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The Adverse Effects of Circumcision in Children: Retrospective Cohort Study of 68 Cases at Yaoundé Central Hospital

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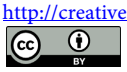

Abstract

The risks of circumcision are any complications that arise during the surgical procedure to remove the foreskin. Our objective was to highlight the risks associated with child circumcision recorded at Yaoundé Central Hospital (HCY) through a retrospective, cross-sectional, descriptive study covering 10 years and including 68 cases. The median age at which the accident occurred was 3 years. Nursing staff were most often blamed for performing these circumcisions in peripheral hospitals under local anaesthesia. The accident generally resulted in bleeding (n = 23), indicating haemorrhage (33.8%) and urethral fistula, requiring haemostasis (32.4%) as the main procedure, followed by fistula closure (27.9%). Postoperative morbidity associated with this treatment is moderate according to the Comprehensive Complication Index (CCI).

Keywords

Risks of Circumcision, Children, YCH

1. Introduction

The adverse effects of circumcision are all the risks and complications that arise during the surgical procedure to remove the foreskin [1]. It is a common practice in Africa due to its ritual nature. As a result, it is performed only by those initiated into the customs and traditions. In medical practice, it is a specialized surgical procedure. Adverse events related to its practice are not uncommon.

In Cameroon, it is a real public health problem, accounting for nearly 26% of all hospital admissions in 2023 [2]. The lack of studies on the subject in our department motivated us to conduct this work. The aim was therefore to highlight the risks associated with child circumcision recorded in our working environment.

2. Patients and Methods

We conducted a retrospective, cross-sectional, descriptive study in the pediatric surgery department of Yaoundé Central Hospital (YCH) over a 10-year period, from January 2016 to December 2025. It focused on the records of paediatrics patients aged 0 to 15 years who were treated for complications related to circumcision (n = 77). Unusable records were excluded (n = 9). Ethical clearance was obtained from the hospital and administrative requirements were met.

Our sampling was consecutive and patient anonymity was respected. We focused on the age at the time of the incident, the time between circumcision and the onset of complications, the location where the circumcision was performed, the qualifications of the operator, the type of anaesthesia used for circumcision, the reason for consultation, the clinical forms diagnosed, the treatment administered, treatment complications, and mortality. Complications were classified according to the Comprehensive Complication Index (CCI®). Based on the criteria described by Clavien Dendo, a value was assigned to each complication. The sum of these values divided by 2, as shown in **Table 1**, constituted the CCI score. The data collected on forms designed for this purpose were analyzed using SPSS version 23 software. Qualitative variables were described by their numbers and percentages. Quantitative variables were described in the form of medians. The results were illustrated using Microsoft Word and Office Excel 2013 software and presented in the form of figures or tables.

Table 1. Classification of complications according to the Comprehensive Complication Index (CCI®).

Clavien-Dindo classification (CDC)	Comprehensive Complication Index (CCI)	
	CCI value	wC
I	8.7	300
II	20.9	1750
IIa	26.2	2750
IIIb	33.7	4550
IVa	42.4	7200
IVb	46.2	8550
V	Always results in CCI score of 100	

$$CCI = \frac{CCI_1 + CCI_2 + \cdots + CCI_x}{2}.$$

3. Results

We have compiled 68 cases of circumcision-related accidents over a 10-year period, an average of 6.8 cases per year.

The median age of children at the time of the accident was 3 years, with extremes ranging from 3 days to 11 years. Infants, especially those under 1 year of age, and young children are the most commonly affected (Figure 1).

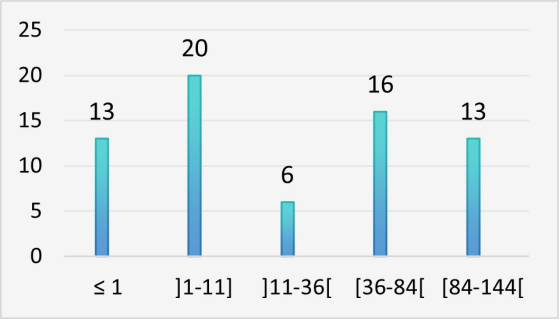

Figure 1. Distribution of patients by age.

The average time to occurrence of the adverse event was 4.6 days, with extremes of 1 hour and 34 days.

Circumcision was mostly performed in peripheral hospitals (31 cases, or 45.6%). The location was not specified in 24 cases (35.3%) and at home in 13 cases (19.1%).

The operator was paramedical staff in 37 cases (54.4%), a non-healthcare professional relative or traditional practitioner in 13 cases (19.1%), medical staff in 7 cases (10.3%) including 1 surgeon, and was unspecified in 11 cases (16.2%).

Most circumcisions were performed under local anaesthesia (45 cases, or 75%). It is important to note the two cases performed without anaesthesia (3.3%) (Figure 2).

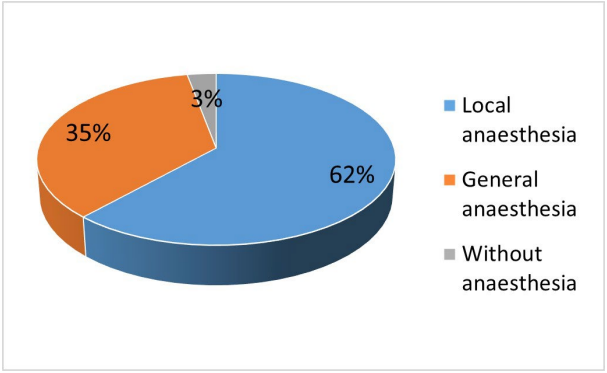

Figure 2. Type of anesthesia.

Bleeding and double stream were the main reasons for consultation in 23 and 19 cases, respectively (Table 2).

Table 2. Distribution of patients according to reason for consultation (n = 68).

	Number	Percentage
Bleeding	23	33.8%
Split urine stream	19	27.9%
Dysuria	10	14.7%
Unsightly appearance	10	14.7%
Poor healing	02	3.0%
Other	04	5.9%

The clinical forms are specific to penile haemorrhage (23 cases, or 33.8%), followed by urethral fistula, as mentioned in **Table 3**.

Table 3. Distribution of patients according to clinical forms.

	Number	Percentage
Haemorrhage	23	33.8%
Urethral fistula	19	28.0%
Infection	14	20.6%
Urethral meatus stenosis	11	16.2%
Buried penis	05	7.4%
Denudation of the penis	03	4.4%
Penis/glans amputation	03	4.4%
Redundant foreskin	02	3.0%
Other (oedema, etc.)	03	4.4%

The procedures performed depended on the clinical forms and therefore consisted mainly of haemostasis and fistula closure in 23 and 19 cases respectively, as shown in **Figure 3**.

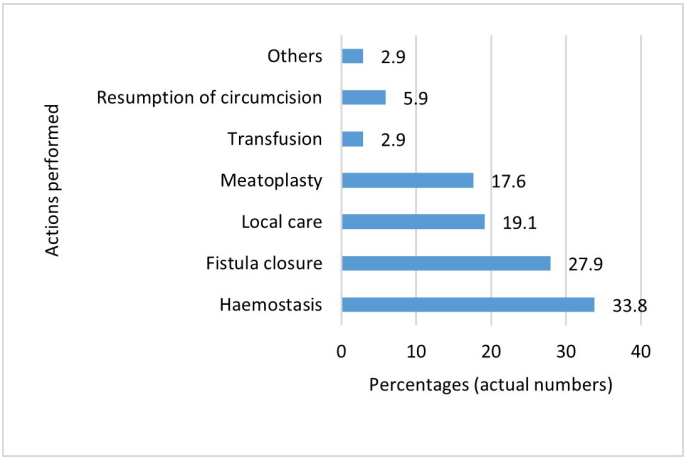

Figure 3. Distribution of patients according to procedures performed.

Complications following treatment of circumcision complications were found in two cases (3%) and concerned only the treatment of urethro-cutaneous fistulas. We noted one case of urethral stenosis and one case of fistula dehiscence. This corresponds to an ICC score of 30, reflecting a moderate postoperative outcome. One death due to haemorrhagic shock was noted in a haemophiliac patient.

4. Discussion

We have compiled 68 cases of circumcision complications. This number is similar to those observed in other African studies, such as that by Kouassi *et al.* in Ivory Coast [3]. In the West, these complications are rare, occurring in only 2% to 3% of cases [4], as they are handled by surgical professionals and are generally related to a medical cause. However, in some regions steeped in tradition, unprofessional practices are found, causing this incidence to rise to 5% [4]. Indeed, circumcision, in certain regions, is considered an assault on physical integrity and falls under the law punishing assault and battery [5].

The median age at the time of the circumcision accident was 3 years, differing from 8 days and 11.8 years +/− 8.3 years found respectively by Jacob *et al.* in Israel and Abdoulaye *et al.* in Guinea Conakry [6] [7]. This variability could be explained by the fact that there is no specific age for circumcision, as it depends on the customs and traditions of different peoples.

The location of the incident was predominantly peripheral hospitals in 31 cases (45.6%), while Linus in Nigeria found that 19.3% of accidents occurred in the parents' home [8]. Our result could be explained by the fact that these hospitals are more accessible to the population in terms of cost and offer simpler administrative procedures related to surgery. In other parts of the world, the preference for home care is encouraged by African customs, which consider the ability to endure pain as a sign of manliness. This also justifies the decision not to use anaesthesia in both cases in our series.

The operator was a paramedic in 54.4% (37 cases). Our results are similar to several series of our literature, such as Appiah *et al.* in Ghana, who found that nursing staff accounted for 78.8% [1] [2] [9]. This result reflects, firstly, parents' lack of knowledge about who is qualified to perform circumcision surgery [10]. Secondly, it reflects the lack of training among paramedical staff in the correct practice of circumcision [10] [11]. This led Dieth to propose the introduction of courses on the practice of circumcision into the academic curriculum for medical students and, by extension, paramedical staff [10] [12].

Treatment depended on the circumstances and could involve several procedures simultaneously [2] [6] [7] [13].

The CCI score, in light of the literature, appears to be the most appropriate in these cases [14] [15].

Although these situations are rare, the death recorded in our series clearly demonstrates that circumcision, far from being harmless, can prove to be macabrely cruel.

5. Conclusion

Circumcision in our community has a false reputation as a trivial procedure. The high frequency of adverse effects associated with it clearly demonstrates that it is a surgical procedure in its own right and should be regulated.

Conflicts of Interest

The authors declare that they have no conflicts of interest in relation to this article.

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