

Severity of malcircumcisions and circumcision-related complications in three tertiary health facilities in Southern Nigeria

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Background Complications following circumcision are well recognized. In our environment, it is relatively common and frequently encountered in pediatric surgical practice. While some may be easily corrected others may be more tasking and even life threatening. There is need to identify the serious complications, and to proffer ways of preventing them or managing them when they occur. We aimed to evaluate the spectrum of malcircumcision and circumcision related complications in our region and to identify the major challenging ones.

Patients and methods Data was prospectively obtained from all male children presenting with malcircumcisions or circumcision related complications in three tertiary health facilities in southern Nigeria between June 2006 and May 2013. Data included complication presented, age, circumcisionist, method of circumcision, treatment offered, outcome.

Results A total of 126 male children with 143 malcircumcisions or complicated circumcisions were seen within the period. The spectrum ranged from minor glandular adhesions to penile amputation and life threatening excessive bleeding.

Introduction

Circumcision is among the oldest surgical procedures known to man. In our region, circumcision has been traditionally performed for both the male and the female child as far back as history can trace [1,2]. Female circumcision is, however, now widely recognized as female genital mutilation and cutting, and though still prevalent, is on a downward trend. Conversely, circumcision of the male child persists as one of the commonest surgical procedures performed in our region. There is no specific qualification requirement to perform circumcision in our setting. Expectedly therefore, malcircumcisions and circumcision-related complications (MCRC) are very commonly encountered in our environment. This high incidence of MCRC in our region has been highlighted in previous studies [3]. Similar experiences of these circumcision-related complications have also been reported in other regions of the world [4,5]. Although they all arise from circumcision, the challenges of treatment and attendant morbidity are widely variable for the various types. We conceived that categorizing these complications on the basis of clear identifiable indices will offer the patient a better chance of getting appropriate treatment and forestall some of the secondary complications that arise from attempts at their correction. There is a need to identify the severe complications and to proffer ways of preventing them or managing them when they occur.

Procedures Included: manual removal of plastibell, suture ligation of bleeding vessel, adhesiolysis, preputial trimming, meatoplasty, urethroplasty, fistuloplasty, glanuloplasty and penile repair. Most tasking were urethral loss, fistula closure and glanular amputation. There were no deaths.

Conclusion Circumcision related complications are common in our region. Penile amputation, urethral loss, and fistulae are the most challenging complications. There is need to educate the health workers and general public on the hazard of untrained circumcisionists. *Ann Pediatr Surg* 14:130–133 © 2018 Annals of Pediatric Surgery.

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Aim

The aim was to evaluate the spectrum of MCRCs in our region and to identify the major challenging ones.

Patients and methods

Data were prospectively obtained from consecutive cases of male children presenting with MCRC at the Children Emergency Ward, Pediatric surgical, and urology outpatient clinics of three tertiary health facilities in South East and South South Nigeria between June 2006 and May 2013.

Exclusion criteria

Patients with structural distortion of the penis owing to other causes were not excluded. Cases of nonstructural circumcision-related complications like transmission of infections were excluded. MCRC was defined as any structural defect or excessive bleeding following circumcision, which causes cosmetic or functional distortion of the penis or poses a threat to patient's life. Data included type of MCRC, mode of presentation, age at presentation, circumcisionist, treatment offered, duration of admission if needed, cadre of doctor who treated, and outcome of treatment. MCRC were categorized as minor, moderate, or severe based on presence or absence of the following parameters: threat to life, need for admission more than 48 h, cadre of doctor required to treat patient, and occurrence of secondary complications. Data were subjected to simple statistical analysis using the

Table 1 Malcircumcisions and circumcision-related complications

Complication/malcircumcision	Cases (N= 143) [n (%)]
Uncontrollable bleeding	12 (8.4)
Retained plastibell	28 (19.6)
Redundant foreskin	21 (14.7)
Peno/glandular amputation	4 (2.8)
Penoglandular adhesions	34 (23.8)
Meatal stenosis	6 (4.2)
Implantation dermoid	13 (9.0)
Phymosis/buried penis	5 (3.5)
Distal urethral loss	6 (4.2)
Urethrocutaneous fistula	14 (9.8)

Fig. 1

Severely complicated circumcisions.

Fig. 2

Severely complicated circumcisions.

Microsoft Excel software (Microsoft corporation, Redmond, Washington, USA).

Results

A total of 126 male children with 143 MCRC were seen within the period. Nineteen patients presented as

Table 2 Circumcisionists

Circumcisionist	Patients (N= 143)
Medical doctor	25
Trained nurse	48
Untrained nurse/chemist	24
Natives	9
Birth attendant	14
Undetermined (performed overseas)	13
Undetermined (performed in Nigeria)	10

Table 3 Procedures for correction

Procedures for treatment	Cases (N= 143)
Manual extraction of plastibell	28
Adhesiolysis and preputial trimming	31
Suture ligation for bleeders	11
Blood transfusion	2
Penile/glandulo/urethroplasty	4
Urethroplasty	8
Fistula repair	12
Dermoid cyst excision	13
Meatoplasty	6
Redocircumcision	28

Table 4 Patients distribution according to duration of admission

Patients	None [n (%)]	Day case [n (%)]	2–7 days [n (%)]	> 2 weeks [n (%)]
Excessive bleeding	10 (83.3)	–	2 (16.7)	–
Retained plastibell	28 (100)	–	–	–
Redundant foreskin	–	21 (100)	–	–
Penile/glanular amputation	–	–	1 (25)	3 (75)
Penoglandular adhesions	–	34 (100)	–	–
Meatal stenosis	–	6 (100)	–	–
Implantation dermoid	–	13 (100)	–	–
Phymosis/buried penis	–	3 (60)	2 (40)	–
Distal urethral loss	–	–	1 (16.7)	5 (83.3)
Urethrocutaneous fistula	–	–	8 (57.1)	6 (42.9)

emergency with excessive bleeding or acute urinary retention, and 124 presented as elective cases. The spectrum of MCRC seen is shown in Table 1. They comprised a wide range (Figs 1 and 2). The most common was glandular adhesions. Twelve patients had bled uncontrollably necessitating their presentation to us as an emergency. This was considered a threat to life as two of them had to be transfused urgently to save them. The clotting profile done for these patients, however, showed normal values. The age of presentation ranged from 1 week to 12 years with median age group at 1–12 months. The circumcisionists who performed the circumcisions leading to the MCRC are shown in Table 2. Most of the cases were corrected under regional or general anaesthesia. Plastibell removal required only topical anaesthesia. Procedures and interventions to manage or correct the MCRC are shown in Table 3. Most cases were corrected as day case, but some required admissions for more than 48 h (Table 4). Secondary complications were seen following correction in some of the MCRC (Table 5). Using the stated criteria for categorization, severe MCRC are penile and glandular amputations, distal urethral loss, and urethrocutaneous

Table 5 Secondary complications

Patients	Secondary complications [n (%)]				
	Satisfactory	Recurrence	Fistulation	Wound breakdown	Stricture
Excessive bleeding	12	–	–	–	–
Retained plastibell	28 (100)	–	–	–	–
Redundant foreskin	21	–	–	–	–
Penile/glanular amputation	2	–	1	1 (25)	–
Penoglandular adhesions	29	5	–	–	–
Meatal stenosis	6 (100)	–	–	–	–
Implantation dermoid	13 (100)	–	–	–	–
Phymosis/buried penis	5	–	–	–	–
Distal urethral loss	4	–	1 (16.7)	1 (16.7)	–
Urethrocutaneous fistula	9	–	3 (33)	–	1 (11)

Table 6 Severity of malcircumcision or complications

Patients	Post correction complications	Admission >24 h	Immediate threat to life	Specialist grade required	Severity
Uncontrollable bleeding	–	Yes	Yes	–	Moderate
Retained plastibell	–	–	–	–	Minor
Redundant foreskin	–	–	–	–	Minor
Penile/glanular amputation	Yes	Yes	Yes	Yes	Severe
Penoglandular adhesions	Yes	–	–	Yes	Moderate
Meatal stenosis	–	–	–	–	Minor
Implantation dermoid	–	–	–	–	Minor
Phymosis/buried penis	–	Yes	–	Yes	Moderate
Distal urethral loss	Yes	Yes	–	Yes	Severe
Urethrocutaneous fistula	Yes	Yes	–	Yes	Severe

Table 7 Distribution of circumcision related complications according to the circumcisionists

Patients	Circumcisionists						
	Med doctor	Trained nurse	Untrained nurse/chemist	Natives	Birth attendant	Abroad	Undetermined
Uncontrollable bleeding	–	–	8	3	1	–	–
Retained plastibell	21	7	–	–	–	–	–
Redundant foreskin	2	2	4	–	–	13	–
Penile/glanular amputation	–	–	3	1	–	–	–
Penoglandular adhesions	–	19	4	2	3	–	6
Meatal stenosis	–	4	2	–	–	–	–
Implantation dermoid	2	7	1	–	2	–	1
Phymosis/buried penis	–	–	3	–	2	–	–
Distal urethral loss	1	2	3	–	–	–	–
Urethrocutaneous fistula	1	7	5	1	–	–	–
Total	27	48	33	7	8	13	7

fistula; moderate MCRC are phymosis and buried penis, penoglandular adhesions, and uncontrollable bleeding; and mild MCRC are retained plastibell, redundant foreskin, meatal stenosis, and implantation dermoid (Table 6). Matching the various categories of the MCRC against the circumcisionist, most severe MCRC were caused by untrained hands, whereas most minor MCRC occurred with trained hands (Table 7).

Discussion

Circumcision of the male child remains an important part of the cultural and religious life of people in our region of the world. It entails complete removal of the preputial skin from the penis. There has been long-standing discussions about the medical benefit or otherwise of this surgical procedure [6,7]. Although circumcision is a treatment option for phymosis and paraphymosis and may be beneficial in prevention of HIV and penile cancer, the basic reason for it in our setting is culture and religion [8,9]. These two driving factors have sustained the practice among untrained hands, sustaining a high incidence of complications and risk of

transmission of infections, including HIV and hepatitis B through the use of unsterilized instruments [10,11]. This study identified a wide range of complications in our setting, with penoglandular adhesion being the commonest. This is in line with the findings in another study by Ekenze *et al.* [12] which also identified glanular adhesions as the commonest. However, they did not record cases of uncontrollable bleeding, as we did in the present study. Conversely, another report from northern Nigeria identified excessive bleeding as the commonest complication [13]. A similar study in Ghana reported urethrocutaneous fistula as the commonest [14]. As we did not detect bleeding abnormality in the patients with excessive bleeding, it points to poor hemostatic technique by the circumcisionist as the reason for the bleeding. This is further supported by the ease with which we stopped the bleeding as patient arrived in our center. Although lichen sclerosus et atrophicus (balanitis xerotica obliterans) has been reported to cause increase in the risk of bleeding at circumcision [15], we did not encounter it among the cases of excessive bleeding. The variety of MCRC mostly encountered in children who

came from abroad was redundant foreskin. Although retained plastibell was common, we did not encounter cases of extensive skin loss or fistulation owing to proximal migration of the plastibell as reported in some studies [16]. The range of circumcisionists seen in this study highlights the unregulated nature of the practice of circumcision in our setting, though this study cannot demonstrate the demographics of circumcisionists in our environment as we focused only on a subset of the population of circumcised children. Osifo *et al.* [17] working in Benin had categorized postcircumcision urethral injuries/urethrocutaneous fistula, specifically regarding treatment. However, that study involved a small study population and did not include other challenging complications that have been encountered. The present study gives the opportunity to identify potentially challenging MCRCs and enables the surgeon to prognosticate and plan treatment properly. Although retained plastibell could be left for an intern to address, a partial penile amputation or urethral loss will be best handled by the most experienced surgeon. The result of this study also enables the surgeon to confidently explain to parents about any need for admission, expected outcome, and possible need for further treatment. This study reported 33% rate of refistulation following fistula repair. Another study in Lagos reported 25% refistulation following repair of postcircumcision urethrocutaneous fistula [18]. Although the Lagos study evaluated a smaller group of patients, the two studies reflect the potential morbidity of this type of MCRC and the need to explain to patient and or the relatives the possible need for further treatment. This study demonstrated that MCRC could occur following circumcision, even with well-trained hands. However, it highlights the fact that the more serious (severe) complications tended to occur in the hands of poorly trained or untrained circumcisionists. The morbidity that follows these complications including loss of school days can be enormous. Reports of mortality, particularly owing to uncontrollable bleeding, are well known [19]. More workshops to further train the trained hands on circumcision are required. Institution of legislations to criminalize circumcision by quacks and proper enforcement of such legislations will go a long way to reduce the incidence of these MCRCs.

We did not capture transmission of infections as part of the MCRC in this study. This is because such patients do not present to us ordinarily, rather to the pediatricians. This is one of the shortcomings we recognized regarding this study, and we hope that further studies may look at circumcision-related infections in the future.

Conclusion

MCRC are very common in our region. Some of these complications have more attendant morbidity than others. Fortunately, these more challenging (severe) complications

which require specialist care are less common. However, the morbidity in each case is enormous. Penile amputation, urethral loss, and fistulae are recognized as severe complications and are the most challenging ones. There is a need to educate the general public on the need for people who are trained to perform circumcisions. Conventional dissection technique should only be used by people who are able to control bleeding if it arises. More workshops on circumcision in all cadres of health facilities will reduce the occurrence of the MCRC. Legislations and enforcement of such legislations will reduce the practice of circumcision among quacks in our environment and so reduce the occurrence of complications.

Conflicts of interest

There are no conflicts of interest.

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