may be explained by the widespread practice of circumcision. Indeed, according to Dembélé *et al.* [11], 97.2% of men in Ouagadougou were circumcised. And, more than 69% of uncircumcised men had undergone late circumcision, reinforcing the protective role of circumcision against penile cancer.

In our series, the mean age at diagnosis was 56 ± 12.02 years, which is slightly lower than the mean age of 65 years reported in the literature [12] but comparable to findings from other African studies: 60.5 years in Morocco [13], 64.7 years in Tunisia [14], 60 years in Chad [9], 60.35 years in Congo Brazzaville [15], and similar findings in Rwanda [16]. These results confirm that penile cancer predomi-

nantly affects older men.

Histopathological examination demonstrated squamous cell carcinoma in 12 patients (91.66%) and plasmacytic lymphoma in one patient (8.34%). Similar findings have been reported in several African studies [10] [13] [17] [18]. Our results are consistent with the literature, which indicates that 95% of penile malignancies are squamous cell carcinomas and that plasmacytic lymphoma is a rare histological subtype [19].

More than 90% of patients in our series presented with stage T3 or higher, indicating infiltrative disease. This proportion is comparable to or higher than those reported in other African studies [9] [13] [15]-[17]. The high frequency of advanced-stage disease is primarily attributable to delayed diagnosis. Indeed, the mean interval between symptom onset and the first urological consultation was 24 ± 18.58 months. This diagnostic delay may be explained, on the one hand, by the intimate nature of the disease, leading many patients to seek alternative treatments before consulting a hospital. On the other hand, because penile cancer is rare, many healthcare professionals have limited experience with the disease, resulting in prolonged referral pathways and delayed diagnosis.

Given the predominance of infiltrative tumors, a high rate of penectomy was indicated in 92.3% of patients, most commonly as a palliative (toilet) penectomy. Similar rates have been reported by several African authors [9] [14] [15] [17], who likewise attributed this high indication rate to the advanced stage of disease, making organ-preserving surgery impossible.

Despite the frequent indication for penectomy, the refusal rate in our series was 77%. Similar refusal rates were already reported since 1992 by Gueye *et al.* in Senegal [6]. More than two decades later, persistent refusal of penectomy continues to be reported by Kambou *et al.* in Burkina Faso [17], Odzébé *et al.* in Congo Brazzaville [18], and Sow *et al.* in Senegal [17]. Psychological and religious considerations remain the principal reasons for refusing this surgical procedure. Many patients regard the penis as the ultimate symbol of masculinity and virility. Consequently, penectomy is often perceived as mutilation. Despite the introduction of preoperative psychological counselling, acceptance of penectomy remains extremely difficult for patients. At this stage of management, many patients are either lost to follow-up or leave the hospital against medical advice.

According to current recommendations [12], inguinal lymph node dissection, radiotherapy, and chemotherapy constitute important components of the therapeutic management of penile cancer.

No patient in our series underwent inguinal lymph node dissection, mainly because most eligible patients refused penectomy.

Similarly, no patient received radiotherapy, as this treatment modality only became available recently in our setting. Likewise, no patient underwent chemotherapy, despite appropriate indications in several cases, because the cost of chemotherapy remains prohibitively high and is often inaccessible in our resource-limited setting.

5. Conclusion

Penile cancer is a rare disease. In our setting, its management is complicated by delayed diagnosis. Improving early detection is therefore essential to ensure optimal management.

Ethical Considerations

This study received approval from the National Health Research Ethics Committee. All patients provided their consent for the use of the images for scientific purposes.

Author Contributions

All the authors are members of the urology department at CHU-YO. They all took part in patient care, data collection, and revising this article.

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Conflicts of Interest

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

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