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A Cut Too Deep: Ethical Reckoning and Innovation in Neonatal Circumcision

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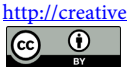

Abstract

This manuscript explores the profound emotional, ethical, and systemic implications of a rare but devastating complication during routine neonatal circumcision—a procedure performed millions of times annually. Through a visceral thought experiment, readers are invited to imagine the unimaginable: the loss of a newborn due to a preventable surgical error, and the parallel trauma experienced by the physician involved. The narrative underscores the frequency and severity of such incidents, challenging the assumption that they are exceedingly rare. It also introduces a low-cost, purpose-built device designed to eliminate the risk of slippage events during circumcision. More than a technical solution, it represents a paradigm shift—protecting not only infants, but also families and clinicians from lifelong psychological harm. This work advocates for the integration of simple, effective innovations into standard practice to prevent tragedy and preserve the integrity of care.

Keywords

Slippage Injury, Infant Mortality, Physician Trauma, Preventable Error, Patient Safety, Medical Ethics, Procedural Innovation, Low-Cost Medical Device, Psychological Impact, Systemic Reform, Clinical Risk Mitigation, Family-Centered Care, Surgical Safeguards

1. Introduction

We would like the reader to close their eyes for a few seconds-imagine the birth of your son, imagine him being taken away shortly after birth for a routine circumcision (the most common medical procedure in the us and worldwide) and imagine a doctor telling you shortly thereafter that a horrific (a 1 in a million complication ensued) a slippage event during the removal of the foreskin occurred, puncturing the femoral artery. and he didn't make it. Now also imagine

being that doctor, who just finished medical school perhaps and was finally entering into the reality of a lifelong dream, of saving lives-he could not save that 1-day old infant but instead played an active role in his death. Now imagine being told, that these incidents occur exceedingly far more frequently than 1/million, and this could have been prevented with a device that costs about 6 dollars to make. Through a visceral thought experiment, readers are invited to imagine the unimaginable: the loss of a newborn due to a preventable surgical error, and the parallel trauma experienced by the physician involved. The narrative underscores the frequency and severity of such incidents, challenging the assumption that they are exceedingly rare. It introduces a low-cost, purpose-built device designed to eliminate the risk of slippage events during circumcision. More than a technical solution, it represents a paradigm shift—protecting not only infants, but also families and clinicians from lifelong psychological harm. This work advocates for the integration of simple, effective innovations into standard practice to prevent tragedy and preserve the integrity of care.

2. Methods

- **Retrospective Case Review**: A review of published literature and adverse event databases was conducted to identify documented cases of vascular injury or death resulting from slippage events during circumcision. Incidence rates were compared against commonly cited statistics to evaluate discrepancies in perceived versus actual risk.
- **Stakeholder Interviews**: Semi-structured interviews were conducted with pediatric surgeons, neonatologists, and affected families to gather qualitative insights into the emotional and psychological toll of circumcision-related complications. Themes of trauma, accountability, and systemic inertia were analyzed. We conducted semi-structured interviews with a purposive sample of 33 stakeholders, including clinicians, device developers, and healthcare administrators and parents. Participants were recruited through professional networks, targeted email outreach, and snowball sampling to ensure diverse perspectives across roles and institutions. The interview guide focused on perceptions of device safety, implementation barriers, and opportunities for innovation in neonatal care. Interviews were analyzed using thematic analysis and approach to identify recurring patterns and emergent themes.
- **Limitations**: This study is subject to several limitations. First, its retrospective design may introduce selection and recall biases that could affect the interpretation of outcomes. Second, the qualitative component relied on a small sample size, which may limit the generalizability of thematic insights. Lastly, adverse events may be under-reported due to variability in documentation practices and reliance on self-reported data.

3. History of Neonatal Circumcision and Ancient Origin

The oldest mention of circumcisions can be found as a biblical reference, where it

was established as a prominent practice in the Abrahamic lineage, and has since become a cultural inheritance, see **Figure 1** [1] [2]. The Hebrew Bible, particularly in Genesis, mentions that Abraham was commanded by God to circumcise himself and his descendants, establishing it as a covenant between God and the Israelites [2]-[4]. In contrast early Christians, including the Apostle Paul, argued against the use and need of circumcision for followers of Jesus and because of these differing opinions the Council of Jerusalem (around 50 CE) decided that Gentile population did not require circumcision [1]-[4].

Figure 1. "Inheritance of the Blade"—A symbolic rendering of neonatal circumcision as both a clinical act and a cultural inheritance. The central figure, lies beneath a looming scalpel suspended by threads of parchment inscribed with ancient religious undertones. The image invites reflection on the intersection of faith, medicine, and the ethical weight of inherited practices.

Historically, circumcision has been a strong component of Jewish identity and religious practice; known as Brit Milah, is carried out on the eighth day of life [2] [3]. However, it also has had an impact in other communities as it was practiced among some Canaanite and Phoenician communities in the ancient East. Additionally, Aboriginal Australian groups also practiced circumcision, these practices were linked to initiation rites and social norms. Circumcision appears to have been practiced in ancient Egypt as well, as early as 2300 BCE, with the practice of this rudimentary procedure depicted in Egyptian tombs and described in historical records. In Islam, in the Sunnah population in particular, circumcision is often recommended rather than required and often performed for cultural, and hygienic reasons, in infancy or early childhood [2]. Other communities, the Greeks, for example, did not practice circumcision-review of their early literature shows

that the practice was viewed at with disdain, and at best with curiosity. Lastly, in some African cultures, circumcision is part of initiation rites and traditional practices [2] [5]. These early practices and varying traditions have led largely to the vast array of cultural preferences seen today [2] [5].

4. Circumcision in the Modern Era; 19th and Early 20th Centuries

In the modern era, circumcision during the neonatal stage has become popular in Western countries due to its perceived health benefits, including improved hygiene-particularly the prevention chronic soft tissue infections [4] [6] [7]. Additionally, studies suggest additional benefits such as a reduced risk of urinary tract infections and sexually transmitted infections [7]-[9]. Recently, however, the medical necessity for neonatal circumcisions has become controversial with arguments focusing on the ethical and cultural considerations given what controversial medical data available to refute its need [10] [11]. Notably, recent studies in the United States have argued against the medical benefits as minimal and not sufficient to overcome the ethical dilemma of performing an unnecessary, potentially risky and harmful surgical procedure on a non-consenting newborn [8] [10] [12]. Although for largely cultural reasons the US had seen a large portion of parents electing to circumcise their newborn these ethical stances continue to evolve the conversation, with advocates for, arguing strongly for informed parental choice and respect for cultural and religious traditions, while critics emphasize bodily autonomy and potential lifelong risks [11] [12]. Moreover, in most European and Asian countries, neonatal circumcision is less common and often performed for religious or cultural reasons rather than routine practice [8] [12]. In contrast, circumcision remains widespread in Jewish and Islamic communities, and it is continually practiced in some African cultures as part of initiation rites.

This table presents a comparative overview of the potential medical, psychological, and ethical risks and benefits associated with neonatal circumcision. It includes short-term and long-term considerations, highlighting both individual and public health perspectives. The data reflect current literature and clinical consensus, while acknowledging ongoing debate and variability in outcomes across populations.

5. Procedure Details in Current Medical Practice

Most circumcision, are performed during the neonatal stage, the procedure involves the surgical removal of the foreskin, or, the flap of skin covering the glans (head) of the penis, from an infant's penis. Currently, there are various techniques are used, including the Gomco clamp, Plastibell device, and Mogen clamp, with the Gomco clamp method largely making up the bulk of these [14] [15]. The choice of method usually depends on the medical provider's training practices and the preferences/comfortability [14]. The Gomco clamp was developed in the early 20th century by Dr. David G. Gomco and has become the most widely adopted

method due to its effectiveness and simplicity. Since its introduction into the medical field, the Gomco clamp has undergone refinements and in the United States, it is now considered a standard tool for neonatal circumcision [14]. Favorability of this technique is due to users' control of precision, which minimizes bleeding risk, when used properly. However, like all surgical procedures, it carries inherent risks and requires skilled physicians with significant clinical experience to achieve optimal aesthetic outcomes [14] [15].

The structure of the surgical instrument itself consists of a metal clamp and a bell-shaped structure that fits over the glans (head) of the penis. In its entirety it includes a base plate, a clamping mechanism, and a bell (a rounded metal part that shields the glans), which varies in size, matches to individual penis size [15]. Mechanistically, during the procedure, a size appropriate bell is placed over the glans of the penis, and the foreskin is pulled over the bell. The clamp is then applied, compressing the foreskin against the bell. Once in correct placement and secure a cutting blade is used to remove the foreskin around the clamp. The clamp's design helps minimize bleeding by compressing the foreskin's blood vessels before cutting. In this assembled form, this process ensures that the glans is protected and that the cut is clean, with a perceived aesthetic benefit, from a cultural perspective. After cutting of the foreskin, the clamp is removed, and any remaining tissue is trimmed. The wound is then dressed to promote healing and the infant is monitored for any immediate complications, such as bleeding.

6. Ethical and Controversial Considerations in the Newborn

Neonatal circumcisions are performed during the first or second day of life, with parental consent [16]. Ethical concerns arise about the infant's ability to consent and the potential for irreversible outcomes, including deformity, or in rare cases even death [16] [17]. Though most of the non-medical community have come to understand circumcision as a benign, trivial procedure, it is in fact a surgical procedure that is not itself without risk [16]-[18]. Critics argue that infants cannot consent to the procedure and question the ethics of performing surgery on a non-consenting individual, especially given the risks [18]. In a consenting adult, the choice to undergo any invasive procedure is weighed against the health benefits. The health benefits of circumcision are still largely debated and even in those that do believe they exist, some still argue that the benefits do not justify routine circumcision for the sake of aesthetics and cultural preference [17]. Various medical organizations, including the American Academy of Pediatrics (AAP), provide guidelines on circumcision. The AAP acknowledges potential health benefits but emphasizes that the decision should be made by parents in consultation with healthcare providers [19]. Additionally, critics argue for alternative methods that are non-invasive and available; these include procedures such as preputioplasty: an non-surgical procedure that involves widening the opening of the foreskin rather than removing it and can also be used to treat phimosis, see **Table 1** [17] [18].

Table 1. Risks vs benefits associated with circumcision.

Risks Associated with Circumcisions	Benefits Associated with Circumcisions
Possible complications include bleeding, infection, deformity, soft tissue injury or blood vessel laceration, as well as poor healing. Severe complications are rare but can occur, including death (8, 10, 12).	Circumcision can prevent phimosis (a condition where the foreskin cannot be retracted) and balanitis (inflammation of the glans) (17, 18).
Infants may experience pain and discomfort post-procedure, though local anesthesia is usually used to minimize pain during the operation. In very rare cases, the tissue might suffer necrosis (tissue death) due to improper clamping or inadequate blood flow (8, 10, 12).	Some studies suggest that circumcision can lower the risk of urinary tract infections (UTIs) in infancy and childhood. approximately 10-fold in circumcised infants compared to those who are not circumcised (9).
There is a risk of injury to the glans (head of the penis) or the urethra during the procedure. Healing issues can include delayed healing, granulation tissue formation (excess tissue growth), or wound dehiscence (opening of the wound) leading to psychosocial effects, such as the impact on body image and potential feelings of trauma later in life. [13]	Evidence indicates that circumcision may reduce the risk of sexually transmitted infections (STIs) including human immunodeficiency virus (HIV) and genital herpes secondary to the reduces the surface area and changes the mucosal environment. Circumcision is also associated with a lower incidence of cervical cancer in female partners due to reduced risk of HPV (human papillomavirus) infection secondary to reduces the likelihood of HPV transmission, which is a risk factor for cervical cancer. [9]

7. Bodily Autonomy and Consent

Informed consent involves providing individuals with the necessary information to make a voluntary and knowledgeable decision about medical procedures, in terms that they can understand. For neonates, parents or guardians make those decisions as this population cannot consent themselves. Neonates cannot express their preferences or understand the implications of medical procedures chosen on their behalf. This raises questions about whether it is ethical for parents to consent to procedures that might not be medically necessary. In addition, bodily autonomy refers to the right of an individual to make medical choices regarding their own bodies. For adults, this principle is clear, however when applied to infants who cannot express their own wishes, this becomes controversial [19]. Performing procedures on infants without their consent raises ethical questions about the respect for their future autonomy and choices- and most notably, the impact of irreversible physical changes made on their behalf. For these reasons, clearly, medical procedures should be justified by a well-defined and documented clinical benefit or necessity. Unnecessary, unrequired procedures still pose risks without providing significant benefits, all of this is exacerbated yet even more when patients cannot consent for themselves, such as is the case with neonatal circumcisions. The term "unnecessary" often pertains to procedures that are not urgently

required for the infant's health or well-being [20].

8. Discussion

While parents may have the right to make decisions, there is a debate about whether this authority should extend to procedures that are not medically necessary and could potentially cause harm [21]. The psychological impact of medical procedures on infants is challenging to measure directly, but there is concern about potential long-term effects. There is debate about whether infants might experience psychological distress or impact later in life from procedures performed without their consent [20]. Decisions made on behalf of infants can have long-term implications for their autonomy and personal preferences as they grow older.

Ethical concerns arise when procedures are performed primarily for cultural or non-medical reasons without clear, immediate health benefits. Towards these efforts the main goal of this editorial is to summarize the most up to date documented benefits of neonatal circumcisions so that parents may weight these against or with cultural and or religious beliefs. Many cultures and religions have established practices, such as circumcision, that hold significant meaning. Respecting these practices is an important aspect of ethical medical care. Balancing respect for cultural and religious beliefs with the principle of minimizing harm and ensuring informed decision-making can be challenging. Ethical medical practice involves weighing the potential risks and benefits of a procedure. Risks should be minimized, and benefits should outweigh any potential harm. If a procedure carries risks [17] but provides little or no medical benefit, its ethical justification becomes questionable. For neonatal circumcision, which has both potential benefits and risks, the necessity of the procedure is debated and yet cultural and religious preferences must also be respected and acknowledged [22]. Healthcare providers must navigate these concerns while ensuring that decisions are made with the infant's best interests in mind. Parents generally have the authority to make decisions about their child's medical care, including cultural and religious practices [22]. The ethical issue revolves around making irreversible decisions that may affect the individual's future autonomy and personal preferences. Various medical organizations have established guidelines to ensure ethical practices in neonatal care, including considerations for circumcision and other non-urgent procedures [22]. For these reasons, every effort should be made by guiding medical organizations to make incorporate all safety measures available, the standard of care. Guidelines generally emphasize the importance of informed consent, parental education, and careful consideration of the necessity and risks of procedures [23]. Open communication between healthcare providers and parents is essential to ensure that decisions are made with full understanding of the potential risks and benefits. Healthcare providers should provide comprehensive information about the procedure, including risks, benefits, and alternatives, and ensure that parents make an informed decision that prioritizes the infant's best interests.

8.1. The Future of Neonatal Circumcision and Introduction of CircimShield™—Universal Neonatal Gomco Clamp Safety Guard

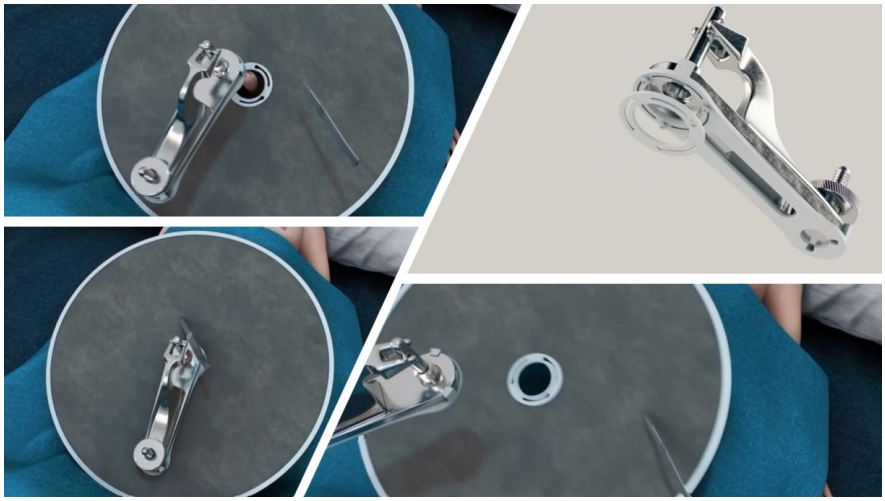

Figure 2. CircimShield™ is a precision-engineered safety accessory designed to enhance the reliability of neonatal circumcision procedures performed with Gomco clamps. Constructed from high-grade stainless-steel mesh, CircimShield™ provides a secure, non-slip interface that reinforces clamp stability and minimizes the risk of slippage events during delicate tissue engagement.

8.2. Universal Fit & Secure Attachment

CircimShield™ is compatible with all standard neonatal Gomco clamp sizes (including 1.1 cm, 1.3 cm, and 1.45 cm bell diameters). Its adaptive mesh design conforms snugly around the clamp's bell and base, locking into place via a tension-fitted collar that ensures consistent pressure without compromising procedural access or visibility. In addition, it is made to be adapated and used for safety even in circumstances where a Gomco is not used. See Figure 2.

8.3. Slip-Resistant Mesh Barrier & Durable & Sterilizable Construction

Crafted from surgical-grade stainless steel, CircimShield™ is corrosion-resistant, autoclavable, and reusable across multiple procedures. Its open-weave mesh allows for easy cleaning and rapid drying, supporting infection control protocols without sacrificing performance.

CircimShield™ is an ideal solution for clinicians seeking enhanced control, safety, and confidence in neonatal circumcision procedures—especially in settings where precision and consistency are paramount.

8.4. Conclusions and Summary

Circumcision is practiced globally for religious, cultural, and medical reasons. Its significance varies widely:

- Judaism: Circumcision (Brit Milah) is a sacred covenant performed on the

eighth day of life, symbolizing the bond between God and the Jewish people.

- Islam: While not mandated in the Quran, circumcision is widely practiced as a Sunnah (tradition of the Prophet). Timing varies, but it is often performed in early childhood or before puberty.
- Christianity: Most denominations do not require circumcision, though some Eastern Christian and African communities maintain the practice for cultural reasons.
- Traditional Cultures: In parts of Africa, Southeast Asia, and the Pacific Islands, circumcision is a rite of passage often performed during adolescence.

Despite its deep cultural roots, circumcision carries risks—especially when performed in non-clinical settings or without informed consent. These include bleeding, infection, pain, and long-term psychological or sexual complications. As such, many medical bodies advocate for careful consideration of timing, technique, and necessity and introduction of new safety tools. If circumcision is deemed necessary—whether for religious, cultural, or medical reasons—new safety tools and/or adaptations can help balance tradition with safety and ethical care:

8.5. For Jewish Communities

- Alternative: Prepuceplasty

When preserving religious symbolism is essential but full circumcision raises ethical or medical concerns, prepuceplasty (a foreskin-preserving procedure that widens the preputial opening) may offer a compromise. While not traditionally accepted as Brit Milah, it could be considered in exceptional cases where medical contraindications exist, especially if paired with symbolic ritual elements.

8.6. For Islamic Societies

- Recommended Timing: Post-Newborn Period

Islamic jurisprudence allows flexibility in timing. Delaying circumcision until after infancy—preferably in early childhood or adolescence—can reduce surgical risks and allow for informed parental or individual consent. This approach also aligns with the tradition of circumcision as a rite of passage rather than a neonatal intervention.

In cases where circumcision is medically indicated (e.g., recurrent infections or phimosis), it should be performed with full clinical oversight, regardless of age, and – and ideally outside the newborn period to minimize complications. The overarching goal of this editorial is to provide information, insight, guide policy and highlight all available new safety measures and tools aim to honor religious and cultural values while promoting safe, ethical, patient-centered care in neonatal circumcisions that are deemed medically necessary. They also encourage dialogue between medical professionals, religious leaders, and families to find solutions that respect both tradition and modern standards of safety.

This study highlights the potential of CircimShield as a novel adjunct to neona-

tal circumcision procedures, offering enhanced protection against peri-operative complications such as unintended slippage events leading to life threating puncture wounds. The data from our rigorous interviews continue to highlight that CircimShield may improve procedural safety and reduce the risk of mortality in neonates, which has direct implications for both clinical practice and health policy.

8.7. Clinical and Policy Implications

CircimShield could be integrated into standard circumcision protocols to improve outcomes, particularly in outpatient or resource-limited settings. Its ease of application and potential to reduce adverse events may support broader adoption, especially in regions where circumcision is routinely performed but access to follow-up care is limited. From a policy standpoint, incorporating CircimShield into national guidelines could standardize safety practices and reduce healthcare costs associated with complications.

8.8. Comparison with Existing Safety Measures

There are no current devices that shield neonates from slippage events and potential death from these complications, CircimShield offers a novel and effective barrier against mechanical trauma. Unlike conventional methods, which rely heavily on clinician technique and post-operative monitoring, CircimShield provides a consistent level of protection that may reduce variability in outcomes. However, further comparative studies are needed to validate these advantages across diverse clinical settings.

8.9. Implementation Challenges and Strategies

Barriers to implementation may include cost, clinician training, and regulatory approval. To overcome these, pilot programs could be launched in high-volume centers to evaluate cost-effectiveness and gather real-world data. Educational initiatives and integration into residency training could facilitate clinician uptake. Collaboration with regulatory bodies and payers will be essential to ensure reimbursement and widespread accessibility.

The ethical landscape surrounding neonatal circumcision remains complex. While bodily autonomy is a central concern—particularly in debates over non-therapeutic procedures performed without consent—this must be balanced against cultural, religious, and public health perspectives. In many communities, circumcision is a deeply rooted tradition with spiritual and social significance. Policies must therefore respect parental rights and cultural identity while promoting informed decision-making and minimizing harm.

The authors of this manuscript are hopeful that this information will lead to more nuanced policy discussions which include the following.

Parental authority vs. child autonomy: Recognizing the tension between parental rights to make medical decisions and the future autonomy of the child.

Cultural and religious imperatives: Understanding circumcision as a rite of passage or religious obligation in communities such as Jewish, Muslim, and certain African cultures.

Equity and access: Ensuring that safety innovations like CircimShield are available across socioeconomic and geographic boundaries, so that ethical standards are not compromised by disparities in care.

Unmasking the Hidden Toll: Why Circumcision-Related Deaths Are Underreported and How CircimShield Can Transform Data Transparency

Despite its routine status in many healthcare systems, neonatal circumcision carries risks that are frequently obscured in official reporting. Slippage events—where complications escalate to severe outcomes, including death—are systematically underreported. This is not merely a matter of oversight; it reflects a deeper structural and cultural reluctance to associate mortality with a procedure often framed as benign or culturally normative.

Death certificates rarely list "circumcision" as the cause of death. Instead, they cite downstream complications such as hemorrhage, sepsis, or cardiac arrest. This semantic distancing shields the procedure from scrutiny and prevents accurate epidemiological tracking. The result is a data vacuum: clinicians, policymakers, and parents lack access to reliable statistics on circumcision-related mortality, impeding informed consent and evidence-based policy.

CircimShield offers more than just physical protection—it opens the door to better data reporting. As a standardized, trackable intervention, its use can be linked to procedural outcomes in electronic health records. By embedding device utilization into clinical documentation, CircimShield creates a traceable footprint that allows adverse events to be more accurately attributed. This transparency is essential for:

Improving surveillance of circumcision-related complications.

Enabling post-market safety studies tied to device use.

Informing ethical debates with real-world data rather than assumptions.

Empowering parents and clinicians with clearer risk profiles.

In short, CircimShield doesn't just mitigate harm—it helps reveal it. By breaking the silence around circumcision-related mortality, it catalyzes a shift toward accountability, precision, and ethical clarity in neonatal care.

Intellectual Property Statement

The medical device described in this manuscript is the intellectual property of Mimir's Well-ness. All proprietary technologies, designs, and associated documentation are owned exclusively by Mimir's Well-ness and are protected under applicable intellectual property laws. Use or reproduction of these materials without explicit written permission is prohibited.

Conflicts of Interest

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

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