

Cancer of the Penis: Clinical Features and Therapeutic Modalities in Senegalese Hospitals

Amath Thiam, Alioune Sarr, Ousmane Sow^{*}, Ndeye Aïssatou Bagayogo, Modou Ndiaye, Babacar Sine, Cyrille Ze Ondo, Abdoulaye Ndiath, El Hadji Malick Diaw, Yaya Sow, Babacar Diao, Alain Khassim Ndoye

Urology-Andrology Department, Aristide Le Dantec Hospital, Dakar, Senegal

Email address:

sowman87@yahoo.fr (O. Sow)

^{*}Corresponding author

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Abstract: Background: Penile cancer is a rare malignancy in Senegal. This rarity is probably related to the fact that circumcision, which has a protective effect, is a common practice in childhood. Some of the known risk factors include uncircumcised status, chronic inflammatory conditions, and a history of condyloma acuminata, smoking, and possibly human papillomavirus exposure. It is a pathology in adults with a maximum incidence after the age of 50. In our practice penile cancer is most often diagnosed at an advanced stage or only a radical and mutilating treatment may be proposed. Aims: To describe the clinical and therapeutic features of penis cancer in Senegal. Patients and methods: we carried out a retrospective, descriptive, bicentric study, collecting the records of patients with penis cancer in the Urology-Andrology department of the Aristide Le Dantec University hospital and the military hospital of Ouakam between January 2010 and December 2019. Results: fourteen cases of penile cancer were diagnosed. The mean age was 53.2 years with extremes of 29 and 84 years, the average consultation time was 21 months. All patients were circumcised in childhood. The tumor was limited to the glans in 2 cases and involved the entire penis in 5 cases. Six patients had bilateral inguinal adenopathies. The histological type was squamous cell carcinoma in all cases with a predominance of grade 2 (8 cases). Patients were classified as cT3 (7 cases), cT2 (5 cases), cT4 (1 case) and cT1 (1 case). Treatment consisted of partial amputation of the penis (5 cases), emasculation and perineal urethrostomy (4 cases) total amputation and perineal urethrostomy (2 cases). Three patients had refused total penis amputation. The average length of follow-up was 26 months (4 and 72 months), 3 lymph nodes recurrences and 2 local recurrences were observed. Two patients died among the operated patients. Conclusion: Cancer of the penis is rare in Senegal. The delay in diagnosis explains the frequency of advanced forms which can only be treated by radical surgery.

Keywords: Penile Cancer, Diagnostic Delay, Penile Amputation

1. Introduction

Cancer of the penis (CP) is a rare disease in Senegal. This rarity is probably related to the fact that circumcision, which has a protective effect, is a common practice in childhood [1]. It is a pathology in adults with a maximum incidence after the age of 50 [2]. In our practice CP is most often diagnosed at an advanced stage or only a radical and mutilating treatment may be proposed [2]. The aim of this work was to report the epidemiological, clinical and therapeutic features

of penile cancer in senegalese hospitals.

2. Materials and Methods

This is a retrospective, descriptive, bicentric study, collecting the files of patients with a CP in the Urology-Andrology department of the Aristide Le Dantec University hospital and the military hospital of Ouakam between January 2010 and December 2019. The parameters studied were the age at the time of diagnosis, the geographical origin of patients, the consultation time, the existence or not of risk

factors or precancerous lesions, clinical characteristics (location, presence or not of adenopathies), histological characteristics (histological type, histological grade) the TNM 2009 classification, therapeutic modalities and follow-up after treatment.

3. Results

During the study period, 14 CP cases were diagnosed. The mean age at diagnosis was 53.2 years (29 and 84 years). The average time of consultation was 21 months (5 and 48 months). All patients were circumcised in childhood and were all from rural areas. The clinical presentation was an ulcerated, budding lesion on the penis (Figure 1). The tumor was limited to the glans in 2 cases and involved the entire penis in 5 cases (figure 2). Six patients had bilateral inguinal adenopathies (Table 1). Biopsy of the lesion resulted in the diagnosis of invasive squamous cell carcinoma and the grade of tumor. There was a predominance of grade 2 (G2) with 8 cases (Table 1). Thoraco-abdomino-pelvic CT scan, carried out in all patients, showed pelvic lymph nodes (1 case) and pulmonary metastasis (1 case). Treatment consisted of partial amputation of the penis (5 cases), total amputation and perineal urethrostomy in 2 patients (Figure 3), emasculation

and perineal urethrostomy in 4 patients (Figure 4). Three patients refused total penis amputation. Node dissection was performed in 3 patients and was positive in all cases. The average length of follow-up was 26 months (4 and 72 months). No local recurrence was observed among the 5 patients treated with partial amputation. One lymph node recurrence alone and 2 local and lymph node recurrences were observed in the patients treated by emasculation. Two patients had died. Table 1 summarises the clinical characteristics and therapeutic follow-up of the patients.



Figure 1. Budding tumor of the upper third of the penis.

Table 1. Summary table of clinical characteristics and therapeutic modality of patients.

Patients	Age (years)	Time to visit (months)	Clinical aspects	Treatment	Duration of follow-up (months)	Recurrence	Death
1	74	36	Tumor occupying the entire penis, bilateral inguinal adenopathies cT3N2M0 G3	Total amputation + removal of lymph nodes	06	Node recurrence	Yes
2	29	14	Tumor limited to the glans, cT2N0M0 G2	Partial Amputation	36	No	No
3	67	48	Tumor occupying the entire penis, bilateral inguinal adenopathies cT3N2M0 G2	Refusal of amputation	lost from sight	-	-
4	71	36	Tumor occupying the glans and 1/3 distal of the penis: remaining length 5 cm cT2N0M0 G2	Partial Amputation	24	No	No
5	63	24	Ulcerated and necrotic tumor. Remaining penis length: 2.5 cm cT3N0M0 G3	Emasculation	48	No	No
6	34	05	Tumor occupying 1/3 distal of the penis: remaining length 6 cm cT2N0M0 G2	Partial Amputation	72	No	No
7	55	22	Tumor occupying the glans+ 1/3 distal of the penis: remaining length = 5 cm cT2N0M0 G1	Partial Amputation	06	Non	No
8	52	18	Tumor occupying the entire penis, bilateral inguinal adenopathies cT3N2M0 G2	Refusal of amputation	lost from sight	-	-
9	30	15	Tumor limited to the glans, cT1N0M0 G1	Partial Amputation	24	No	No
10	46	09	Tumor occupying the entire penis, the glans and 1/3 distal necrotic. inguinal and pelvic adenopathies, cT3N3M0 G3	Refusal of amputation	lost from sight	-	-
11	84	24	Tumor occupying the entire penis and scrotum, mobile inguinal adenopathies, cT4N2M0 G2	Emasculation + lymph node cleansing	04	Local and ganglionic recidivism	Yes
12	57	08	Tumor occupying the glans + 1/3 medium of the penis: remaining length 2 cm cT2N0M0 G2	Emasculation	24	No	No
13	53	24	Tumor occupying 2/3 of the penis Remaining length 3 cm cT3N0M0 G2	Total Amputation	36	No	No
14	31	12	Tumor occupying the glans +1/3 distal of the penis, inguinal adenopathies, pulmonary metastases cT3N2M1 G3	Emasculation + lymph node removal + chemotherapy	07	Local and ganglionic recidivism	lost from sight

4. Discussion

CP are rare in Senegal, as Sow and Gueye [1, 2] have already reported. The incidence of this cancer varies according to geographical regions, customs and socio-economic level. The highest incidence (up to 20%) is found in African, Asian and Latin American countries compared to Western countries and the USA where it is less than 1% [3]. The average age of 53 years is close to that of the African series; in the West, however, the average age appears to be higher [4-7]. Cancer of the penis is common in countries with low socio-economic levels, due to poor hygiene conditions [8]. The protective role of neonatal circumcision has been demonstrated by several authors [9-11]. Neonatal circumcision reduces the risk of penile cancer by 3 to 5 times by improving local hygiene and preventing chronic inflammation related to smegma accumulation [3, 12]. The practice of circumcision in childhood is a widespread custom in Senegal, which may explain the low incidence of squamous cell carcinoma in this population of circumcised men. The involvement of human papillomavirus (HPV) infectious in the genesis of squamous cell carcinoma is known. In a meta-analysis of the results of 30 studies, HPV was confirmed in 47.9% of 1266 penile cancer samples [11]. On the clinical level, diagnostic delay is the rule in our study. This delay in diagnosis could be explained by the taboo surrounding any disease affecting the external genital organs. Some patients consult because of the pressure of the entourage, which is bothered by the nauseating odours of the lesions. All the patients in this study had an ulcerative budding tumor at the time of diagnosis, involving either the glans or the body of the penis. Similarly, Magoha in Kenya reported that 88% of the CP occupied the glans and the body of the penis and 12% were located in the foreskin [4]. In contrast, it appears that in the western series the lesions are confined to the glans or foreskin [13, 14]. In our series all patients had squamous cell carcinoma of the penis. This is the most frequent histological type, other histological forms are rare. Nam et al [15] reported 2 cases of leiomyosarcoma, a penile location of a large B-cell non-Hodgkin's lymphoma was described in the series of Sow et al [9]. Squamous cell carcinoma of the penis has a slow progression, first locally, then secondarily regionally by invasion of the inguinal lymph nodes, and finally the pelvic lymph nodes. Metastatic localisations are infrequent and late [15, 16]. The clinical presentation in our context necessarily lead to an immediate proposal for surgery to remove the penis (partial or total amputation) or for emasculation. This mutilating surgery is often refused by patients from the first announcement, hence the need for psychological assistance before and after the surgical procedure. Conservative therapies such as photodynamic treatment, YAG or CO₂ laser excision, 5 fluorouracil topicality combined with biopsy and brachytherapy with iridium 192 wire make it possible to respect the anatomo-functional integrity of the penis and to offer a better quality of life with a significant risk of local recurrence [17]. However, these techniques are difficult to

apply in our context where tumors are diagnosed late. As reported in other studies [5, 15, 18], penis amputation was the most common therapeutic modality in this study (5 partial amputations and 6 total amputations). Radical excision surgery offers better local control of penile cancers in order to avoid recurrence [5, 13, 15]. The curative role of lymph node removal has been proven for all stages. The N+ patients in this study (6 cases) were all received at a very advanced stage of the tumor. For N0 patients, lymph node removal was not systematically because of the significant morbidity that accompanies this procedure. Current data do not support the monitoring of these patients, Leijte et al as well as Sadeghi et al [19, 20] recommend the search for the sentinel node when there are no palpable nodes. Survival depends on the local stage, but especially on the lymph node stage, which is the main prognostic factor [17]. The two patients who died in this study all had inguinal lymphadenopathies at the time of diagnosis and lymph node recurrence after surgery. There is no consensus on the modalities and frequency of monitoring. Classically it is a clinical penile surveillance by local examination in case of partial amputation and lymph node areas.

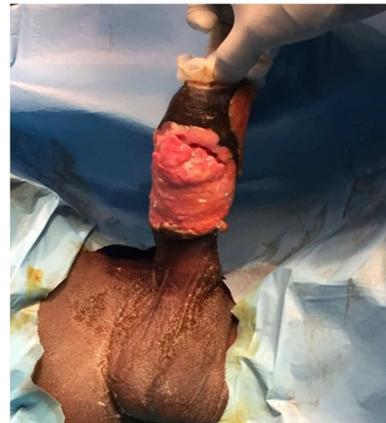


Figure 2. *cT3N0M0 penis tumor.*



Figure 3. *Total amputation + perineal meatostomy.*



Figure 4. Appearance 1 year after emasculation and perineal urethrostomy.

5. Conclusion

CP is a rare tumor that mainly affects young adults in Senegal. The squamous cell carcinoma is the predominant type. The discovery is almost always late, in the advanced stage of cancer. Partial or total penectomy is most often indicated. However, body disfigurement and psychological consequences and social problems that can result from this sometimes explain therapeutic refusals. It is then necessary to raise awareness.

Author's Contribution

All authors have read and approved the final version of the manuscript.

Conflicts of Interest

The authors declare that they have no competing interests.

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