

Modified Sleeve Resection, ASCOVIME-MBASSI Technique: A New Approach to Circumcision

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Abstract

Introduction: Complications of circumcision remain a major public health problem. A good mastery of the surgical circumcision techniques helps to limit the appearance of these complications. The aim of our study is to demonstrate a modified surgical circumcision technique (ASCOVIME-MBASSI technique) and its outcome in a resource limited setting. **General Objective:** This study aims to evaluate the effectiveness of the Modified sleeve resection technique (ASCOVIME-MBASSI technique) in the management of circumcisions in a resource limited setting. **Methodology:** We conducted a retrospective study. The files of circumcised patients aged 2 to 14 years as well as the operating reports were consulted over 13 years (January 1, 2011 to July 31, 2024) in the Urology department of the Yaounde Central Hospital and the records of patients operated during the ASCOVIME health campaigns. We excluded incomplete patient records. Qualitative variables were expressed as numbers and percentages. The p-value was significant at <0.05. **Results:** A total of 150 cases were retained. The mean age was 5.6 ± 9.3 years with age range from 2 years to 13 years. Majority of patients consulted for desire for circumcision (63%). Intra-operative bleeding was minimal in 99.3% of the study pop-

ulation and there was no glans amputation. Urinary flow was good in all cases and the majority of the study population were satisfied with the cosmetic outcome (90%). The modified sleeve resection technique prevents complications like urethrocutaneous fistula and amputation of the glans. **Conclusion:** Use of the ASCOVIME-MBASSI technique prevents devastating complications like urethrocutaneous fistula and amputation of the glans penis. Therefore, this new approach to circumcision should be widely vulgarized.

Keywords

Circumcision, ASCOVIME-MBASSI Technique, Modified Sleeve Resection

1. Introduction

Circumcision is a word derived from the Latin “circumcisio”, to cut around. It is a surgical excision of the foreskin down to the level of the coronal furrow which may be performed during the neonatal period or later in life [1]. In 1996, at the 4th International Symposium on Genital Mutilation held in Lausanne, it was estimated that 13,300,000 male children were circumcised every year [2]. Based on this data, this means that a boy is circumcised every 2.4 seconds worldwide.

Today, circumcision is still practiced by certain communities in Cameroon, in accordance with their religious teachings and perceptions, but also for reasons of tradition, social cohesion, cultural identity, or simply masculinity [3].

Complications such as hemorrhage, glans amputation, infections from circumcision require the systematic practice of hygiene and asepsis, as well as appropriate pain management, whatever the technique or environment [4].

Discussions on the subject should therefore incorporate approaches that respect cultural diversity, local practices, religious beliefs, medical motivations, available resources and the skill level of practitioners. With this in mind, we are going to study a number of standard surgical techniques. Our work will focus on a modified version of the conventional Sleeve Resection surgical technique [5], and we will present the results of patients circumcised in urban areas in an operating theatre, and in rural areas (on an outpatient basis as part of ASCOVIME health campaigns).

2. Methodology

We retrospectively reviewed records of 150 patients who had circumcision according to the ASCOVIME-MBASSI technique over the period of 13 years (January 1, 2011 to July 31, 2024) in the Urology department of the Yaounde Central Hospital (YCH) and the records of patients operated during the ASCOVIME health campaigns. We included all patients who underwent circumcision with complete records. Ethical clearance was approved by institutional ethics committee. Data on demographics, clinical symptoms, past medical history and operative findings and post-surgical outcomes (complications) were recorded for each pa-

tient. Data collection was achieved using self-designed structured questionnaires. Validity and reliability of the questionnaire was done. Data was collected by consulting patient records, post-surgical reports and by carefully viewing videos of the different operative procedures. Data was entered in Microsoft EXCEL 2016 and analysed using SPSS version 23.0.

3. The Modified Sleeve Resection (ASCOVIME-MBASSI) Technique

3.1. History of the ASCOVIME Association and the Surgical Technique

ASCOVIME (Association des Competences pour une Vie Meilleure) is a non-profit Cameroonian humanitarian association. Founded in 2008 by Dr. BWELLE Georges, a visceral surgeon working in the general surgery department at Yaounde Central Hospital. The association organizes various medical missions throughout the country and throughout the year in remote villages to carry out health and education campaigns. These include medical consultations, the administration of medical care and treatment, surgical operations, awareness-raising campaigns on major endemics (malaria, Sexually Transmissible Infections and AIDS, diarrhea, malnutrition, etc.) and hygiene, which are carried out free of charge every week.

An ASCOVIME team, made up of dozens of medical and civilian volunteers, goes out to meet villagers confined to the four corners of Cameroon. Villages are selected on the basis of the absence of health facilities within a 20km radius, the poverty status of the local population, their willingness to accept the project, and the approval of the administrative and local authorities.

In 2011, the association treated over 10,000 people free of charge. Over 500 people underwent surgery, more than 700 optical lenses were supplied, and hundreds of books, notebooks, pens, toiletries were donated to children in numerous schools throughout the country. All thanks to individual donations. In 2013, 28 campaigns were carried out in the field, resulting in 10,271 medical consultations, 656 surgical procedures, 1040 dental consultations, 1959 ophthalmological consultations, the distribution of 982 pairs of lenses and school supplies to more than 4045 pupils. Most of the active members are Cameroonian: doctors, surgeons, students, ophthalmologists and volunteers. International volunteers are also present. They contribute their expertise and energy to the synergic development of the association.

The ASCOVIME-MBASSI Modified Sleeve resection technique has been practiced and taught since 2011 as part of health campaigns throughout most of Cameroon, as well as at the Yaounde Central Hospital. It was developed by Dr MBASSI Achille Aurèle, Urologist and specialist in urological reconstruction surgery at the Yaounde Central Hospital.

3.2. Description of the Surgical Technique

Preoperative evaluation: coagulation profile, full blood count are done prior to

anesthetic consultation. Pre-anesthetic consultation was done for all the patients. The patient is placed in the supine position, cutaneous asepsis done using povidone iodine and sterile draping (**Figure 1**). In the case of loco-general anesthesia, the practitioner can generally perform a penile block, which involves infiltrating a local anesthetic at the base of the penis to block the dorsal nerves that ensure its sensitivity. The injection is made below the pubic symphysis, 0.5 to 1 cm on either side of the midline. Sedation may also be administered, depending on the patient's age and history. In this case of general anaesthesia, sedation is done.



Figure 1. Cutaneous asepsis followed by sterile draping.

The foreskin is freed and pulled over the glans penis to allow access to the area to be excised. If smegma is present, it is gently removed. The different stages of the operation are as follows

Step 1: Detachment of the glans penis and removing preputial adhesions (Figure 2)

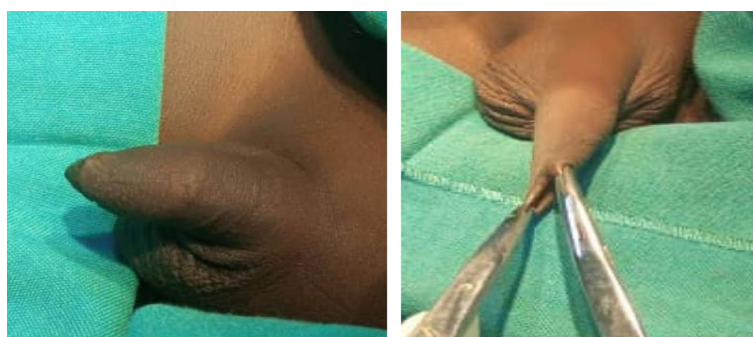


Figure 2. Detachment of the preputial skin from the glans penis.

In this crucial first step of our circumcision technique, we begin by gently decapping the glans and separating any preputial adhesions. This step requires great precision to avoid any trauma or damage to the delicate tissue of the foreskin and glans penis. Detachment involves removing the foreskin. This step can be delicate, especially in infants where the foreskin is often tightly attached to the glans. We use gentle maneuvers to separate the foreskin from the glans without causing

pain or damage.

We then proceed to separate the preputial adhesions. It is common for the foreskin to adhere to the glans in infants and young children. These adhesions must be carefully separated to allow complete unhooding and uncomplicated circumcision. We use gentle, repetitive movements to separate the adhesions, minimizing the risk of bleeding or trauma to the glans.

This first step is essential to set the stage for the actual circumcision procedure. By safely and precisely decapping and separating preputial adhesions, we ensure that the procedure runs smoothly and reduces the risk of post-operative complications.

Step 2: Prepuce retraction and proximal horizontal incision

In this stage of the technique, we retract the foreskin to approximately 1.61 cm above the balano preputial groove. This is crucial as it exposes enough tissue to safely make the first incision above the coronal furrow. Precise, controlled foreskin retraction is performed to avoid excessive trauma to the surrounding tissue. Once the foreskin has been retracted to the appropriate distance, we make the first incision. This incision is made with great precision to create a circumferential opening around the foreskin, just above the retracted edge. The incision is made with sharp, sterile surgical instruments (scalpel blades) to ensure a clean, precise surface cut (**Figure 3**).

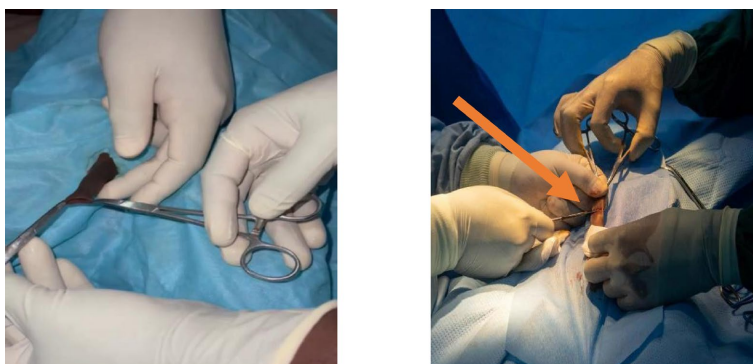


Figure 3. Retraction of the prepuce and proximal horizontal incision.

By retracting the foreskin to the appropriate distance and making the first incision with precision, we ensure a smooth start to the circumcision procedure and ensure that the rest of the procedure can be carried out efficiently and safely.

Step 3: Dilatation of the preputial orifice and second distal horizontal incision

In this next step of the circumcision procedure, we maintain dilatation of the preputial orifice, followed by a distal horizontal incision below the sulcus. This is a delicate step, as it widens the space between the foreskin and the glans, making it easier to detach rather than excise the foreskin. Dilatation of the preputial orifice is carefully maintained using two forceps in 11 o'clock and 1 o'clock positions. Remove any remaining adhesions. The purpose of this step is to enlarge the open-

ing to allow adequate access to the preputial tissue for circumcision. Once the orifice has been appropriately dilated, we can proceed with the proximal horizontal incision. This second incision is made under the balano-preputial fold, horizontally to the axis of the penis, creating a circumferential opening around the prepuce at a specific distance from the first incision (**Figure 4**).

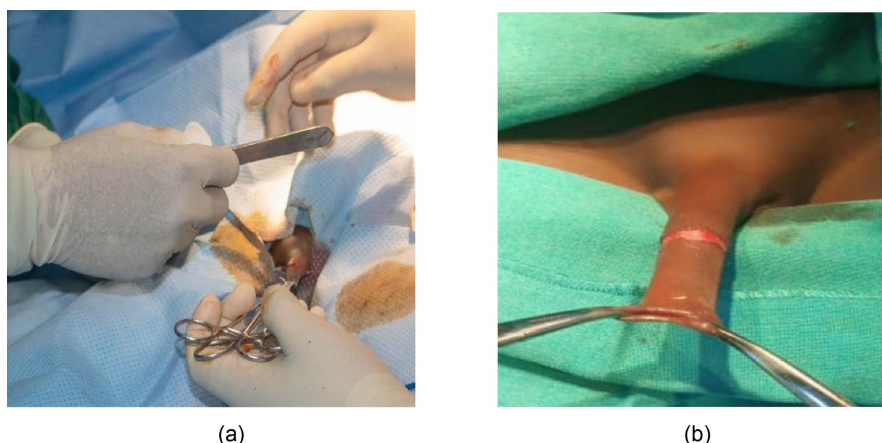


Figure 4. (a) Dilatation of the preputial orifice at 11 o'clock and 1 o'clock; (b) Distal horizontal incision. The incision excises part of the foreskin and prepares the area for the next stage of the procedure.

By dilating the preputial orifice and making the proximal horizontal incision with precision, we ensure adequate preparation of the surgical area and facilitate the subsequent circumcision procedure for foreskin detachment.

Step 4: Retraction of the sheath and detachment to remove excess skin

In this stage of the procedure, we proceed to retract the sheath of the penis to further expose the remaining preputial tissue. This retraction is carried out carefully to allow clear visualization of the area to be detached and to facilitate excision of the excess skin. Detachment is performed with a sterile scalpel blade to ensure a clean, precise cut. The scalpel blade is directed away from the glans to avoid damage to the underlying tissue and to minimize the risk of excessive bleeding. Once the excess skin has been excised, a careful check is made to ensure that the correct amount of tissue has been removed and that the shape of the glans is correctly exposed. Any remaining excess skin is removed to achieve an aesthetically and cosmetically pleasing final result (**Figure 5**).

By performing the retraction of the penile sheath and the vertical incision to release excess skin with precision, we ensure an optimal result for the patient, with adequate healing and a natural aesthetic appearance.

Step 5: Horizontal suture to bring the two edges together

In this final stage of the circumcision, a horizontal suture is used to bring the two edges of the skin together and close the wound. This suture is precisely placed to ensure adequate wound closure and promote rapid, effective healing. After excising the excess skin and exposing the glans penis, the two skin edges are carefully



Figure 5. Retraction of the penile sheath and excision of the excess foreskin.

aligned to ensure uniform and aesthetic wound closure. Once the skin edges are correctly positioned, sutures at the four cardinal points (3 o'clock, 6 o'clock, 9 o'clock, 12 o'clock) are used to hold the tissue in place and promote optimal healing (**Figure 6**). Horizontal suturing is performed using the precise surgical technique of single separate stitches to minimize the risk of bleeding and infection. Absorbable or non-absorbable sutures can be used, depending on the surgeon's preference and the patient's specific needs. After the second horizontal suture has been performed, a careful check is made to ensure that the wound is properly closed and that the sutures are secure. Sterile dressings are then applied to protect the surgical area and promote optimal healing (**Figure 7**).

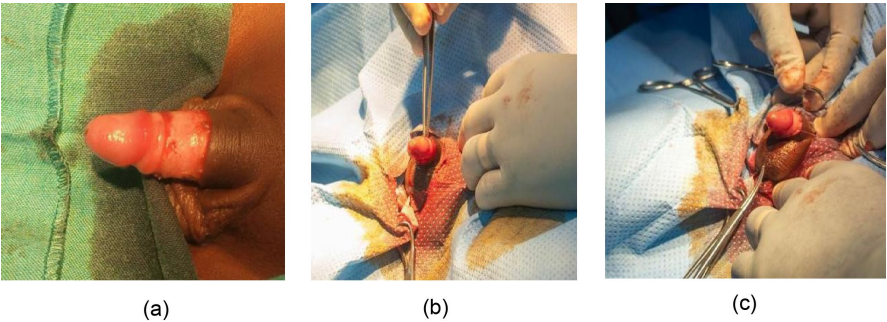


Figure 6. (a) Aspect of the glans penis after removal of the prepuce; (b) The penile skin is retracted; (c) Cardinal four point sutures are placed.

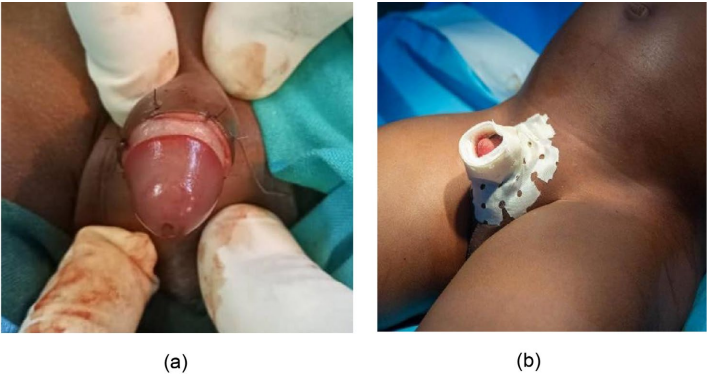


Figure 7. (a) Final aspect of the penis; (b) Wound dressing.

4. Results

A total of 689 patients were operated. We excluded 539. Only 150 cases were retained, of which 71 were operated on as part of the ASCOVIME health campaigns and 79 at the YCH (**Figure 8**).

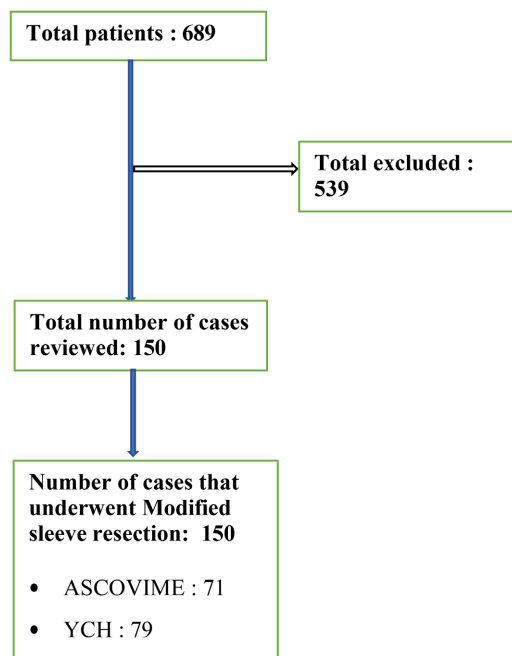


Figure 8. Study flow chart.

4.1. Sociodemographic Characteristics of the Study Population

The mean age was 5.6 ± 9.3 years with age range from 2 years to 13years (**Table 1**).

Table 1. Sociodemographic characteristics of the study population.

	Frequency (n = 150)	Percentage (%)
Age		
2 - 4	45	30
5 - 9	85	56.7
10 - 14	20	13.3
Level of education		
Infant	47	31.3
Nursery	3	2
Primary	94	62.7
Secondary	6	4
Site of treatment		
YCH	79	52.6
ASCOVIME	71	47.3

4.2. Clinical Profile of the Study Population

Majority of patients consulted for desire for circumcision (63%) (**Figure 9**).

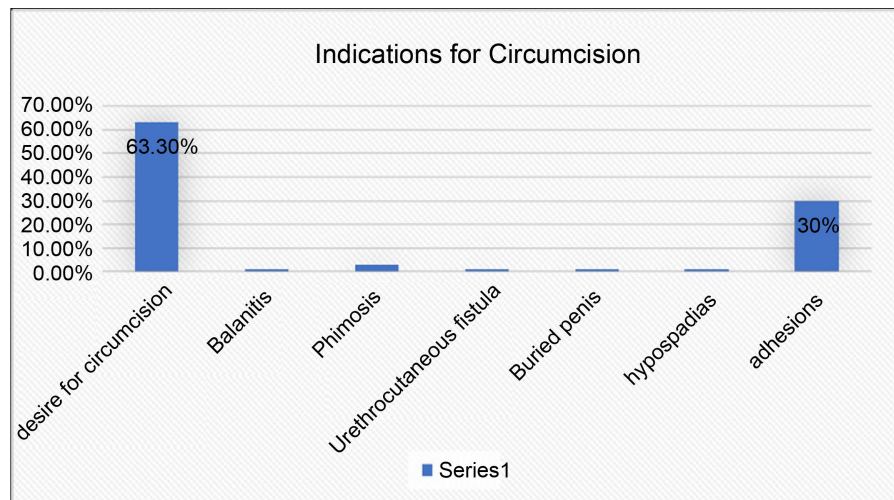


Figure 9. Distribution according to the Indication for circumcision.

4.3. Past Medical History

Prematurity was the most common past medical history observed (**Table 2**).

Table 2. Distribution according to the past medical history.

Variable	Frequency (n = 150)	Percentage (%)
Prematurity	43	28.7
Sickle cell disease	4	2.7
Neonatal infection	8	5.3
Hypospadias	2	1.3
HIV	2	1.3
Buried penis	1	0.6

4.4. Per-Operative Characteristics and Findings

Intra-operative bleeding was minimal in majority (99.3%) of the study population and there was no glans amputation (**Table 3**).

Table 3. Distribution according to the intra-operative characteristics.

Variable	Frequency (n = 150)	Percentage (%)
Type of anaesthesia		
General anaesthesia	79	52
Local anaesthesia	41	27.3
Penile block	30	20.6
Tolerance to anaesthesia		
Good	146	96.6
Weak	4	3.33

Continued

Intra-operative bleeding		
Minimal	149	99.3
Insignificant	1	0.7
Immobilisation		
Easy	146	97.3
Difficult	4	2.6
Amputation of the glans	0	100

4.5. Post-Operative Characteristics

The main complication was minimal bleeding (99.3%) (**Table 4**).

Table 4. Distribution according to the post-operative characteristics.

	Frequency (n = 150)	Percentage (%)
Immediate complications		
Minimal bleeding	149	99.3
Amputation of the glans	0	100
Late complications		
Urethrocuteaneous fistula	0	100
Delayed healing	1	0.7
Necrosis of the glans	2	1.3

4.6. Evolution

Urinary flow was good in all cases and the majority of the study population were satisfied with the cosmetic outcome (90%) (**Table 5**).

Table 5. Distribution according to the evolution.

	Frequency (n = 150)	Percentage (%)
Final aspect of the penis		
Satisfactory	15	10
Perfect	135	90
Urinary stream		
Good	150	100

4.7. Post-Operative Complications

The modified sleeve resection technique prevents complications like urethrocuteaneous fistula and amputation of the glans (**Table 6**).

Table 6. Distribution of the population according to the complication.

	Modified sleeve resection			P-value
	No	Yes	Total	
Urethrocuteaneous fistula	1 (50)	1 (50)	2 (100)	P = 0.004
Delayed healing	4 (50)	4 (50)	8 (100)	P < 0.001
Amputation of the glans	0	0 (100)	0 (100)	P = 0.001

5. Discussion

Circumcision has been considered as a simple surgical procedure but if not well performed will lead to devastating complications. Several techniques exist, so our purpose was present the modified sleeve resection ASCOVIME-MBASSI technique as a new approach to circumcision.

Patients were exclusively male. Mean age was 9.6 ± 5.3 years, with extremes ranging from 2 to 13 years. These results suggest a wide range of surgical procedures performed at different stages of the child's development. This is in line with the work of Alia *et al.* and close to that of Sylla *et al.* who showed that it would be relevant to compare clinical outcomes and potential complications according to age to assess whether certain age groups present specific risks or require different approaches [6] [7]. In addition, the analysis could explore whether age influences post-operative functional or psychological outcomes of circumcision. However, other authors report lower ages [8] [9]. This age difference may be explained by a variation of the age and period of circumcision. In the USA and England, circumcision is most often performed in the neonatal period. In the USA and England, circumcision is most often performed in the neonatal period. In Africa, however, the age at which circumcision is performed depends on custom.

More than half of the indications of circumcision were desire for circumcision (n = 95). This is attributed the usual socio-cultural attitudes of the society.

Bleeding is probably the most frequently reported complication of circumcision in the literature, although in our study only 9 cases (6%) were reported. This also differs from the incidence reported in developed countries [10]. The low incidence in our series could be explained by the fact that only patients with significant hemorrhage requiring hospitalization were recorded in medical records. On the other hand, patients with minimal bleeding (the majority of cases), for whom a simple pressure dressing was sufficient to stop the bleeding, were more often than not treated on an outpatient basis, and generally did not benefit from a medical record.

Amputation of the glans penis and urethrocuteaneous fistulae were completely avoided while using the modified sleeve resection ASCOVIME-MBASSI technique. This is in contrast to other techniques described in the literature [11]-[18]. This is attributed to the careful liberation and sectioning of the preputial foreskin which is attached to the glans penis during the surgical procedure.

Infections after circumcision have been reported to occur in up to 10% of cases [19], which differs from our series. The latter complication is rare and not ob-

served in our study. It has been reported by other authors [20]-[22]. Infectious complications are most often secondary to defective aseptic conditions or colonization of the wound by saprophytic germs of the perineum.

Therapeutic and cosmetic results were generally satisfactory, with 100% success rate in our series. These results differ from those obtained by Chen *et al.* [23], whose series reported 66.2% satisfaction rate. This difference could be explained by the fact Chen *et al.* performed circumcision in adulthood while in our series, circumcision was performed in children aged 2 to 13 years.

6. Conclusion

The vulgarisation of this new approach to circumcision will go a long way to prevent the debilitating complications such as glans amputation and urethrocuteaneous fistula. This new technique adds to the existing literature.

Authors' Contributions

All the authors contributed to the research work. They read and agreed to the final version of the manuscript.

Conflicts of Interest

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

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Appendix

Ethical Clearance



REPUBLIQUE DU CAMEROUN
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Peace - Work - Fatherland
UNIVERSITY OF DOUALA



INSTITUTIONAL ETHICS COMMITTEE FOR RESEARCH ON HUMAN HEALTH

N° 4567 CEI-UD0/07/2024/T

Douala, le 26 Juillet 2024

CLAIRANCE ÉTHIQUE

Le Comité d'Éthique Institutionnel de la Recherche pour la Santé Humaine de l'Université de Douala (CEI-UD) en sa session du 26 Juillet 2024, a examiné le projet de recherche intitulé «Modified Sleeve Resection ASCOVIME-MBASSI Technic: aspects évolutifs et résultats des patients circoncis de 2011 à 2023» soumis par NKONO BEKONO Ralph Axel, tenant lieu de Thèse de Doctorat en Médecine Générale à l'Institut Supérieur de Technologie Médicale (ISTM) de Yaoundé.

Le présent projet de recherche est d'un intérêt scientifique certain et ne présente aucun risque pour le participant. Les objectifs et la méthodologie de l'étude sont clairement décrits. Le principe de confidentialité des données est respecté. Les compétences requises pour la supervision des travaux de recherche sont présentes.

Au vu de ce qui précède, le CEI-UDo approuve pour une durée d'un an, la mise en œuvre de la présente version du protocole.

NKONO BEKONO Ralph Axel est responsable du respect scrupuleux du protocole et ne devrait y apporter aucun amendement aussi mineur soit-il, sans avis favorable du CEI-UD. Les investigateurs sont tenus de collaborer avec le CEI-UD pour le suivi des aspects éthiques du protocole approuvé. Le rapport final du projet de recherche devra être déposé au CEI-UD pour archivage.

La présente clairance éthique est délivrée pour servir et valoir ce que de droit. Elle peut être annulée en cas de non-respect de la réglementation en vigueur et des recommandations sus-mentionnées.

Ampliations

- MINSANTE

LE PRESIDENT

Leopold Gustave LEHMAN

NB : Il n'est délivré qu'un seul exemplaire de la clairance éthique.

N° 0977/Minsante/SESP/SG/DROS of April 16, 2012

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