

COMPARISON OF CIRCUMCISION BY PLASTIBELL VERSUS OPEN METHOD

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ABSTRACT

Objective: The objective of the study is to compare circumcision by plastibell and open method in terms of bleeding, infection and cosmesis.

Study Design: Randomized clinical trial.

Place and Duration of Study: Surgical ward, Combined Military Hospital, Kharian from Aug 2011 to Sep 2012.

Material and Methods: All individuals fulfilling inclusion criteria underwent circumcision in the operation theatre of CMH Kharian as indoor patients, under local anaesthesia and aseptic measures. In group 1, circumcision was done using plastibell where as in group 2, circumcision was done by open method.

Results: Mean age in plastibell group was 3.37 months (SD=1.77) and in open group was 3.12 months (SD=1.33) ($p=0.100$). In plastibell group 18% had bleeding however in open group 4% had bleeding ($p<0.001$). In plastibell group 4% patients had infection. However in open group 15% had infection ($p<0.001$). In plastibell group 82% parents were satisfied whereas 18% had extra skin, whereas in open group 96% parents were satisfied, 1% had extra skin and 3% had less skin ($p<0.001$).

Conclusion: Circumcision being a commonest surgical procedure demands careful selection of the operative procedure because plastibell method is superior in terms of post-operative infection whereas open method is better in terms of cosmesis and post-operative bleeding.

Keywords: Circumcision, Plastibell, Open method.

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INTRODUCTION

Circumcision in the male involves the surgical removal of the foreskin (i.e prepuce) of the penis. The procedure is very old and continues to be performed for a variety of religious, cultural and medical reasons^{1,2}. However, beneficial outcome of circumcision is still debatable, as it remains uncertain whether the potential benefits of circumcision outweigh its known complications. Despite this controversy, circumcision is the most common operation in the United States (USA)³. The procedure is performed on healthy term infants who are at least 24 hours old and preferably not less than 10

days of age. This period of observation allows for recognition of abnormalities or illnesses that should be addressed before circumcision. Preterm infants are circumcised near the time of hospital discharge. The major methods of neonatal circumcision are the Hollister Plastibell, GAMCO clamp and by open method. In Pakistan, 85-90% of circumcisions are performed by traditional circumcisers, village barbers, paramedical theatre staff and technicians where operation is performed with no anaesthesia, no sutures, with unsterilized instruments and ashes of burnt wood are used to establish homeostasis, and only 10-15% have access to a proper medical facility where a doctor performs the circumcision under strict aseptic technique⁴. The rationale of this study is to find out the better procedure for circumcision which has less post-operative complications and has a better cosmetic outcome.

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MATERIAL AND METHOD

These randomized controlled trials were conducted at surgical ward, Combined Military Hospital Kharian from Aug 2011 to Sep 2012. Children less than 01 year of age were included in the study. Those having low birth weight, bleeding disorders, immuno-compromised and having any sort of systemic illness were not included in the study. Those who fulfilled the sample selection criteria were admitted in surgical ward for circumcision. They were admitted for the study purpose otherwise circumcision is usually done on outdoor basis. Permission from hospital ethical committee was obtained. A written informed consent was taken from the parents. A total of 200 children were selected and randomized either to the plastibell group or the open group based on table of random numbers. Complete Blood Picture,

recorded on a patient's performa. Follow up was ensured by taking contacts of patients. Control of bias and confounding factors was done by strictly following the exclusion criteria.

Data had been analysed using SPSS version 15. Descriptive statistics were used to describe the results. Independent sample t-test was applied for the comparison of quantitative variables while chi-square test was applied for the comparison of qualitative variables between the groups. A p -value <0.05 was considered as significant.

RESULTS

A total of 200 children were recruited for study after careful scrutiny using above mentioned inclusion and exclusion criteria. Mean age in plastibell group was 3.37months (SD=1.77) and in open group was 3.12months (SD=1.33) ($p=0.100$). In plastibell group 82% patients had no

Table-1: Plastibell versus open method of circumcision.

Group	Mean Age (±SD)	Infection		Cosmetic outcome bleeding				
		+ive	-ive	Less skin	More skin	Satisfied	+ive	-ive
Plastibell group	3.37 (±1.77)	4%	96%	Nil	18%	82%	18%	82%
Open group	3.12 (±1.33)	15%	85%	3%	1%	96%	4%	96%
p -value	0.1	=0.001		=0.001			=0.001	

Bleeding Time and Clotting Time of all the children were done prior to the circumcision. All the patients underwent circumcision in the operation theatre of CMH Kharian as admitted patients, under local anaesthesia and aseptic measures. In plastibell group plastibell was used for the circumcision whereas in open group, circumcision was done by open technique (fig-1). Patients were given Syrup Amoxil ½ TSF thrice daily and Syrup Brufen ½ TSF thrice daily for three days. Hot sitz bath was given twice daily for 05 days. All the children were observed for bleeding for 24 hours. All patients were discharged on the 1st post-op day and were reviewed on 5th post-op day to look for any signs of infection. They were recalled after 04 weeks to look for cosmesis. Data for each patient was

bleeding episode whereas 18% had bleeding. However in open group, 96% patients had no bleeding episode whereas 4% had bleeding with significant difference ($p<0.001$). Inplastibell group 96% patients had no infection whereas 4% had infection. However in open group, 85% had no infection whereas 15% had infection. Frequency of infection was significantly higher in open group as compared to plastibell ($p <0.001$). In plastibell group 82% parents were satisfied whereas 18% had extra skin, whereas in open group 96% parents were satisfied, 1% had extra skin and 3% had less skin with significant difference ($p<0.001$). The results revealed that frequency of infection in circumcision done by plastibell is less whereas frequency of bleeding and cosmetic outcome is better in open method.

DISCUSSION

At birth, the foreskin is adherent to the glans penis. These adhesions separate spontaneously with time, allowing the foreskin to become retractile. At 1 year of age, about 50% of boys have a non-retractile foreskin. By 4 years this has declined to 10% and by 16 years to just 1%. Ballooning of the normal non-retractile fore skin may occur with micturition⁵. Gentle retraction of the foreskin at bath times helps to maintain hygiene but forcible retraction should never be attempted. Circumcision is one of the earliest recorded operations and remains an important tradition in some cultures. Routine neonatal circumcision is performed in some western societies but the practice has been increasingly criticised. Proponents point out that circumcision reduces the incidence of urinary tract infection in infant boys; however, circumcision is not without risk of significant morbidity. The medical indications for circumcision are:

1. Phimosis
2. Recurrent balanoposthitis
3. Recurrent urinary tract infection
4. An emerging and still controversial indication for circumcision is in the prevention of sexually acquired human immunodeficiency virus (HIV) infection in communities where this disease is common; large clinical trials have recently shown that circumcision reduces the risk of HIV transmission.

Circumcision is not a trivial operation; bleeding and infection are well-recognised complications and more serious hazards, such as injury to the glans, may occur if the procedure is not carried out by adequately trained personnel. Different methods are used to perform circumcision including open method, plastibell, GAMCO clamp, bone cutter method etc. Every method has its own advantages and disadvantages. This study is designed to compare two methods of

circumcision i.e. open method and plastibell in terms of bleeding, infection and cosmetic outcome. Post-operative bleeding occurs from injury either to the frenular artery or dermal cut edges. The risk of severe bleeding is higher if there is an underlying coagulopathy. Therefore, neonatal petechiae or a family history of bleeding diathesis should prompt further evaluation before the procedure is undertaken⁶⁻⁸. Circumcision done by plastibell has more chances of bleeding (8%) as compared to open method (4%). This may be because of wrong application of plastibell, slippage of ligature, accidental removal of plastibell by the child or parents and improper selection of the size of plastibell. Similarly cosmetic outcome is better in open

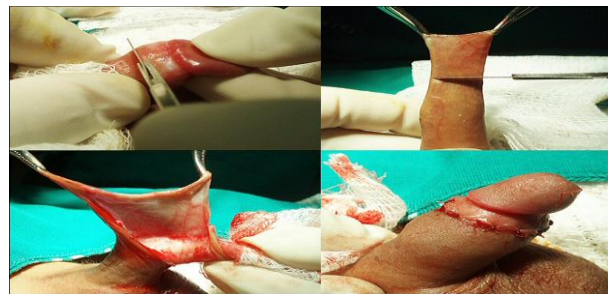


Figure-1: Circumcision by open method.

method (96% parents were satisfied, 1% had extra skin and 3% had less skin) as compared to plastibell (82% parents were satisfied whereas 18% had extra skin). If insufficient foreskin is removed, the penis may not appear to be circumcised or the result may appear asymmetric, leading to a displeasing cosmetic appearance⁷. These cases should be referred to a paediatric urologist for further consultation to determine the need for circumcision revision, which is not usually medically mandated. At that time, the risks of a reoperation need to be weighed against the benefits of improved cosmetic appearance. Too much penile shaft skin can be removed if upward traction on the prepuce is overly aggressive prior to excision, or if the glans is inadequately separated from the inner prepuce. Excessive skin removal may result in a denuded penile shaft. In many cases,

conservative therapy consisting of wet to dry, or antibiotic ointment dressings results in adequate healing by secondary intention⁹. More severe cases require pediatric urology referral for either primary reapproximation or skin grafting. If primary reapproximation is to be attempted, it is imperative that the length of skin prior to closure is adequate for function including erection. If adequate inner prepuce is left, this can be primarily sutured to the penile shaft skin to provide coverage. This method will leave the penis with the slightly altered appearance inherent with inner preputial skin. For cases with inadequate skin for reapproximation, split thickness and full thickness skin grafting has been performed¹⁰.

Infection is the most common problem encountered after every surgical procedure and every step of asepsis is adopted to prevent it. Wound infection infrequently occurs after circumcision^{6,11}. After circumcision, plastibell method has less chances of infection (4%) as compared to open method (10%). It is usually mild and manifested by local inflammatory changes, which typically resolve with local topical triple antibiotic ointment^{7,9}. However, ulceration, suppuration, and systemic infection (e.g. sepsis and meningitis) can occur and should be suspected in cases with systemic symptoms, such as fever, irritability, lethargy, or poor feeding^{11,12}. These cases require systemic antibiotics and surgical debridement. Although urinary tract infection (UTI) can occur in circumcised male infants, the frequency of UTI is significantly lower in circumcised infants compared with uncircumcised infants (0.02 versus 0.19 percent)⁶. So UTI is not a complication of circumcision, but rather, a reduced risk of UTI is a benefit of circumcision.

Circumcision is the most common surgery performed in Pakistan; careful, meticulous attention to penile anatomy and correct use of surgical equipment by trained clinicians can prevent most complications. When complications occur, specialist referral may be required. The rate

of procedure-related complications during and after circumcision is approximately 2 to 5 per 1000 cases¹³. Most complications are readily treatable and cause no long-term effects. The most common complications associated with circumcision are bleeding and infection.

CONCLUSION

Circumcision being a commonest surgical procedure demands careful selection of the operative procedure because plastibell method is superior in terms of post-operative infection whereas open method is better in terms of cosmesis and post-operative bleeding.

CONFLICT OF INTEREST

The authors of this study reported no conflict of interest.

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