



Original Article

Paediatric Circumcision with Bipolar Diathermy: Our Experience of 200 Cases, Assessment of Health Benefits and Risks Corresponding Author

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ABSTRACT

Ritual circumcision is the most commonly used procedure for males. Circumcision operations are routine procedures, which are done using various techniques. **Objective:** To elaborate on the advanced techniques for bipolar diathermy by describing this surgical procedure in terms of incidence of postoperative complications, bleeding, and occurrence of infections or complications. All these findings were recorded in quantitative terms and a comparative analysis was made. **Methods:** A descriptive observational study was conducted on children of age 1 week to 8 years. The method was to observe readings for children undergoing circumcision procedures of bipolar diathermy. The p-value was calculated for postoperative complications. **Results:** We selected the target population of 200 children. There was a very reduced incidence of bleeding was recorded in children undergoing circumcision by bipolar diathermy. There were no infection rates recorded and very less post-operative complications. **Conclusions:** Bipolar diathermy method is more efficient with a decrease incidence of morbidities.

INTRODUCTION

Circumcision is the most common technique, which is done to males at an early age and is a common or routine process in hospitals [1]. The penile glans is a double-layer structure, the foreskin protects the underlying structure from environmental irritation rubbing against the clothes and diapers. The double-layer structure consists of membranous skin inside and protects dry skin on the outside [2]. This elastic covering is considered as the most sensitive part of the penis. The current topic of circumcision is under consideration, despite of the evidence it causes intense pain, discomfort to the newborn in some cases change in behaviors like breast feeding behaviours. We overlooked the associated pain because it's a very mild pain [3]. Circumcision is a ritual performed but it

significantly decreases the incidence of urinary tract infections, invasive penile cancer, papilloma virus, and sexually transmitted diseases. The neonatal undergoing circumcision have a very reduced incidence of HPV and HIV. A ritual circumcision should be assessed according to rituals and beliefs of the society. We should do a comparison of risk and benefits assessing rituals and beliefs in social, religious and societal beliefs [4]. Many studies of public health strategies work on issued guidelines of medical ethics. They assess the risk and benefits and also emphasize on benefits associated with the surgical interventions [5]. If we focus on the morbidities associated, it's a great intervention regarding the prevention of HIV and early childhood urinary tract

infections. In later age very reduced incidence of sexually transmitted diseases is documented [6]. Neonatal circumcision is sometimes followed by studies and investigations on other congenital abnormalities like epispadias, megalourethra, hypospadias, webbed penis, mylomennigocele, and anorectal anomalies [7]. There are many surgical risks associated with the circumcisions but we cannot ignore the benefits. Substantial evidences support this surgical intervention and the development of this new technique. Reducing the morbidities and viral infections promotes circumcisions ignoring the ritual and religious boundaries [8]. The choice of technique should be based on results of reduced post-operative complications, decreased bleeding time and fast recovery. There should be a comparison of post-operative complications in different techniques of dorsal slit, laser and blade techniques [9]. We advocate a technique, first described in 1999 in the urological press, that is simple to perform and has, in our hands, reduced this complication to zero. In our setup most surgeons still do circumcision with conventional bone cutter method which has a high incidence of glanular injury and post-operative bleeding. At some centres circumcision is done by open method and very few surgeons use gomco clamp for circumcision [10]. With the evolution of surgical techniques and new methods development for circumcision, there should be a comparison in old and new techniques associated with lesser risk of complications. Patients safety should be our first concern. Many studies focus on the comparison on using ligatures with bipolar diathermy [11]. One third of the total world population of man is circumcised, mostly accounts in USA, Canada, Africa, and middle east or ASIA [12]. Researches mainly emphasize on the surgical techniques and important health benefits associated with male circumcision. Sexual health is one of main concern [13]. The WHO Manual of Male Circumcision under local anaesthetic was written with these objectives in mind. Paediatric methods included are the plastibell technique, the Mogen and Gomco shield method, a standard surgical dorsal slit procedure and evolving new techniques like bipolar diathermy [14]. The bipolar diathermy is associated with many decreased morbidities. Less operative time and fast recovery. About 25-33% of the total world male population is circumcised. Despite of ritual techniques, every year above one million above man are circumcised on average in US [15]. The rate of circumcision in USA is 70% while in Britain it is 6% [16]. In Nigeria, circumcision rate is estimated to be 87% [17]. Religiously the people support circumcision include, the Jews; religious and cultural circumcision is also practiced by Muslims, Black Africans, Australian aborigines, and others [18].

METHODS

The excision of inner and outer preputial skin, by taking care of asepsis, protection of glans and urethra, and cosmesis. The aim is to expose the glans structure enough to prevent phimosis and paraphimosis. The ritual ways of circumcision are subcategorizing in Dorsal slit, Clamps and shields. Two methods were used. Excision and Laser therapy. The procedure was done under local anesthesia. The local anesthesia can be done by various methods. Penile ring blocking, Local anesthesia spray, Penile dorsal nerve blocking. Foreskin is first retracted completely and all adhesions are released, smegma is cleaned than foreskin is pulled back two artery clamps are applied on the edges of foreskin on dorsal and ventral side, assistant hold the clamp upward and foreskin is marked at the level of corona. A dissecting forcep is applied holding the foreskin above glans penis foreskin is pulled upward till markings. The whole of the skin is cut using bipolar diathermy above the dissecting forceps two stitches are applied one at dorsum and one at frenulum. Sterile dressing is done. Circumcision operations using bipolar diathermy were performed by consultant surgeons on 200 patients of age group (1 week to 8 years). All the attendants or guardians of patients were counselled by the operating surgeon. All operations were one under general anaesthesia as day-case procedures and results were observed. Data was analysed by post-operational complications variable, and p-value of each variable is calculated.



Figure 1: Foreskin is pulled and artery clamps are applied

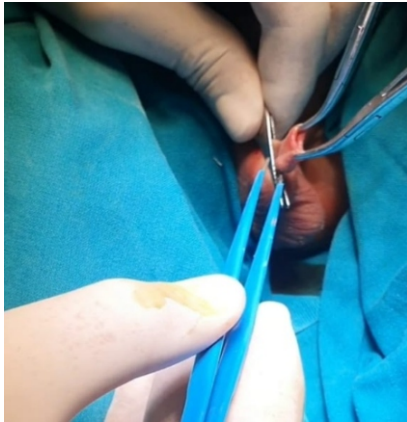


Figure 2: A dissecting forcep holding foreskin and the foreskin is cut using bipolar diathermy



Figure 3: Final results, no incidence of trauma or bleeding

RESULTS

The blood loss has an average value of 0.2ml with a range of 0-0.8ml. the post-operative time definitely very low. Very less complications and morbidities were recorded. The results were significant. Table 1, describes the average of cases with reference to age. We observed cases of neonatal circumcision with a mean of 80% and one year of children with a mean of 20%.

Cases	Mean
No of cases (neonatal circumcision)	80%
No of cases (above 1 year of children)	20%

Table 1: Mean Calculations

Factors	Average values
Average blood loss	0.2ml (0-0.8)
Average operative time	10 to 15 minutes
Average of surgical bleeding complications	Less than 5%
Incident post-operative morbidity	Less than 5%

Table 2: Parameters to evaluate the effectiveness of new method, bipolar diathermy

Outcome	No of patients	Percentage	P value
Cured without complications	192	96%	<0.001
Failure and having complications	8	4%	

Table 3: outcome of study

Table 3 evaluated the parameters of bipolar diathermy. The average operative time for these 200 cases was 10 to 15 minutes. Less than 5% of bleeding complications and post-operative morbidities were recorded. This table also shows that 96 % of cases underwent circumcision with bipolar diathermy, cured without complications. Only 4% cases were reported with mild complications. A very significant p-value <0.001 calculated.

DISCUSSION

Bipolar diathermy has very satisfactory cosmetic results [18] and the use of this technique in circumcision reduced the risk of injuries to glans. Modalities of cutting by bipolar diathermy bestow safety and efficiencies of time in operation theatre. Diathermy scissors are not only safe but simple in describing the pitfalls of penis shaft denuding and inadequate hemostasis [19]. There are some studies on older techniques which elaborate well the complications of bleeding, inappropriate cutting off edges and reprocessing the operations. Introduction to diathermy method and reduction in complications were studied by Marsh SK, Archer similar studies were performed which support diathermy as a best procedure [20]. Many studies in continental China, where there is a very high incidence of HIV, that the HIV is considered as an epidemic. The promotion of neonatal circumcision is considered a control against HIV and sexually transmitted diseases [21]. Dr Kevin Pringle et al, the complications of typical urinary tract infections and circumcisions are mainly associated with the uncircumcised males. The most worrisome aspect is a significant report of HIV positive males. The increasing incidence is deliberately creating a challenge to the society [22]. if we consider other infections like phimosis and balanitis, 80% of the patients respond to the steroidal creams. But definitely circumcision saves them from getting phimosis. The main concern is to compare the risks and benefits associated [23]. The advanced technique of bipolar diathermy bestows less occurrence of bleeding and post-operative complications. 25-33% of the total world male population is circumcised [24]. Researchers emphasize on a very serious point of surgical intervention that the complications are not treated or recorded to the same hospitals where the first procedure was done, due to this behaviour we cannot assess the associated risks. Definitely, it's a public health domain. But to assess the morbidities with a surgical technique there must be a strict follow-up of months [25-26]. DeMaria, Abdulla, Pemberton, et al. studied the unsatisfactory results in pediatric and

urology practice. Many practitioners are not aware of the ritual technique and the contraindications associated with the old and new techniques. In many areas still quacks perform the circumcisions and many non-surgeon persons. The main risk is they cannot handle the post-operative complications [27]. Most major organizations have cautiously neutral opinions on circumcision, stating that medical benefits are not large enough to justify routine neonatal circumcision [28].

CONCLUSIONS

Use of bipolar diathermy is a new, effective and safe technique for circumcision. With a significantly decreased incident of morbidity.

Conflicts of Interest

The authors declare no conflict of interest.

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