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NAVIGATING COMPLICATIONS FROM CULTURAL CIRCUMCISION: A QUALITATIVE CASE SERIES OF PATIENT EXPERIENCES AT A TERTIARY REFERRAL HOSPITAL IN KENYA

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ABSTRACT

Background: Male circumcision is widely practiced across Kenya through either voluntary medical circumcision, performed in healthcare facilities, or traditional cultural circumcision (CC), conducted within community settings. There has been an alarming increase in circumcision-related complications presenting to Kenyan hospitals, particularly associated with CC. These findings emphasize a need for evidence-based management protocols to reduce circumcision-related complications, but the culturally charged nature of CC demands respect and preservation of traditional practices. We aimed to explore patient and family experiences in managing post-circumcision complications to better understand key values and opportunities amenable to intervention for improving the safety of circumcision practices in our setting.

Methods: This study is a case-series report anchored in qualitative interviews with a cohort of patients who presented to our hospital with three categories of circumcision-related complications including wound infection/sepsis, bleeding, and penile amputation. The study team completed phone interviews with

families of eligible patients, and rapid qualitative matrix techniques were used to analyse data.

Results: We enrolled six boys in our study with two representative patients in each main complication category. We identified four main thematic domains: *"Lack of standardized practices increases risk for complications"*, *"families lack insight into qualifications of circumcision providers"*, *"families remain a major source of post-procedural care"*, and *"financial and psychological consequences of circumcision complications are significant"*. We have also included a section for requests made by families regarding circumcision care.

Conclusion: Societal pressure to conform to tradition drives a preference for CC, despite high practice variability which leads to increased complication risks. Collaborating with communities and traditional providers is key to developing standardized procedural methods. Empowering patients and families in their care, improving provider accountability, and providing multifaceted support in the presence of complications are critical to ensuring positive results from this important traditional rite.

INTRODUCTION

Male circumcision is widely practiced across Kenya either by voluntary medical circumcision (VMC) performed in healthcare facilities, or by traditional cultural circumcision (CC) conducted within community settings. VMC procedures are performed by trained healthcare providers in sterile clinical environments using standardized protocols and appropriate medical equipment. In contrast, CC serves both medical and cultural purposes, with the procedure deeply embedded in the traditions of various ethnic communities including the Kikuyu, Luhya, Kalenjin, and Maasai populations, practiced seasonally during school holidays, with procedures performed by traditional circumcisers who have varying levels of medical training and inconsistent sanitation protocols [1–5].

Circumcision-related complications are noted to be higher in CC (18–35%) compared with VMC practices (2–8%) and remain a significant clinical concern in Kenya [6–11]. Complications from VMC generally present within 48 hours post-procedure and primarily include minor bleeding, infection, or adverse reactions to anaesthesia,

generally manageable with outpatient care [4,12]. Conversely, complications from CC are often recognized 3–7 days post-procedure with more severe manifestations including gangrenous changes, severe sepsis, urethral injuries, and excessive tissue loss requiring complex reconstructive procedures [4,12]. The burden of these complications on both patients and healthcare facilities is substantial, frequently resulting in prolonged hospital stays, psychological trauma, additional surgical interventions, and significant healthcare costs [13,14]. A particular burden falls to county and national referral hospitals which remain the first-line facilities when complications occur. Due to the seasonal nature of CC, surges of CC-related complications can acutely increase demands on local facilities which are frequently already stretched in their care capacities [11]. A recent retrospective study performed at our centre reported 81% of circumcision-related complications presenting between 2014–2023 had occurred between 2022–23 with an associated mortality rate of 10.5%, a significantly higher estimate compared to rate of 0.2% previously reported in literature [15]. These alarming findings emphasize the

need for evidence-based management protocols to reduce circumcision-related morbidity and mortality in the Kenyan context. While many existing studies reporting the clinical consequences of improper circumcision practices, few studies have studied how patients and families experience and navigate the complex process circumcision-related care [6]. We aim to specifically explore patient and family experiences in managing post-circumcision complications to better understand the patient values and identify important areas amenable to intervention for improving the safety of circumcision practices in our setting.

METHODS

Study design and population

This study is a qualitative, narrative case-series report of a subset of patients drawn from a larger retrospective chart review study who presented to Moi Teaching and Referral Hospital (MTRH) or Shoe4Africa (S4A) in Eldoret, Kenya, with circumcision-related complications, [15]. This study received approval by the institutional review boards of both Moi University/MTRH and Indiana University. REF: IREC/2023/01, Approval number 0004418. We applied the Standards for Reporting Qualitative Research (SRQR) checklist to account for all aspects of qualitative research (Supplemental File 1) [16].

Setting

This study took place at MTRH, a tertiary referral hospital in Eldoret, Kenya, and S4A, the associated paediatric hospital of MTRH. These hospitals service an estimated patient population of 25 million with a catchment area spanning western Kenya, eastern Uganda and southern South Sudan [17,18]. Specialty urology services for both adult and paediatric patients are offered at MTRH and S4A.

Recruitment

Methodological details of the larger retrospective chart review study can be found in Abdulahi, et al [15]. Broadly, this involved a retrospective review of admissions records of all male children under the age of 18 years who were admitted to MTRH or S4A with CC-related complications between 2014 to 2023. Eligible patients included male children under the age of 18 years who were admitted with circumcision-related complications following either VMC or CC, including penile wound bleeding or infection, systemic infection and sepsis, and lower extremity wounds or infections. Additionally, two members of the study, practicing surgeons at our site, were able to track instances of complications which were admitted under their care.

For this case series, we aimed to sample two patients representing the three main categories of post-circumcision complications as noted in the retrospective review, namely: wound infection/sepsis, bleeding, and penile amputation. Two members of the study team contacted eligible patients to obtain verbal permission from the guardian of the child for interviews over the phone.

Data collection

Individual interviews were performed between December 2024 and February 2025 in Kiswahili using an open-ended, semi-structured interview guide (Supplemental File 2) developed by both Kenyan and American study team members with either clinical experience in managing circumcision-related complications or methodological experience in qualitative techniques. This guide explored patient demographic information, reasons for undergoing circumcision, details of circumcision provider, procedural details, post-procedure care, recognizing complications, post-complication care, and long-term sequel of complications.

Interviews were conducted in Kiswahili with patients' parents, led by two Kenyan medical students who were trained in interview techniques. Audio recordings of interviews were collected, and the average length of discussion was 40 minutes.

Analysis

Interviews were analysed using rapid matrix techniques which have been shown to yield comparable results to traditional qualitative analysis techniques without direct transcription of interviews [19–21]. Team members generated a data matrix of domains on Microsoft Excel, mirroring the topics queried in the interview guide [22]. Two Kenyan medical students who performed the interviews, independently prepared narrative summaries, tracked direct quotations, and organized relevant summary sections into matrix domains. The coding team utilized negotiated agreement to confirm the organizational choices and involving a third reviewer as needed to resolve decisional conflicts. From this collated template, the team generated primary themes. Based on the narrative nature of this study, we did not incorporate member checking in our methodology but took care to adhere closely to patient's reported experiences during summarization and analysis.

Ethical Approval

Administrative approval was given by institutional review boards of both Moi University/MTRH and Indiana University. REF: IREC/2023/01, Approval number 0004418.

RESULTS

We enrolled six boys in our study, with two representative patients within each major complication category. The mean age of our cohort was 15 years (SD 1.6). Patient demographics, procedural details and resulting complication type are noted in Table 1. Patient families predominantly presented from western Kenya and represented the Kalenjin and Luhya tribes. Five of the six circumcisions were performed for cultural reasons as a traditional rite of passage. The traditional circumcision season typically occurs in August for the Luhya and December for the Kalenjin communities. One circumcision was primarily performed for medical reasons due to recurrent penile infections, although there was also a cultural motivation.

From the final collated matrix, the team generated primary themes which were organized into four main domains: Lack of standardized practices increases risk for complications, families lack insight into qualifications of circumcision providers, families remain major source of post-procedural care and financial and psychological consequences of circumcision complications are significant. We have also included a section for requests made by families regarding circumcision care. Representative quotes of themes are provided below and labelled with the age of the patient and the experienced post-circumcision complication.

Table 1

Patient demographics, procedural details, complication type

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6
Age (years)	17	16	13	17	14	15
Hometown	Nandi	Vihiga	Webuye	Eldoret	Kipkabus	Kapsowar
Ethnic group	Kalenjin	Luhya	Luhya	Kalenjin	Kalenjin	Kalenjin
Circumciser	Local doctor	Local Clinician	Traditional Circumciser	Local doctor	Local nurse	Local doctor
Complication	Bleeding	Penile amputation	Penile amputation	Bleeding	Septic leg wounds	Septic shock

Theme: Lack of standardized practices increases risk for complications

Pre-procedure patient preparations vary between VMC and CC cohorts. In VMC, providers typically recommend patient pre-operative assessment and tetanus vaccination. In CC, formal medical evaluation, including history, physical exam or laboratory tests, were absent in all cases, and preparation predominantly consisted of cultural practices including head shaving, dances, or water pouring. We also noted that all Kalenjin initiates in this cohort received tetanus injections. One family of Luhya background noted negative beliefs towards the tetanus vaccination which are prevalent in some communities.

"I hear that the tetanus vaccination can cause one to swell or even cause one's penis to retract and get lost" (13 years, amputation)

Preparation of the setting for circumcision also varied greatly in our cohort. Four procedures were performed in secluded outdoor settings, requiring erection of temporary structures in bushy areas as a traditional practice. Two circumcisions were performed in clinic setting. None were conducted in healthcare facilities with surgical or emergency response capabilities. We also noted a lack of standardized intra-procedural safety standards and practices. Most procedures were performed under local anaesthesia. The cutting instruments varied, ranging from formal surgical blades to informal instruments like scissors or a knife. Adverse events like penile amputation were associated with use of informal instruments. Post-procedure medications were mentioned in three cases, but families were unsure of the specific medications given.

"He was given a single dose of a capsule medication immediately after the circumcision procedure, but we were not told what it was exactly for." (13 years, amputation)

Wound care procedures following the CC procedure were inconsistently applied. Stitching was performed only in two cases and most wounds left open, even in the setting of excess bleeding. Antibiotic use was also non-standardized, noted only in three initiates.

Theme: Families lack insight into qualifications of circumcision providers

Families' understanding of the training or credentials of the providers performing CC was varied. Two families reported CC procedures were performed by retired 'doctors' whose actual qualifications could not be verified, while another family reported their procedure was done by a nurse from a local dispensary.

"I know him as a doctor, but I am not sure of the level of his training." (13 years, amputation)

In the absence of formal verification, some families turned to personal experience or community recommendations to identify a trusted provider. Frequently, providers were noted to have a history of managing the other health needs of the family in the past. "[CC] was done by a retired army doctor who even treated us in his clinic, but closed up a few years ago. He is widely accepted and even circumcised me." (17 years, bleeding)

In some communities, particularly the Luhya community, informal apprenticeship structures known in the community provide a source for identifying trusted circumcisers, though there are no formal accreditation procedures associated with these apprenticeships.

"They are drawn from specific families and even have their own leader who trains, releases them to the community and even supervise them." (13 years, amputation)

Theme: Families remain major source of post-procedural care

Families reported varying provider follow-up, with most visits occurring immediately post-procedure and minimal visits beyond one week. Some providers only employed phone follow-up after an initial review post-procedure.

"The circumciser came in the mornings during the first week and thereafter turned up only when we called him with specific concerns" (15 years, infection/sepsis)

Across all cases, male family members were primarily care givers because culture excluded mother from such responsibility. Appointed male family members' responsibilities included wound monitoring, feeding, and basic hygiene.

"Our traditions do not allow women to come in contact with the initiates throughout the seclusion period" (17 years, bleeding)

Thus, family members were often also the first to recognize a post-procedure complication. Acute post-procedure complications seen at our centre included: Excessive bleeding (2 cases, including one who was later diagnosed with haemophilia), penile amputation (2 cases), wound infections (1 case) and systemic infection progressing to septic shock (1 case). Family members were able to promptly recognize some grossly visible complications such as penile amputation.

"I walked in and saw the glans penis was cut off" (16 years, amputation)

However, other complications like excessive bleeding or wound infections were more insidious and were recognized later. Patients with sepsis presented with slowly developing symptoms that remained unrecognized by families until late-stage manifestations emerged. The recognition of even serious complications could often be delayed due to lack of medical expertise in

family members or absence follow-up by providers. Some CC practices also view boys complaining as a sign of weakness, which may further discourage early recognition of complications and intervention.

"In around the third week in seclusion, we noticed he seemed to be constantly exhausted, slept a lot and complained of having hotness of body. He then began talking to himself, sometimes his speech was not comprehensible. He then developed a convulsion that lasted for about 10 minutes" (15 years, infection/sepsis)

When complications set in, many circumciser providers initially attempted home management before recommending formal medical care. Such home management attempts ranged from local wound management to oral medications, with varying degrees of effectiveness.

"We tried to apply bandages to try to stop the bleeding." (14 years, infection/sepsis)

All cases in this study eventually required referral to tertiary care at MTRH. Non-operative interventions provided included blood transfusions for cases with severe bleeding or intravenous antibiotic treatments for infected wounds. Those with severe wounds or penile amputations required complex multi-disciplinary surgical reconstruction, though eligibility for surgical repair was affected by type of and time from initial injury.

"From subcounty hospital we were referred to MTRH, which took around 7 hours to get there. I carried the amputated part wrapped in a gauze in my jackets pocket." (16 years, amputation)

Some patients arrived at MTRH seriously ill and required intensive care services.

"When we got to MTRH, he was given some IV fluids then we were told he needed ICU admission. He was admitted for about ten

days in the ICU, then he was taken to the male wards.” (15 years, infection/sepsis)

At times, patients also presented with wounds associated with the cultural practices surrounding circumcision, like extremity wound infections from spending time in the bush. Recognizing the source of these wounds was frequently delayed due to the distance of the wounds from the procedure site.

“He developed some wounds just above the right ankle increasing in size which gradually became painful, they initially looked like injuries sustained from stick pricks but over time they enlarged with some pus discharges” (14 years, sepsis/infection)

Theme: Financial and psychological consequences of circumcision complications are significant.

The impact of post-CC complications often resulted in prolonged care needs which created continued care burdens on families. Some complications like urethral strictures requiring hospital-based interventions like suprapubic cystostomy or urethroplasty to address urinary retention, while local wound complications required regular outpatient dressing changes.

“We took him back to MTRH several times, and a tube was placed in his penis to help with passing urine” (17 years, bleeding)

“We had a nurse who came to see him at home daily to tend on the wounds with cleaning and dressing, and also gave antibiotics IV twice, then orals.” (14 years, infection/sepsis)

This continued demand for care created considerable short-term strain on families as caregivers were required to take time off work to care for their children, resulting in lost productivity and income, or sell property for funds.

“I had to stay at home and even could not go to work because I am his father and I had to care for him.” (17 years, bleeding)

“I even had to sell my bull and other things in order to sustain the family.” (16 years, amputation)

Patients also suffered short-term impact to their daily lives including extended absence at school or physical limitations on their daily activities. While most patients eventually returned to school and social activities, some continued to live with recurring medical issues. The two patients with penile amputations expressed significant concerns about future sexual function.

“His biggest worry has been his sexual life in the future because of the amputation, though he has no other medical issues.” (16 years, amputation)

The psychological impact of post-circumcision complications was significant for both patients and families alike. Parents also noted their children showing signs of social and emotional withdrawal, depression, anxiety and psychological trauma.

“He stopped going to school after the amputation incident. He felt his life had been destroyed and also lost interest in many things” (13 years, amputation)

Significantly, some families had experienced previous complications with CC involving their other children, and the current experience re-ignited past trauma.

“You know, we also lost his older brother during circumcision, and he succumbed to similar issues like the one this boy had, the sepsis. We were very scared” (16 years, infection/sepsis).

Family requests

Following their experiences with CC complications, families expressed several needs. In the pre-procedure setting, families desired education about conditions like haemophilia which may increase the risk of post-procedure complications.

"I request that we be given some education on what haemophilia is, how it comes about, and how we can treat it" (17 years, bleeding) During hospitalization, families requested accommodation of cultural needs within hospital settings. Male caregivers specifically noted cultural challenges navigating hospital environments due to the cultural taboo of having females caring for the child following circumcision (e.g., taboos around female caregivers).

"It was difficult to take care of the boy in the children's ward with many women. I request that next time we can be given a separate room." (17 years, bleeding)

For patients who experienced disfiguring complications like penile amputation, families requested education and access to options for reconstruction.

"I request whether the doctors at MTRH can in any way offer plastic surgery to my son to help him have a sexual life." (16 years, amputation)

Lastly, families also expressed a desire for religious or spiritual support for psychological healing through this traumatic experience.

"The boy came to me and expressed interests in religious education and training in Islam. If you guys have any programs in this, I request that you help this boy, and I feel it could help him mentally." (13 years, amputation)

DISCUSSION

"With the exception of the Turkana, Teso, Luo and two sub-tribes of the Luhya, all the tribes in Kenya regard circumcision as the rite of passage from childhood to adulthood" [2]. The cultural weight of non-compliance – including stigma, diminished masculinity and exclusion – drives families to conform, even when it means accepting procedures performed by unlicensed or untrained practitioners [12]. The high social stakes associated with the rite may

overshadow the potentially severe complications which may result from this procedure which is often viewed as 'simple'. In our case review, we observe that patients have reported significant variations in all stages of the CC process, and it is frequently within these variations that serious health complications may occur.

Pre-operative preparation and screening, a practice which is recommended in VMC and should be applied to CC, varies across patients, both due to families' lack of knowledge of procedural risks and active beliefs in medical myths such as distrust in tetanus vaccinations. Other culturally sanctioned practices, including the use of improvised procedural environments or "freehand", or unguided, circumcisions using "crude tools" and varying methods of sanitation, often lack sterility, equipment, clinical oversight and emergency preparedness to manage even basic complications [5,23–25]. Standardized pre-procedure screenings for high-risk conditions like anatomical variants or undiagnosed haemophilia, can prompt early initiation of specialist care. For example, the World Federation of Haemophilia recommends that circumcision of a haemophiliac should be done electively by an experienced surgeon and a haematologist, and specific techniques (e.g. bloodless circumcision technique (Turkish method)) can significantly reduce procedure risks [26]. Standardization of pre-procedural protocols can benefit both CC and VMC, and the use of protocols like the WHO guidelines for safe circumcision practices help to standardize training of providers in varying backgrounds to maintain a shared standard of care – for example, keeping a dressing clean and dry for 48-72 hours until first clinical review, or only using cleaned or boiled water to touch the wound [27]. We emphasize the importance of adequate training and safe practices for providers of all backgrounds or titles [28,29].

Collaboration between medical providers and traditional providers surrounding improving circumcision care is critical, as emphasized by one study surveying the Maasai community which noted "high willingness to alter the circumcision procedure and location if traditional leaders supported such a change" [5]. This can help to meet the need to advocate for safer clinical alternatives while respecting preserving cultural traditions.

Across all cases, families carried the difficult burden as the predominant source of patient care. When choosing a provider, families could not confirm qualifications of CC providers and relied heavily on word of mouth or family history, such as "he circumcised the father as well." When adverse events occurred, the lack of credentialing left families with no formal avenues to hold providers accountable and little guidance on where, or how, to seek additional assistance. With minimal to no involvement of medical personnel beyond an immediate post-procedure visit, families without formal medical training had to manage even severe complications like penile amputation, travelling significant distances to seek care with inappropriate techniques which may make patients ineligible for surgical repair (e.g. travelling 7 hours with an amputated glans in a jacket pocket as opposed to use of cold chain). In more insidious but life-threatening problems like serious wound complications or sepsis, untrained family members were ill-suited to recognizing problems early, a problem further complicated by the need to accept pain and bleeding as a sign of masculine resilience, strength and maturity in CC. Future education in procedural risks and wound care must be offered to families given the extent of family involvement in post-procedure care. Shifting to a proactive rather than reactive approach to managing complications in the current circumcision

setup can avoid the escalation of minor complications to life-threatening events.

Lastly, we emphasize the significant emotional, psychological and financial consequences which circumcision-related complications have on both patients and families. CC offers an important symbolism of a boy's growth into a man, a primary driver which leads families to favour CC over VMC. Boys who do not complete CC risk being shunned in the community as being less than a man [30,31]. However, the stigma of botched circumcision was equally – if not more – overwhelming, generating significant emotional distress and social withdrawal. While some patients made a full recovery, those who had penile amputations were left with persistent concerns about their future sexual function and identity. The negative impacts of post-circumcision complications affect entire families, creating economic strain, caregiver burnout, and significant emotional distress, particularly in those who reported prior loss of children to the same process. These consequences ironically show how cultural rites into manhood can destabilize the families involved. Thus, centres which care for children with post-CC complications must also be equipped to provide adequate psychological, emotional and social support to patients and families. Few studies have investigated such needs, and this remains an important gap in literature to be further explored.

Limitations

This study is limited in its nature as a small case series representing a limited number of post-circumcision complications. We faced challenges in identifying eligible patients, including lost records due to the roll-out of a new electronic records program at MTRH, inability to identify records of patients who were evaluated in Casualty but discharged without admission, and general sparsity of written documentation. As with any study which relies on subjective reports, there is a

risk for recall bias by interviewees. Despite the sensitive nature of this topic, the families willing to speak out about their experiences hoped their participation would support future development of safe circumcision practices. We believe this case series plays an important role in highlighting the need to integrate patient and family experiences when considering development of programs to encourage safer circumcision practices. Future studies enrolling a larger and more diverse patient cohort, including inclusion of different ages groups or tribal backgrounds, to confirm and expand on our current findings.

CONCLUSION

Circumcision remains an important cultural practice in Kenya, but the lack of standardized practices increases the risk for poor outcomes. Beyond the physical injury, circumcision-related complications can have catastrophic impacts on patients and families in the long-term, whether through financial or psychological injuries. Collaboration between medical and CC providers can help develop procedural standards which remain aligned with cultural beliefs. Educating families in safe practices, improving accountability of all circumcision providers, and providing multifaceted support in the presence of complications are also important future efforts to pursue. These efforts can help to ensure that circumcision remains a safe and positive experience for all involved.

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