

Risk Factors for Erectile Dysfunction in Patients with Venous Priapism in Ivory Coast from 2014 to 2023

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Abstract

Introduction: Venous priapism is common among young people with sickle cell disease in Ivory Coast. **Objective:** To report the results of the management of venous priapism. **Methods:** This was a retrospective cross-sectional study, which concerned the files of patients received and treated in the Urology Department of the Cocody University Hospital for priapism from January 2014 to December 2023. **Results:** The mean age of the patients was 32.91 years, with extremes of 14 and 65 years. The Akans represented the most affected ethnic group in 39% of cases. Traders predominated with 21% of cases. The patients were mostly single in 65% of cases and came from economically modest communes (52% of cases). The cavernous-spongy shunts were performed with the Ebbehøj technique in 88% of cases. After surgical treatment, erectile dysfunction was present in 46% of patients. This dysfunction was related to age, sickle cell disease and treatment delay. **Conclusion:** The venous priapism is seen late in Ivory Coast. In the evolution, erectile dysfunction was found in 46%, which classifies it as an andrological emergency occurring most often in a young, disadvantaged population.

Keywords

Venous Priapism, Sickle Cell Disease, Ebbehøj, Erectile Dysfunction

1. Introduction

Priapism is a state of prolonged erection lasting more than 4 hours, sometimes painful, outside of any sexual stimulation and not necessarily leading to ejacula-

tion [1]. This is an essentially male pathology, clitoral priapism, although described, is an extremely rare clinical situation [2]. The diagnosis is clinical, the etiologies are multiple, with a long-term risk of the occurrence of definitive sexual impotence in 50 to 60% of cases [3].

The aim was to look for a causal link between etiology, age, therapeutic modalities and the occurrence of erectile dysfunction.

General objective:

Analyze the results of the management of venous priapism at the Cocody University Hospital.

Specific objectives:

- 1) Determine the time frame for treatment where the results are best.
- 2) Calculate the proportion of erectile dysfunction after surgical treatment.
- 3) Identify the factors promoting erectile dysfunction after venous priapism.

2. Methods

2.1. Type, Location and Period of Study

This was a retrospective analytical cross-sectional study that focused on the records of patients received and treated in the urology department of the Cocody University Hospital for venous priapism. The study took place from January 2014 to December 2023, a period of 10 years.

2.2. Selection

All patients hospitalized for venous priapism who had complete medical records containing the studied variables: epidemiological, clinical, therapeutic and evolutionary. Of 116 records, 100 were retained and 16 were excluded due to the absence of certain variables.

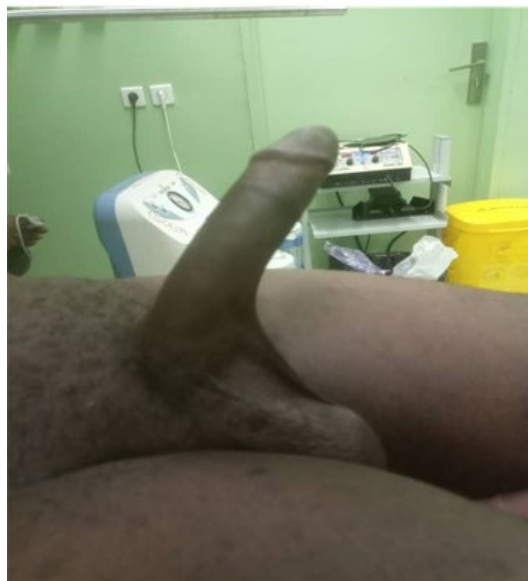


Figure 1. Priapism.



Figure 2. Cavernous-spongy fistula (Ebbelohj technic).

Inclusion Criteria

All patients admitted for venous priapism were treated and followed for at least one year after the intervention during the period, having a complete file containing all the variables studied. 16 patients continued their follow-up in another center immediately after the emergency treatment and were withdrawn from the study because their files did not contain sufficient follow-up variables.

2.3. Method

All patients presented with an erection without sexual stimulation that lasted for more than 4 hours and was painful (**Figure 1**) were treated and followed up after their treatments (**Figure 2**). All information relating to their examinations before, during and after treatment was recorded in their medical records. A good result was defined as the absence of erectile dysfunction after priapism, while a poor result corresponded to the occurrence of complications, including erectile dysfunction. A favorable outcome was considered to be any patient who, after healing and 3 weeks of convalescence, had normal erections, no induration of the corpora cavernosa, and had satisfactory sexual intercourse, all during a 1-year follow-up.

The poor outcome was the existence of erectile dysfunction with the IIEF-5 scale. Sexual dysfunction was measured using patient questionnaires: Sexual Health Questionnaire (MSHQ) and the International Index of Erectile Dysfunction (IIEF-5).

3. Results

3.1. Frequency

During the study period, out of 3400 patients who consulted for a surgical pathology in urology, 116 patients or 2.94% presented with venous priapism.

3.2. Distribution of Patients According to Age

The mean age of the patients was 32.91 years, with extremes of 14 years and 65 years (**Figure 3**).

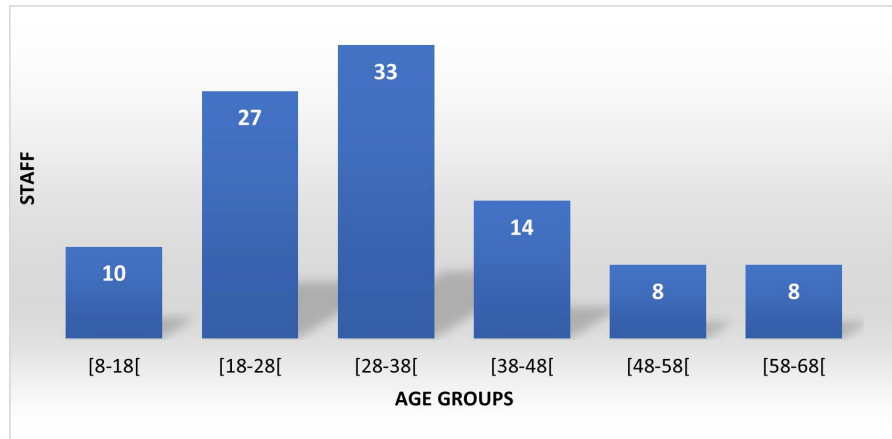


Figure 3. Distribution of patients by age group.

3.3. Distribution of Patients According to the Etiologies of Priapism

Table 1. Distribution of patients according to the etiologies of priapism.

Etiologies	Effective	Percentage (%)
Medicine (*)	37	37
Idiopathic	36	36
Sickle Cell Disease	27	27
Total	100	100

(*): Unidentified traditional medicines (19%), aphrodisiacs (18%).

Drug etiology predominated with 37% of cases, followed by idiopathic priapism with 36% of cases (**Table 1**).

3.4. Distribution of Patients According to the Surgical Technique Used

The most used surgical technique was the Ebbehøj technique (88% of cases) (**Figure 4**).

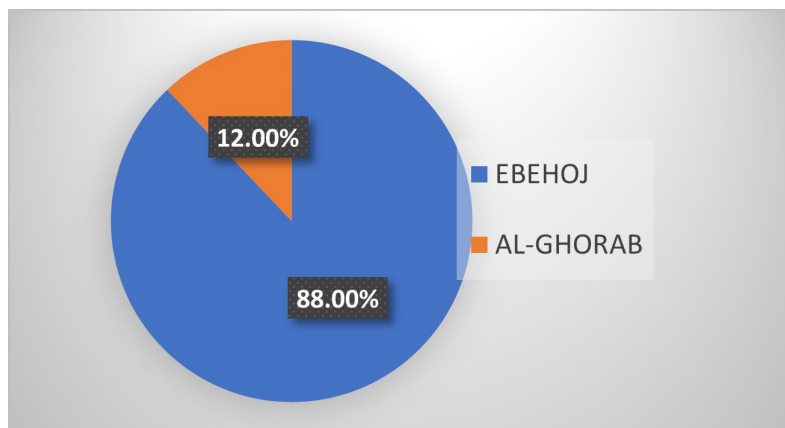


Figure 4. Distribution of patients according to the surgical technique used.

3.5. Search for a Link between Erectile Dysfunction and Treatment Delay

Table 2. Search for a link between erectile dysfunction and treatment delay.

Delay Treatment	OF		Grand Total
	No	Yes	
No	31.7%	17.3%	49.0%
Yes	17.1%	33.9%	51.0%
Grand Total	48.8%	51.2%	100.0%

With the χ^2 test showing $P = 0.001$.

There was a significant relationship at the 5% level between treatment delay and erectile dysfunction (**Table 2**).

3.6. Research into the Link between Erectile Dysfunction and Surgical Method

Table 3. Research into the link between erectile dysfunction and surgical method.

Method Surgical	OF		Grand Total
	No	Yes	
Fistula	46.3%	46.6%	92.8%
Puncture	2.5%	4.7%	7.2%
Grand Total	48.8%	51.2%	100.0%

With the χ^2 test showing $P = 0.549$.

There was no significant relationship at the 5% level between the type of surgical procedure and erectile dysfunction (**Table 3**).

4. Discussion

4.1. Study Limitation

Part of the patient collection was retrospective, the setting was single-center, and the lack of follow-up after 1 year.

4.2. Epidemiological and Etiological Aspects

The series reported 116 cases over 10 years out of a total of 3400 patients hospitalized in urology, representing a prevalence rate of 2.94% and an annual rate of 12 cases. Dekou *et al.* [4], as well as Slimen *et al.* [5], noted 26 cases over a period of 23 years, or 1.13 cases per year. Salonia *et al.* [6], in a study, found that the prevalence of priapism could reach 3.6% in patients under 18 years of age, increasing to 42% in patients over 18 years of age. Priapism is an uncommon situation.

The most affected age group was between 28 - 38 years with a mean age of 32.91

years and extremes of 14 and 65 years. Several authors, such as Dekou *et al.* [4], Slimen *et al.* [5], Ugwumba *et al.* [7], and Ekeke *et al.* [8], reported similar mean ages of 31 years, 37 years, 31 years, 35 years, and 30.5 years, respectively. On the other hand, Kamel *et al.* [3] found a high mean age of 43 years.

Sickle cell disease remains the leading hemoglobinopathy in Africa, and the use of aphrodisiacs by young people to enhance their sexual performance is also an important factor. In Nigeria, Ekeke *et al.* [8] identified the use of aphrodisiacs as the main etiology. In Côte d'Ivoire, a decoction called "attote" is commonly used by young people to enhance their sexual performance, while in France, intravenous injection of erectogenic drugs was the predominant cause [9].

4.3. Therapeutic Aspects

The treatment of venous priapism depended mainly on the time between the first sign and admission to the urology department. Because of the delay in consultation, 9% of patients were treated by puncture of the corpus cavernosum, and 91% by cavernous-spongy fistulas. Of these, 88% were treated by the Ebbehøj technique and 12% by the Al-Ghorab technique.

Surgical techniques vary between countries and schools. In Senegal, puncture of the corpora cavernosa was the most commonly used method [10]. In Tunisia, Al-Ghorab and Quackels type cavernous-spongy anastomoses were common, with success rates of 68% and 100% respectively.

Early placement (<6 weeks) of a penile implant was reserved for cases of priapism lasting more than 36 hours. In cases of priapism seen after 48 hours or refractory to surgical treatment, penile prosthesis was recommended [11].

Overall, the management of venous priapism included multiple surgical methods such as punctures of the corpus cavernosum, diversions and anastomoses associated with lavage of the corpus cavernosum. In Ivory Coast, venous priapism was treated by cavernosal fistula as a first-line treatment from the outset or after failure of medical treatment.

Surgical techniques and methods used in the management of patients with venous priapism were found to differ from country to country and from school to school.

Among the 100 patients, 54% had a normal erection and 46% had erectile dysfunction. The proportion of erectile dysfunction found in the literature varies from 50% to 60%. Early consultation and rapid management of venous priapism would prevent erectile dysfunction.

Factors that may influence penile functional prognosis include treatment delay, patient age, etiology of priapism, and type of intervention. Regarding treatment delay, the correlation with erectile dysfunction showed a $P = 0.001$ at the 5% level, confirming an association between treatment delay and the occurrence of erectile dysfunction. Treatment delay increases the likelihood of erectile dysfunction. Erectile dysfunction cases were more frequent in patients with treatment delay.

Similarly, the crossover with age showed a $P = 0.0008$, which is therefore signifi-

cant. Cases of erectile dysfunction were more frequent in older patients, who generally consulted 24 hours after the onset of symptoms. This may be due to the fact that they tolerate pain better than younger patients, or that they resort to traditional methods of treatment or prayer sessions before going to the reference services. The rate of patients with complications of erectile dysfunction type increased with age. The older the age, the higher the probability of erectile dysfunction. The recovery of a normal erection was easier the younger the subject.

With the cavernosal puncture method, there were as many cases of erectile dysfunction as non-erectile dysfunction, while with the cavernosal fistula method, there were fewer cases of erectile dysfunction.

This was also noted in the studies of Kamel *et al.* [3], Ekeke *et al.* [8], and Bennett *et al.* [12]. Regarding the etiology and type of intervention, there was no statistically significant association with erectile dysfunction. However, more cases of erectile dysfunction were noted in sickle cell patients than in those who took medication. The rate of patients with erectile dysfunction tended to be higher in sickle cell patients. The sequelae of erectile dysfunction would have a very poor prognosis, and its correction is very difficult to achieve. Only the surgical placement of penile prostheses would remedy this erectile insufficiency. However, the placement of a prosthesis in such cases is not easy, because it is necessary to literally drill the fibrous tissue of the corpora cavernosa to create the space necessary for the placement of this prosthesis [13] [14]. Some authors recommend immediate insertion of the prosthesis for refractory ischemic priapisms. An intracavernous injection of phenylephrine with early body aspiration would provide good results in the management of venous priapism for some authors [15] [16].

5. Conclusion

The high rate of erectile dysfunction noted was due to the delay in consulting all patients and the delay in taking charge of some patients. Also, there are certain contributing factors, such as advanced age and sickle cell disease. The review of the literature on priapism indicated that the best therapeutic results were obtained within six hours of the onset of the disease. A period during which medical treatment, based on sympathomimetics, or even a cavernous-spongy fistula, would have been sufficient to obtain detumescence and avoid erectile dysfunction.

Consent for Publication

Pr. Moh Nicolas, scientific medical director of the Hospital and University Center (CHU) of Cocody-Abidjan, hierarchical manager of the ethical committee of intuition and all the authors approve and agree for the publication of the study relating to: Risk Factors for Erectile Dysfunction in Patients with Venous Priapism in Ivory Coast from 2014 to 2023.

Conflicts of Interest

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

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