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Original Article

Clinico-Epidemiological Pattern of Penile Emergency in a Nigerian Hospital

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Abstract

Objective: Acute penile condition is a relatively uncommon urological emergency. This condition may lead to penile organ dysfunction if intervention is delayed. The commonly seen penile emergencies are priapism, penile fracture, and traumatic penile injury, among others. Our objective was to review all cases of penile emergencies managed over a period of four years (2021-2024) at our center.

Patients and Methods: This was a retrospective review of all cases managed for penile emergencies over a period of four years. The case files of the patients were retrieved from the hospital record department. The information extracted was written in a designed proforma. A descriptive statistic was carried out on the data.

Results: A total number of 19 cases of penile emergencies were managed during the years under review. The age range of the study group was 0.08-46 years, with a median of 23.9 ± 11.44 SD. The median duration of symptoms at presentation was 64.4 ± 123.2 SD with a range of 2 hours -504 hours. About half of the cases were traumatic (10 patients, 52.6%). The review of the underlined etiology showed sickle cell anemia, coital trauma, self-inflicted genital mutilation, circumcision injury, blunt penile trauma, and Fournier gangrene. Twelve patients (63.2%) had surgical intervention, while the rest were managed non-operatively. Post-intervention evaluation of erectile function done in three priapic patients with partners showed severe erectile dysfunction.

Conclusion: The most common (nontraumatic) penile emergency from this series was low-flow priapism. The majority of them had successful nonoperative measures with diluted adrenaline. Adrenaline may be an alternative sympathomimetic drug to the more preferred phenylephrine when not available. Other acute penile conditions noted were penile fracture and penile amputation, some of which had successful emergency interventions.

Keywords: Penile emergency, Priapism, Penile fracture

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Introduction

Acute penile condition is a relatively uncommon urological emergency.[1] This condition may lead to penile organ dysfunction if intervention is delayed. The commonly seen penile emergencies are priapism, penile fracture, and traumatic penile injury, among others.[2] Acute penile pain is one of the most common symptoms at presentation. Penile emergencies may be traumatic or nontraumatic. Some of the traumatic penile emergencies are penile fracture, penile amputation, and penile soft tissue injury, among others, while some of the non traumatic are priapism, phimosis, and paraphimosis. The global incidence of penile emergencies depends on the etiology. The overall incidence of priapism is estimated at 0.73-5.4/100,000 men/year, while the overall yearly incidence of penile fracture in the United States was reported to be 1 case per 175,000 men.[3] Diagnosis is usually clinical; however, ambiguous cases may require imaging evaluation, such as penile ultrasound, magnetic resonance imaging, and laboratory investigation. Immediate intervention is important for organ functional and anatomical preservation.[4] The type of surgical intervention depends on the type of penile emergency. The management of ischaemic priapism includes therapeutic corporeal aspiration and saline irrigation. Some may resolve with these measures, while others may require intracavernosal injection of sympathomimetic drugs and surgical shunting before resolution.[5] The management of penile amputation depends on the grade of the injury. Some of them may benefit from immediate macroscopic or microscopic reattachment, while others in which reattachment is not feasible may undergo refashioning plus urethrostomy or suprapubic urinary diversion.[6] Penile fracture is managed by surgical exploration and repair of ruptured tunica albuginea. Post-intervention evaluation of erectile function is of paramount importance. Our objective was to review all cases of penile emergencies managed over a period of four years (2021-2024) at our center.

Patients and Methods

This was a four-year retrospective review of all cases managed for penile emergencies. The patient's case files were retrieved from the hospital record department. The information extracted included the patients' ages, type of penile emergency, etiology of penile emergency, duration of symptoms at presentation, and type of surgical or medical intervention. Patients with incomplete data were excluded from the study. This was written in a designed proforma. Data was entered into SPSS version 23 for descriptive analysis.

Results

A total number of 19 cases of penile emergencies were managed during the years under review. The age range of the study group was 0.08-46 years, with a mean of 23.9 ± 11.44 SD. The mean duration of symptoms at presentation was 64.4 ± 123.2 SD with a range of 2 hours -504 hours. About half of the cases were traumatic (10 patients, 52.6%). Others were nontraumatic. The most common (nontraumatic) penile emergency was low flow priapism (8 patients, 42.1%). Others were penile fracture (4 patients, 21.1%), penile amputation (4 patients, 21.1%) and, penile laceration, penile Fournier gangrene, & penile ring impaction (1 patient each, 5.3%) (Table 1). Three (75%) out of the cases of penile amputation were grade iii, while the fourth case was grade iv (Table 2). Two of the cases of penile amputation were as a result of self-mutilation. These were complete amputations, but the penile stump could not be retrieved, while the other two cases, as a result of circumcision injury, presented with gangrenous stump. The review of the underlined etiology showed sickle cell anemia, coital trauma, penile self-inflicted genital mutilation, circumcision injury, blunt penile trauma, and Fournier gangrene (Table 3). Twelve patients (63.2%) had surgical intervention, while the rest were managed non-operatively. Concerning priapism, six (75%) out of the eight patients had successful medical interventions with diluted adrenaline following the failure of therapeutic corporeal aspiration. In contrast, the remaining two had open distal surgical shunting (Al-Ghorab technique) following the failure of medical intervention. These two cases were drug (Viagra) induced ischemic priapism. There were two cases of recurrent low-flow priapism in patients with sickle cell anemia. This was managed non-operatively. There was no case of high flow priapism. No patient was placed on anti-androgen for the prevention of priapism. All the cases of penile amputation had corporeal refashioning plus urethrostomy and catheterization, except one that had suprapubic urinary diversion. Patients with penile amputation were referred for phalloplasty. Post-intervention evaluation of erectile

function done in three priapic patients with partners showed severe erectile dysfunction. The erection hardness score was zero following combined injection and stimulation with papaverine. Two out of these three cases were drug-induced, while the third one was a case of sickle cell anemia. The patients were referred for penile prosthesis. All the patients with penile fractures reported satisfactory erectile function on follow-up.

Table 1 Showing the frequency of acute penile conditions

S/N	Penile emergency	Frequency (n = 19)	Percentage (%)
1	Priapism	8	42.1
	Penile fracture	4	21.1
	Penile amputation	4	21.1
	Ring impaction	1	5.3
	Penile laceration	1	5.3
	Fournier gangrene	1	5.3

Table 2 Showing the etiology and grade of penile amputation among the study group

S/N	Etiology	Grade
1	Self-mutilation	iii
2	Self-mutilation	iii
3	Circumcision injury	iii
4	Circumcision injury	iv

Table 3 Showing the basic and clinical data of the study group

S/N	Age (years)	Penile emergency	Etiology	Duration of symptoms (hours)	Type of surgical intervention
1	29 days	Penile amputation	Circumcision injury	2	Suprapubic cystostomy
2	45 days	Penile amputation	Circumcision injury	3	Urethrostomy plus catheterization
3	32	Ischemic priapism	Viagra, tramadol-induced	504	Surgical shunting
4	22	Penile amputation	Self-inflicted genital mutilation (Psychosis disorder)	3	Urethrostomy plus catheterization
5	26	Penile laceration	Blunt trauma	96	Primary suturing
6	28	Ring impaction	Penile ring	5	Removal with bone cutter
7	32	Penile fracture	Coital trauma	24	Repair
8	36	Penile fracture	Coital trauma	6	Repair
9	24	Penile fracture	Coital trauma	4	Repair
10	28	Penile fracture	Coital trauma	96	Repair
11	22	Ischemic priapism	Sickle cell disease	24	Medical therapy
12	20	Ischemic priapism	Sickle cell disease	24	Medical therapy
13	21	Ischemic priapism	Sickle cell disease	8	Medical therapy
14	20	Ischemic priapism	Sickle cell disease	2	Medical therapy
15	18	Ischemic priapism	Sickle cell disease	48	Medical therapy
16	15	Ischemic priapism	Sickle cell disease	4	Medical therapy
17	40	Fournier gangrene	Diabetes mellitus	264	Healing by secondary intention
18	46	Penile amputation	Self-inflicted genital mutilation (Psychosis disorder)	4	Urethrostomy plus catheterization
19	32	Ischemic priapism	Viagra induced	168	Surgical shunting

Discussion

This review has further established the rarity of penile urological emergencies. A review of 19 cases over a period of four years in a referral center may be a pointer to its rarity. The overall incidence of penile emergency is largely unknown due to the rarity of the condition.[7] Some of the studies on penile emergency are largely case reports.[8] These cases were either penile fracture priapism or penile amputation, among others. In a study conducted in France on urological emergencies, the only penile emergency observed was priapism, and it was among the least.[9] Similarly, in a review by Salako et al. in Nigeria, priapism was the least core urological emergency.[10] All these have given credence to the rarity of penile emergencies.

The establishment of priapism as the most common nontraumatic penile emergency followed by penile fracture from this study is in agreement with similar series in the medical literature.[11] Other types of penile emergencies are less frequently reported. Generally, the incidence of priapism is around 0.3-1.5/100,000 compared with penile fracture, which is around 0.2-1.3/100,000.[12]

It was observed that traumatic penile emergency was slightly higher than non-traumatic type. This was in consonance with similar previous studies.[13] Although there are several causes of low-flow priapism, sickle cell anemia has been described as the most frequent cause, and this study did not observe otherwise. We observed two of the cases of priapism were as a result of intake of Sildenafil (Viagra). Sildenafil is an uncommon inducer of priapism.[14] The report on Viagra-induced priapism is scanty in the medical literature.[15] This study has shown the risk of priapism following Viagra. Some of the commoner drugs that have been associated with ischemic priapism are psychotropic drugs, antihypertensive drugs, and heparin, among others.[16]

The etiology of penile fracture noted in this review was in accordance with the existing literature. Although coital trauma has been reported to be the most frequent cause in a previous meta-analysis study, forced flexion, masturbation, and rolling in bed on an erect penis have also been implicated.[8]

We observed four cases of penile amputation, two in adults secondary to self-mutilation and the other two noted in neonates as a result of circumcision injury. The findings from this study agree with the most commonly reported etiology of penile amputation in adults, which are self-mutilation and trauma. Similarly, in children, our findings agree with the frequent causes of penile amputation, which are traumatic circumcision and automobile accidents.[17] The incident of penile self-mutilation is very rare. It was noted by Vishal Mago in 2011 that only 57 cases of penile self-mutilation existed in the English literature.[18] The two cases noted in this study were the only cases ever seen in our environment. In a study conducted by Oranusi et al.[19] in Nigeria on traumatic penile injury, it was noted that penile self-mutilation accounted for six out of 23 cases of penile injury. This is in contrast to what was observed in this study.

All the cases of priapism reviewed in this study were low flow. This finding was not different from some other previous reviews in a similar setting.[20] This may be a pointer to the relative rarity of high-flow priapism in our environment. This was in contrast to the findings from a similar study conducted by Toshihiro et al., who had two cases of high-flow priapism out of five cases reviewed.[21]

The majority of the patients with priapism were managed non-operatively with either corporeal aspiration alone or, in addition, with sympathomimetic injection. Although phenylephrine is preferred because of its lower side effect profile,[22] epinephrine was used because phenylephrine was not readily available. Some of the patients were managed successfully, and no adverse effects were reported. Some authors have reported similar experiences on the use of epinephrine in priapism. Surgical shunting was necessary in only two patients following the failure of non-operative measures. The failure of medical therapy in these two cases may result from extensive thrombus formation within the cavernosal sinusoids due to delayed presentation, as noted. This was different from what was reported by Ugumba et al. and Badmus et al., where a larger number of the cases investigated had surgical shunting.[23,24] Erectile dysfunction was noted in these two cases that had surgical shunting, perhaps due to delayed presentation. This may be linked to poor healthcare-seeking behavior in our environment.

No consideration was given to conservative management of penile fracture in this study as all the patients had immediate surgical repair. Conservative management has been reported in the literature to be associated with more morbidity compared with surgical care. This review did not observe any morbidity following surgical repair, as all the patients reported satisfactory erectile function.

The approach to penile amputation depends on the grade of the injury. Grades iii and iv were noted in this series, and none of them had an attempt at replantation because amputated penile stumps could not be retrieved in some of them while others were already gangrenous.

Other relatively rare etiologies of penile emergency noted in this review were penile Fournier gangrene and penile ring impaction. Penile Fournier gangrene was managed conservatively, but some authors have reported the need for penile soft tissue reconstruction. This is probably dependent on the level of tissue disruption.

Conclusion

The most common penile emergency from this series was low-flow priapism, and the most common presentation was acute penile pain. The majority of the patients with priapism had successful non-operative measures with diluted adrenaline. Adrenaline may be an alternative sympathomimetic drug to the more preferred phenylephrine when not available. Other acute penile conditions noted were penile fracture and penile amputation, some of which had successful emergency interventions. Erectile dysfunction may complicate priapism, especially when presentation is delayed. Sexual activity remains the most common cause of penile fracture.

Early presentation and prompt intervention are key to penile function preservation and prevention of long-term complications such as penile curvature and peyronies disease following acute penile condition. Regular public enlightenment on acute penile conditions is imperative to early presentation and prompt care.

Limitation

1. This study is prone to recall bias due to its retrospective nature.

2. The findings from this study may not be generalized due to the low sample size and single-center study, even though this clinical condition is uncommon.

Conflict of interest

All authors declare no conflict of interest.

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Nil.

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