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Penile Prostheses: Indications and Results from a Series of 35 Cases in Cameroon

Junior Barthélémy Mekeme[1,2*], Axel Makon Nwaha[2,3], Jean Cédrick Fouda[1,2], Nzati[4], Junior Marcel Yon Mekeme[2], Achille Yellem Kpanou[2], Bright Che Awondo[2], Maurice Fonji[2], Achille Aurèle Mbassi[1,4], Georges Kemegni[1], Pierre Ongolo Zogo[2,5], Pierre Joseph Fouda[5], Paul Owono Etoundi[5], Fru Angwafo Iii[5]

[1]Urology and Andrology Department, Yaounde Central Hospital, Yaounde, Cameroon
[2]Faculty of Medicine and Biomedical Sciences, University of Yaounde I, Yaounde, Cameroon
[3]Urology Department, Douala Laquintinie Hospital, Douala, Cameroon
[4]Institut Supérieur de Technologie Médicale, Yaounde, Cameroon
[5]Medical Imaging Centre, Yaounde Central Hospital, Yaounde, Cameroon
Email: *juniormekeme@yahoo.fr

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Abstract

Introduction: Erectile Dysfunction (ED) is a taboo and public health issue in Cameroon. To date, there are several therapeutic modalities. This is a preliminary study to present our short experience on the indications and results in our patients who have benefited since November 2022 from the placement of a penile prosthesis for the management of this pathology after the failure of the various medical treatments. **Methodology:** This is a descriptive cross-sectional study with prospective data collection over a six-month period from January 1 to June 30, 2024, in two urology departments. Patients who had benefited from the placement of a penile prosthesis for the management of ED were included. The severity of ED was assessed with the International Erectile Function Index 5 (IIEF5) score, and satisfaction with the LIKERT scale. The clinical data were collected using a pre-established and confidential survey sheet, captured, and analyzed using SPSS version 23.0. **Results:** A total of 35 patients were selected. The mean age was 65 (62 - 72) years, with extremes of 24 and 84 years. The majority of them were married, 33 (93.3%), 21 (60%) had a higher level of education, and 19 (53.3%) were employed. ED was severe in all cases. In 9 (60%), it was gradually established. The causes of ED were organic in 53.3% and dominated by vascular etiologies in 14 (40.0%). High blood pressure was the dominant medical comorbidity in 60.0%. Prostate tumors were the most common urological comorbidities in

13 (60.0%). Spinal anesthesia and the penoscrotal approach have been used in all our patients. The malleable implant was used in 28 (80.0%). Postoperative residual pain was the main complication found in 7 (20.0%). Sexual activity as early as six weeks after surgery was resumed in 28 (80.0%). **Conclusion:** Erectile dysfunction is a problem that undermines our society, and penile prosthesis surgery remains an effective asset after the failure of various medical treatments.

Keywords

Erectile Dysfunction, Penile Prostheses, Indications, Results

1. Introduction

Erectile dysfunction is a public health problem, defined as the inability to obtain and/or maintain an erection sufficient to allow satisfactory sexual activity for at least three months [1]. This disorder of the male genital tract currently affects every continent, with prevalence levels varying widely depending on different studies. In Europe, the prevalence of ED ranges from 10 to 76.5%, in Asia from 8 to 71.2%, in Oceania from 40.3 to 60.69%, in Africa from 24 to 57.8% and in South America from 14 to 55.3%. Overall, researchers estimate that the prevalence of ED varies from 3 to 76% worldwide, with an increase seen with age. The World Health Organisation (WHO) estimates that the disease affects 15% of men worldwide every year [2]. The prevalence of ED increases with age, affecting more than 15% of men in their forties and 50 to 100% of men over 70 [3]. Its incidence in Cameroon is not well known, but according to a study carried out in Douala in 2023, it is around 25.5% in a population aged between 21 and 70 [4].

ED affects the sexual quality of life in men and the relationship of the couple in general. It is a benign condition with a negative social impact on patients' quality of life. In Africa in general and Cameroon in particular, ED is sometimes regarded as a disease of shame, and patients suffering from it are de facto labelled sexually impotent [4]. Contributing factors may be vascular (hypertension, priapism, etc.), endocrine (diabetes, thyroid dysregulation, etc.), neurological (spinal cord injury, pelvic trauma, Alzheimer's disease, etc.), toxic (alcohol, drug addiction, etc.), iatrogenic (drugs, radical prostatectomy, etc.) or urological (Peyronie's disease). However, to date, treatment can range from simple medication (medical treatment, trans-urethral injection or intra-cavernosal injection) to surgery involving the insertion of a penile implant [4].

Penile Prostheses (PP) or Penile Implants (PI) are implantable devices used to permanently treat ED. The first model was introduced in 1973, and many improvements have been made to date [4] [5]. These devices are divided into two general types: semi-rigid (malleable and mechanical) and inflatable. It should be noted that PP insertion is the treatment of choice when oral or injectable medication is ineffective, contraindicated or not tolerated [6] [7]. PP should be con-

sidered as an appropriate treatment option for men who wish to restore erectile function and who accept the risk of potential complications of mechanical failure and/or infection, which are now much less common in this type of surgery, thanks to improvements in PP device design and surgical protocols [8].

In Cameroon, this surgical practice is recent, introduced in November 2022. Hence, the interest in carrying out a preliminary study on the results obtained in our first 35 cases.

The aim of our work was to study the indications (sociodemographic and clinical characteristics) and the results obtained in patients who underwent PP insertion in a context of surgical innovation at the Yaoundé Central Hospital (YCH) and at the Douala Laquintinie Hospital (DLH) over a period of eighteen months.

2. Methodology

We conducted a descriptive cross-sectional study with prospective data collection over a period of six (06) months from 1 January to 30 June 2024 in the urology and andrology departments of the YCH and DLH. Patients who had been recipients of penile prosthesis since November 2022 in these two centers for the management of ED and who agreed to take part in our study were included. Variables studied were the indications (sociodemographic and clinical characteristics) and the results obtained. The severity of ED was assessed using the IIEF5 score and patient satisfaction after surgery using the LIKERT scale (not at all satisfied, not satisfied, mixed, satisfied, very satisfied). The data collected using a pre-established and confidential survey form were entered and analysed using SPSS version 23.0 software (Figure 1).

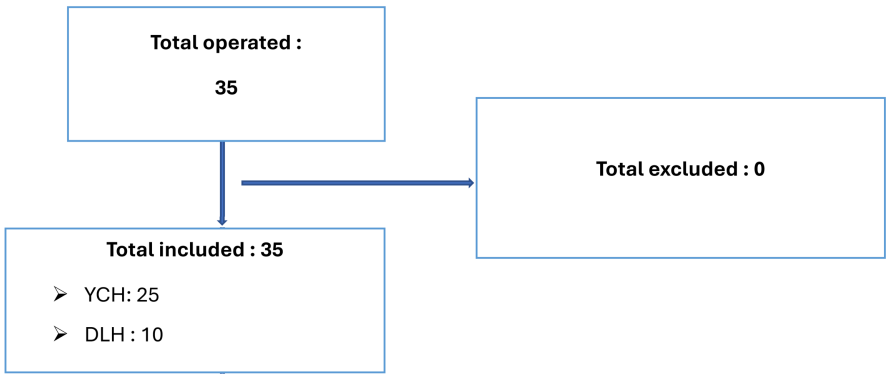

Figure 1. Patient flow chart.

3. Results

3.1. Sociodemographic Characteristics of the Study Population

The mean age of the patients was 65 (62 - 72) years, with extremes ranging from 24 to 84 years. Most of our patients were between 60 and 69 years of age in 46.7% of cases, married in 93.3% of cases and had a higher level of education in 60.0% of cases. Permanent employment was noted in 53.3% of cases (Table 1).

Table 1. Distribution of patients based on sociodemographic characteristics.

Variables	Quantity (N = 35)	Frequency (%)
Age groups (years)		
<60	7	20.0
60 - 69	16	46.7
≥70	12	33.3
Matrimonial status		
Monogamy	26	73.3
Polygamy	7	20.0
Single	2	6.7
Level of éducation		
None	2	6.7
Primary	5	13.3
Secondary	7	20.0
Higher	21	60.0
Profession		
Retired	12	33.3
Public service	9	26.7
Private sector	5	13.3
Informal sector	5	13.3
Student	2	6.7
Unemployed	2	6.7

3.2. Clinical Characteristics of the Study Population

—Urological history

Urological comorbidities were present in 28 patients, 80.0% of cases and dominated by prostate tumours in 66.7% (n = 23) of cases, 53.3% (n = 19) being cases of prostate cancer. A history of urologic surgery was recorded in 60.0% (n = 21) of cases, mainly characterised by a history of radical prostatectomy in 53.3% (n = 11) of cases (Table 2).

—Medical and toxicological history

Psychological history and co-morbidities were found in all our patients. Performance anxiety was present in 66.7% (n = 23) of cases and stress in 53.3% (n = 19). On the other hand, hypertension was found in 60.0% (n = 21) of cases and diabetes in 26.7% (n = 9). Histories of alcohol and tobacco consumption were found in 53.3% (n = 19) and 20.0% (n = 7) of cases, respectively (Table 3).

Table 2. Patient distribution according to urologic past history.

Variables	Quantity (N = 35)	Frequency (%)
Urologic comorbidities		
None	7	20.0
Prostate cancer	19	53.3
Benign prostate hyperplasia	5	13.3
Priapism	2	6.7
Cavernous body fibrosis	2	6.7
History of Urologic Surgery		
None	14	40.0
Yes	21	60.0
Radical prostatectomy	11	53.3
Simple prostatectomy	2	6.7
Orchidectomy	2	6.7
Inguinal hernioraphy	2	6.7
Caverno-spongious shunt	2	6.7
Varicocoelectomy	2	6.7

Table 3. Patient distribution according to medical and toxicology history.

Variables	Quantity (N = 35)	Frequency (%)
Psychologic history		
Performance anxiety	23	66.7
Stress	19	53.3
Lack of sexual excitation	5	13.3
Marital problems	5	13.3
Depression	2	6.7
Comorbidities		
HT	21	60.0
Diabetes	9	26.7
CVA	5	13.3
Dyslipidemia	5	13.3
SSD	2	6.7
Hemorroids	2	6.7

Continued

Toxicology		
Alcohol	19	53.3
Tobacco	7	20.0

3.3. Characteristics of Erectile Dysfunction

—Mode of onset and duration of disease

The onset of erectile dysfunction was progressive in most cases (80.0%, n = 28), evolving over 3 to 4 years in most cases, 40.0% (n = 14). The mean duration of the disease was 3 (2 - 4) years, with extremes ranging from 7 months to 8 years , as seen in Table 4.

Table 4. Patient distribution according to mode of onset and duration of symptoms.

Variables	Quantity (N = 35)	Frequency (%)
Mode of onset		
Sudden	7	20.0
Progresive	28	80.0
Duration of symptoms (in years)		
<1	5	13.3
1 - 2	9	26.7
3 - 4	14	40.0
≥5	7	20.0

—Types, forms and degree of erectile dysfunction

The origin of the erectile dysfunction was organic in most patients, 80.0% (n = 28) of cases, and a vascular aetiology was the most dominant, as it was found in 40.0% (n = 14) of our patients. (Table 5)

Table 5. Patient distribution according to types, forms and degree of ED.

Variables	Quantity (N = 35)	Frequency (%)
Types of ED		
Organic	19	53.3
Non organic	7	20.0
Mixed	9	26.7
Organic forms		
Vascular	14	40.0
Neurogenic	9	26.7
Medications	5	13.3

Continued

Non-organic forms		
Secondary	7	20.0
Others	0	0.0

Patient classification according to the IIEF5 score objectified severe ED in all our patients

3.4. Treatment

—Medical management

Management of ED prior to surgery in all our patients was based on a phosphodiesterase type 5 inhibitor in all cases (100.0%), sometimes combined, 46.7% (n = 16) with intracorporeal injection therapy. (Table 6)

Table 6. Patient distribution according to type of medical treatment before surgery.

Variables	Quantity (N = 35)	Frequency (%)
Oral treatment (PDE5 inhibitor)		
Sildénafil	28	80.0
Tadalafil	7	20.0
Intracorporelle Injection		
Yes	16	46.7
No	19	53.3

—Surgical management

All our patients systematically had psychologist evaluation prior to the PP surgery and a bailiff's deed enacted. The latter is necessary to ensure that the patient has fully understood the procedure to be performed.

The type of anaesthesia used in all our patients was spinal anaesthesia. The approach was via a penoscrotal incision in all our patients. The malleable implant was used in 80.0% (n = 28) of our patients as depicted in Figure 2. The duration of the surgical procedure was an hour in the majority of cases (66.7%; n = 23) and blood loss was assessed as minimal in 80.0% (n = 28) of cases. (Table 7)

3.5. Evolution

—Early postoperative complications

Postoperative complications occurred early, in 40.0% (n = 14) of our patients. They were essentially marked by residual pain at the surgical site in 20.0% (n = 7) and surgical site infections were found in 13.3% (n = 5) of our patients (Figure 3).

(A) (B) (C)

Figure 2. Penis with malleable prosthesis in place: (A = day 1 postoperative HCY image, B = day 50 postoperative HCY image, C = ZIS schematic malleable prosthesis in place).

Table 7. Distribution according to surgical management characteristics.

Variables	Quantity (N = 35)	Frequency (%)
Type of anaesthesia		
Spinal	35	100.0
Other	0	0.0
Incision		
Peno-scrotale	35	100.0
Other	0	0.0
Type of implant used		
Malleable	28	80.0
Inflatable with 3 compartments	5	13.3
Inflatable with 2 compartments	2	6.7
Blood loss		
Minimal	28	80.0
Moderate	7	20.0
Duration (hours)		
1	23	66.7
2	10	26.7
3	2	6.7

—Evolution of sexual function

Evaluation of the size of the patient's penis after surgery enabled us to record satisfaction in 60.0% (n = 21) of cases. Sexual activity was resumed in 80.0% (n =

28) of our patients by the sixth week after surgery. These were satisfied in 75.0% of cases and very satisfied in 25.0% of cases. (Table 8)

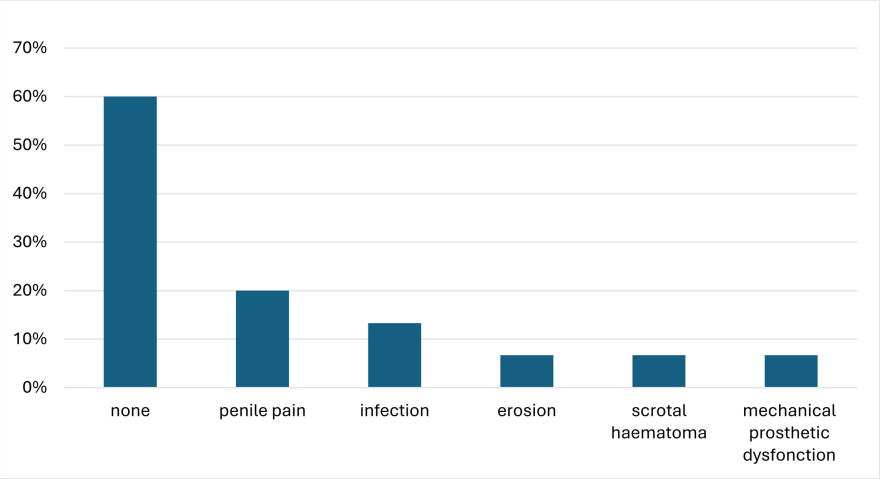

Figure 3. Patient spread according to post operative complications.

Table 8. Distribution according to sexual function characteristics after surgery.

Variables	Quantity (N = 35)	Frequency (%)
Satisfaction by size of penis		
Generally satisfied	2	6.7
Very satisfied	2	6.7
Satisfied	17	46.7
Not satisfied	14	40.0
Time to restart sexual activities		
None	7	20.0
1 month	14	40.0
2 months	14	40.0
Frequency of sexual encounters (n = 28)		
once per month	14	50.0
2 times per month	5	16.7
4 times per month	2	8.3
8 times per month	7	25.0
Satisfaction during sexual intercourse (n = 28)		
Very satisfied	7	25.0
Satisfied	21	75.0

4. Discussion

4.1. Socio-Demographic Characteristics

In standard literature, the elderly age group is most affected by ED. It is also the age group in which cardiovascular pathologies/risk factors such as hypertension, diabetes, alcoholism, smoking and prostatic pathologies emerge [4] [9] [10]. Our results are consistent with those in standard literature concerning the mean age of patients in our series which was 65 (62 - 75) years, with extremes ranging from 24 to 84 years. The age group most represented was that of patients aged over 60, *i.e.* 46.7% (n = 16).

Literature states that sexual intercourse is part of marital duties and any failure to do so may be negatively felt by the spouse, who just wants to be satisfied [11]. Most of our patients in the study were married (93.3%; n = 33), which corroborates this data and also demonstrates the importance of sexual intercourse in preserving couple harmony.

Literature shows the influence of education and intellectual level on facilitating patient adherence to this type of treatment, as the level of education may encourage the patient to seek information about ED treatment and a better understanding of the problem [12]. The level of education of our patients was the highest in our series (60.0%; n = 21), and more than half of our patients were gainfully employed (53.3%; n = 19), in a social setting where the unemployment rate is very high, with a minimum wage set at less than 50,000 XAF (US$90).

—Urological history.

In our study, urological comorbidities were present in 28 patients (80.0%), dominated by prostate tumours in 66.7% (n = 23) of cases, including 53.3% prostate cancer (n = 19). A history of urological surgery was seen in 21 patients (60.0%), mainly characterised by a history of radical prostatectomy in 53.3% of cases (n = 19).

4.2. Medical and Toxicological History

In standard literature, surgical and medical history are frequent and important aetiologies of ED, and are also responsible for the insertion of a penile implant [13] [14]. In our study, medical comorbidities were also found in all cases (100.0%) and were dominated by hypertension (60.0%; n = 21) and diabetes (26.7%; n = 9). The frequency of alcohol and tobacco use was 53.3% (n = 19) and 20.0% (n = 7), respectively.

4.3. Characteristics of Erectile Dysfunction

—Mode of onset and duration of the disease

In the work of Bouye et al, the onset of ED is progressive in 80% of cases, and according to other authors, it has a duration of 3 years [2] [4]. However, in our series, we recorded extremes of 7 months and 8 years for the onset of ED in 40.0% (n = 14), which is comparable to the 2.6 ± 2.2 years (3 months to 9 years) seen in

the work of Bouye et al and with other authors [12,15,16]. This delay in diagnosis, perhaps due to the "taboo" nature of the subject in our environment and also because of the emergence of adverts on traditional medicine and its possible benefits, as vented by the media and social networks in the management of ED, may also lead to a complex therapeutic itinerary and a long delay to consultation.

—Types, forms and degrees of erectile dysfunction

The origin of erectile dysfunction in our study was organic in most patients (80.0%, n = 28), with vascular dysfunction the dominant organic form (40.0%, n = 14). Hypertension and diabetes were found respectively in our study with 60.0% (n = 21) and 26.7% (n = 9) percentages. The work by Souillac *et al*. found organic ED in 99% of cases [17]. These results are almost similar to those presented here.

In literature, PP is a viable option for people suffering from severe ED according to the IIEF-5 score. However, the degree of severity could be due not only to a primary cause of the disease, but also to poor sexual function, which compromises quality of life and leads to a vicious circle that does not necessarily improve conditions. This is one of the reasons for the failure of medical treatment for ED, which may lead to the indication for an implant [18, 19]. In our study, sexual function problems were severe in all cases (100%).

4.4. Treatment

—Medical management

In standard literature, it is recommended that patients should be encouraged to make early decisions about whether or not to have a PP implanted, as medical treatment often has its limitations and there is no point insisting on it given that early decision making towards PP surgery has a positive impact on the length and size of the penis, hence the importance of patients deciding early [19]. In our series, the initial management of all our patients prior to ED surgery for at least 6 months was based on a phosphodiesterase type 5 inhibitor in all cases (100.0%) and sometimes combined with intra-cavernosal injection therapy, 46.7% (n = 16)

—Surgical management

In literature, PP insertion surgery is generally performed under general anaesthesia, sometimes after consultation with a psychologist, and sometimes with a bailiff [4] [7] [11]. In our work, the surgery was performed under spinal anaesthesia in 100.0% of cases, and all our patients systematically benefited from a psychologist's consultation before the PP surgery. A bailiff's deed was equally drawn up, which was necessary to ensure that the patient had fully understood all the details of the procedure which corroborates data from previously published work on the subject. This psychological evaluation beforehand helps ensure that patients are in a good mental state to proceed and manage any stress during the entire process. Good mental health is tied to optimal surgical recovery. Also, this evaluation helps determine whether the patient's motivations/expectations are healthy and realistic.

In standard literature, two surgical approaches are recommended: the penoscrotal or infra-pubic approach, depending on the surgeon's experience and the patient's

anatomy. The infra-pubic approach has been adopted in the past for the implantation of inflatable penile prostheses for reasons such as faster insertion of the implant and easier placement of the reservoirs. However, with the infra-pubic approach, the recurrence of complications such as high risk of sensory nerve damage, difficulty in placing the pump and an invisible urethra have emerged, and this surgical approach has now been completely abandoned and replaced by the peno-scrotal approach which appears to be more advantageous for PP implantation [11] [13] [19]. In our series, the surgical approach in all our patients was penoscrotal.

In literature, the three-compartment penile prosthesis is considered to be the "gold standard" [4] [19] [20]. In our work, the malleable implant type was used in 80.0% (n = 28) of cases. Our preference for this type of PP can be explained by its cost advantages, low failure rate, relatively low mechanical failure rate, simplified surgical implantation and ease of use by patient. The inflatable device although it's more natural to use, is more technically demanding to implant and has higher failure rates. In our early experience, we opted to avoid these challenges.

4.5. Evolution

—Early post-operative complications

In literature, the rate of infectious complications is 1 to 2% (low risk) and 2 to 3% (high risk) [19]. In our study, the frequency of early postoperative complications was 40.0% (n = 14) in our patients, dominated by residual penile pain in 20.0% (n = 7) and postoperative infections in 13.3% (n = 5). We believe that residual pain was caused by possible nerve damage during surgery and/or the type of prosthesis. This pain was managed firstly by patient education on the probable etiology and with second-tier analgesic drugs. They all had reduction in pain scores. The surgical site infections were successfully managed with careful wound dressings plus adequate antibiotherapy.

We witnessed a single case of post-traumatic PP erosion. It was managed by device replacement at a considerable distance from the extrusion event.

—Progression of sexual function

In literature, the time to activation of the prosthesis and resumption of sexual activity after surgery is 4 to 6 weeks, and the time to resumption of sexual activity makes it possible to verify healing and reduction of local sensitivity authorising resumption of sexual intercourse [6] [20] [21]. In our study, 12 of our patients (80.0%) were allowed to resume sexual activity 6 weeks after surgery. Our patients were 75.0% satisfied and 25.0% very satisfied with their sexual activity. From the results obtained in our study, we can deduce that satisfaction among our patients and their partners was good according to the LIKERT scale.

Future research on this topic will definitely provide more information on long-term complications and patient satisfaction

5. Conclusion

Erectile dysfunction mainly affects people over 60 years of age. The main risk factors for erectile dysfunction are hypertension, diabetes and prostatic pathology,

and the evaluation of patients after surgery was good.

Consent and Approval

This study received ethical approval from an Institutional Review Board (IRB) and informed consent was obtained from all study participants.

Conflicts of Interest

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

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