

Technical Considerations in Plastibell Circumcision in Neonates and Infants

MUHAMMAD TAHIR GHANI¹, MUHAMMAD TAHIR ALI², AZAD ALI LASHARI³, HAFIZ MUHAMMAD IJAZ-UL-HAQ⁴

¹Consultant Surgeon, Aero Hospital Hassan Abdal

²Associate Professor of Surgery, Shahida Islam Medical Complex, Lodhran

³Professor & HOD of Surgery, Khairpur Medical College Khairpur Mir's

⁴Assistant Professor of Surgery, Akbar Niazi Teaching Hospital Islamabad

Correspondence to Dr. Muhammad Tahir Ghani, E-mail: doctortahir226@gamil.com Cell: 0302-5232793

ABSTRACT

Aim: To find out efficacy of plastibell circumcision and to establish certain technical considerations to minimize complications.

Study design: Cross-sectional Descriptive study

Place and duration of study: Department of Surgery, Aero Hospital Hassan Abdal from 1st September 2016 to 31st August 2020.

Method: Total of 400 infants and neonates were included in present study. Children was taken upto six months of age and 1% lignocaine was used as a source of local anesthesia. Plastibell was used for circumcision under strict aseptic conditions. Parents were allowed to take child home after half hour of retention in the hospital and follow up done after one week of circumcision. Parents were given telephonic access to surgeon during this week. During follow up baby was examined, results recorded and complications were treated if any.

Results: Ring block using 1% lignocaine provided adequate pain relief in neonates and infants. There were 345 boys were brought for circumcision during first month of their life while 55 were infants between one to six months of age. Six patients had post-operative bleeding during immediate post op period and two patients presented after 12 hours with bleeding which needed removal of plastibell and maintenance of hemostasis. The mean time of plastibell detachment was 06 days (range 03-12 days). Plastibell was stuck in few patients which needs to be removed early. Paracetamol was also used post-operatively as an oral analgesia and provided adequate pain relief. Two patients presented with infection after plastibell detachment. The foreskin was removed in every boy except one. Handling of the babies was easy for mothers.

Conclusion: Plastibell proved to be an effective method of circumcision provided few technical points like size of plastibell, use of bipolarcautery, hemostasis of frenular area, and threading around plastibell are properly taken care off.

Keywords: Circumcision, Plastibell, Neonate, Infant, Lignocaine, Frenular, Foreskin

INTRODUCTION

In neonates and infants circumcision is most usually performed due to religious, social, medical and cultural reasons^{1,2}. It is one of the most commonly performed the surgery around the globe.³ Circumcision is religious obligation in Muslims⁴ and in our culture it is a matter of great concern for the family.

Various techniques can be employed for circumcision including plastibell method, dorsal slit method, gomco clamp method and bone cutter method^{1,5}. Plastibell circumcision was reported first in 1956 in literature and is a widely used method. The world health organization (WHO) also listed this devise as safe and effective for male circumcision⁶. Plastibell is a plastic devise which has a ring attached to plastic handle. It has a deep furrow running circumferentially around the device. The handle can easily be broken after tying the thread around the ring⁵.

Circumcision by plastibell is a safe and straight forward technique and is commonly practiced in Pakistan. Unlike the bone cutter method which is widely used by quakes in Pakistan⁷, it has minimal chances to injury to glans. The other methods like mogen or gomcoclmaps are very rarely used in our society. Although circumcision by plastibell is relatively safe and associated with few complications but bleeding, ring related complications, wound infection and inadequate circumcision are reported^{5,6}.

There is need to define and elaborate the technique of plastibell circumcision further to minimize its complications and make it more safe then other techniques due to its easy availability in our society and cost effectiveness.

Present study was designed to determine the effectiveness and efficacy of plastibell among neonates. This study was also conducted to evaluate some technical considerations which are associated with plastibell in circumcision to minimize the complications risk.

MATERIALS AND METHODS

A total of 400 consecutive infants up to 6 months of age who underwent plastibell circumcision at AERO Hospital Hassan Abdal from 1st September 2016 to 31st August 2020 were included in this cross-sectional study. Permission from IRB was obtained and informed consent from parents was taken and a Performa was filled. Name and age of the child, reason for the circumcision, mode of anesthesia, plastibell size and immediate complications recorded at the time of surgery. Boy was called for follow up one week later and telephonic communication assured during this week in case of emergency. Time taken for the device to fall-off and any complication post operatively was recorded on follow up visit. Every circumcision was performed in the operating room by the same surgeon under strict aseptic measures. Ring block using 1% lignocaine by weight was used for every boy. With the patient in supine position and restrained by a nurse, the penile shaft was prepped with povidine iodine solution. The prepuce was separated from the glans by using a straight mosquito artery forceps and saline soaked gauze. Special attention was paid at this point at the frenular area and in every case this site was cauterized by bipolar cautery using 10 volt current. The dorsum of the foreskin was then crushed at 12 O'clock position for ten seconds and slit until corona was visible. The appropriate size plastibell was then positioned over the glans and prepuce brought over it. Plastibell was secured with a cotton thread supplied with the device and tied tightly around plastibell. The prepuce was then trimmed and handle of the ring broken by to and fro movements. Boy was observed for any bleeding for 2 minutes on table. Child was then handed over to mother and retained in recovery room for 30 minutes for observation. Child was sent home on oral paracetamol drops only and local application of polyfax skin ointment after ring falls and no oral antibiotics given. Follow up done at one week. All variables were recorded and data analyzed by SPSS-26.

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RESULTS

The mean age was 21 days (Table 1). Majority of babies 190 (47.5%) were circumcised during third week of life. All boys were circumcised using penile ring block with using lignocaine as a source of local anaesthesia. The indications of circumcision were mainly religious 390(97.5%) and in 10(2.5%) boys it was cultural. The most commonly used plastibell size was 1.4 150(37.5%) and least commonly used plastibell size was 1.1 2(0.5%) {Figs. 1-2}. The mean time for plastibell to fall off was 6 days (range 4-12 days). Complications were noted in 14 boys, 3.5% over all complication rates. The efficacy of plastibell circumcision recorded as 96.5%, as no complication found in 386 boys. Eight patients had post-operative bleeding of which four during 1st minute of circumcision, two within 20 minutes and two boys presented with bleeding 12 hours after surgery. 7 cases had bleeding from torn frenular area while one pt. had bleeding from loose thread edges around the bell. Plastibell was removed and hemostasis secured by bipolar diathermy followed by gauze dressing in all except the one with loose thread in which plastibell was not removed. In 3 boys, plastibell was stuck in glans and caused swelling and redness. Plastibell was removed using local anesthetic jelly, cutting the thread and gently pushing glans back. Two boys presented with wound infection after plastibell detachment who were treated with local and oral antibiotics. The foreskin was adequately removed in all the cases except one boy. No injury to glans reported.

Table 1: Age distribution of circumcised patients

Age (days)	No.	%
7 - 14 days	90	22.5
14 - 21 days	190	47.5
21 - 28 days	65	16.3
1 - 2 months	30	7.5
2 - 3 months	15	3.7
3 - 6 months	10	2.5

Fig. 1: Frequency of plastibell size

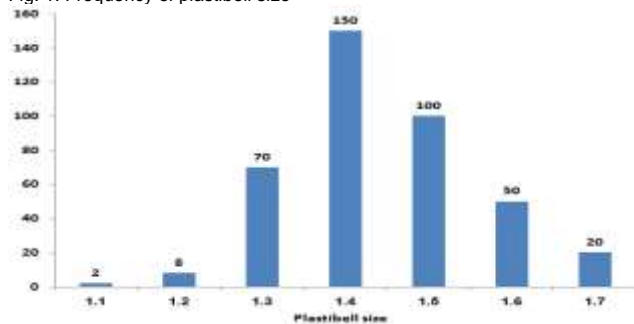
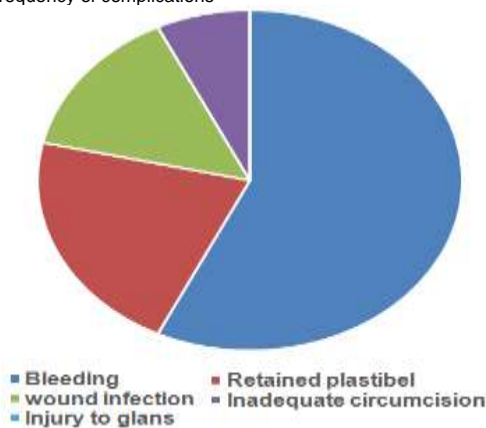


Fig. 2: Frequency of complications



DISCUSSION

Circumcision in Muslim boys is an Islamic obligation. All famous books of hadiths mention circumcision as Sunnah⁸. Majority of neonatal circumcisions in our society are done due to Islamic obligation. Other reasons for neonatal circumcision like cultural, social and medical are rare in our community as evident in our study. Majority of parents bring their children during early weeks of life for circumcision as in our study most of babies were brought for circumcision during 3rd week of life. Neonatal circumcision is an important matter for the family and parents do ask many questions like chances of bleeding, postoperative pain, stitching, method of circumcision and the cosmetic appearance of the penis.

Plastibell is a common method used for circumcision^{6,9}. We found overall complication rate as 3.5 % which is similar to other studies¹⁰, however literature reports mortality after neonatal circumcision as well¹¹.

Post-operative bleeding is the most commonly seen complication after plastibell circumcision. Bleeding can be avoided if bipolar diathermy with low current is used for coagulating torn frenular area. Frenular area often gets torn while retracting the prepuce and if not coagulated can lead to both immediate and delayed bleeding¹². In our study 08 patients had post procedure bleeding of which 7 had bleeding from torn frenular area and one boy had had bleeding from cut skin edges. Bleeding can be prevented by applying threads tightly⁶. Minimal blood loss during and after circumcision is an important consideration which can cause serious complications¹³. Child behaviour and tolerance also affect the surgical procedure in some cases.

Appropriate plastibell size is crucial to have smooth detachment of plastibell. A smaller bell in relation to glans penis will get stuck and will need removal of plastibell^{6,10}. In the present study three boys had this complication and in all smaller plastibell was found to be the reason. All the boys who got plastibell stuck were 3 to 6 months old. As the age of child advances the penile skin gets thicker and plastibell gets difficult to detach easily¹⁴ as evident in our study.

Many techniques of local anesthesia like topical EMLA cream, penile ring block or dorsal penile block are used¹⁵. We used 1% lignocaine according to body weight as ring block and found very effective. None of the baby had excessive cry during circumcision. Many surgeons routinely prescribe oral antibiotics after circumcision but we didn't prescribe oral antibiotics post operatively. We found routine post circumcision antibiotic use unnecessary as also documented by study conducted by Chan KH¹⁶ and others. In our study Of 400 boys we only noticed minor wound infection in only 02 boys which settled after oral and local antibiotics. Oral analgesia in the form of paracetamol drops is adequate after circumcision¹⁷. Another advantage of plastibell circumcision is easy post procedure handling of babies by mothers as there is no contraindication to use of diapers and baby can be showered as well.

The cosmetic outcome is superior in plastibell circumcision as compared to bone cutter method and need for redo circumcision is minimal due to adequate foreskin removal.⁷ In our study adequate foreskin was removed in all boys except one and smaller plastibell found to be the reason. There are no chances of injury to the glans in plastibell circumcision as the foreskin is divided under vision. We didn't see any such complication in our study.

CONCLUSION

Plastibell circumcision is an effective way of neonatal circumcision. Frenular area should be cauterized by bipolar diathermy as it is the main source of bleeding. Smaller plastibell in relation to glans should not be used and glans should freely move inside plastibell. Ligature around plastibell should be tightly applied. Oral antibiotics are not needed after plastibell circumcision if the procedure is performed in aseptic conditions. Boy should be observed for few

minutes on table and retained for half hr. post op as majority of bleeding takes place initially.

Conflict of interest: Nil

REFERENCES

1. Bawazir OA, Alsaari WRS. Plastibell circumcision: Comparison between neonates and infants. *Urol Ann* 2020; 12(4):347-51.
2. Altunkol A, Abat D, Topuz AN, Alma E, Gürbüz ZG, Verit A. Muslim mothers mainly saw circumcision in terms of religion or tradition but wanted it to be carried out medical professionals. *Acta Paediatr* 2020; 109(2):396-403.
3. Morris BJ, Wamai RG, Henebeng EB, Tobian AA, Klausner JD, Banerjee J, et al. Estimation of country-specific and global prevalence of male circumcision. *Popul Health Metr* 2016;14:4.
4. Anwer AW, Samad L, Iftikhar S, Baig-Ansari N. Reported male circumcision practices in a muslim-majority setting. *Biomed Res Int* 2017; 2017:4957348.
5. Omole F, Smith W, Carter-Wicker K. Newborn circumcision techniques. *Am Fam Physician* 2020; 101(11):680-85.
6. Jimoh BM, Odunayo IS, Chinwe I, Akinfolarin OO, Oluwafemi A, Olusanmi EJ. Plastibell circumcision of 2,276 male infants: a multi-centre study. *Pan Afr Med J* 2016; 23:35.
7. Mehmood T, Azam H, Tariq M, Iqbal Z, Mehmood H, Shah SA. Plastibell Device Circumcision versus Bone Cutter Technique in terms of Operative Outcomes and Parent's Satisfaction. *Pak J Med Sci* 2016; 32(2):347-50.
8. Miñilia-MiBa-Jf A, Al-Bukhari S. *Sahih Al-Bukhari (Arabic-English)*. Vol. 7. Book 77-Hadith 106. 846 AD. Riyadh-Saudi Arabia: Darussalam; 2017; 5889.
9. Razaq S, Mehmood MS, Tahir TH, Masood T, Ghaffar S. Safety of the plastibell circumcision in neonates, infants, and older children. *Int J Health Sci (Qassim)* 2018;12(5):10-13.
10. Mousavi SA, Salehifar E. Circumcision complications associated with the Plastibell device and conventional dissection surgery: a trial of 586 infants of ages up to 12 months. *Adv Urol* 2008; 2008:606123.
11. Paediatric Death Review Committee: Office of the Chief Coroner of Ontario. Circumcision: A minor procedure? *Paediatr Child Health* 2007; 12(4):311-2.
12. Shenoy SP, Marla PK, Sharma P, Bhat N, Rao AR. Frenulum sparing circumcision: step-by-step approach of a novel technique. *J ClinDiagn Res* 2015; 9(12):PC01-3.
13. Hedjazi A, et al. Epidemiology of circumcision-related mortality in iran: a 10-year survey. *N Am J Med Sci* 2012; 4(11):608-10.
14. Moosa FA, Khan FW, Rao MH. Comparison of complications of circumcision by 'Plastibell device technique' in male neonates and infants. *J Pak Med Assoc* 2010; 60(8):664-7.
15. Litman RS. Anesthesia and analgesia for newborn circumcision. *Obstet Gynecol Surv* 2001; 56(2):114-7.
16. Chan KH, Whittam BM, Moser EAS, Cain MP, Bennett WE Jr. Adverse events associated with surgical antibiotic prophylaxis for outpatient circumcisions at US children's hospitals. *J Pediatr Urol* 2017; 13(2):205-6.
17. Taddio A. Pain management for neonatal circumcision. *Paediatr Drugs*. 2001; 3(2):101-11.