

Original Research Article

Indications and safety of plastibell circumcision in children

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ABSTRACT

Background: Circumcision is the surgical excision of the prepuce. It is an ancient practice with roots in religion and cultural practices. Indications for circumcision include phimosis, paraphimosis, balanoposthitis, balanitis, Balanitis xerotica obliterans and trauma to the prepuce. Various methods of circumcision have been described; Flap method, Gomco, Smartklamp and Plastibell etc. The Plastibell works by the clamp principle. The aim of this study is to determine the indications and safety of circumcision using the Plastibell device.

Methods: This was a prospective study carried out in two hospitals for a period of one year. The parents were counselled on the procedure. The children were assessed to identify conditions that might adversely affect the outcome. The age of the babies, indication, size of Plastibel and complications were recorded.

Results: Two hundred and forty-five infants were enrolled into the study. The age range was seven to one hundred and sixty-eight days. Majority of the circumcision was done in the first thirty days of life (63.8%). Indication for circumcision was religion (n=245, 100%) in all cases. The range of the Plastibel size used was 1.1 to 1.5. Ten of the children had complications representing 4.1%. The commonest complication was retained Plastibel, constituting 50% of the overall complications followed by bleeding (30%).

Conclusions: Religion was the indication for the circumcisions and most of the circumcisions were done in the neonatal period. The Plastibell method of circumcision is associated with minor remediable complications when performed by trained personal.

Keywords: Complication, Circumcision, Indication, Plastibell, Safety

INTRODUCTION

Circumcision is the surgical excision of the prepuce; this ensures that the glans is exposed in the flaccid state. It is an ancient practice with roots in religion and cultural practices.^{1,2} Various methods of circumcision have been described; Flap method, Gomco, Smartklamp and Plastibell etc.

The Plastibell is a plastic ring with a circumferential groove. It works by the clamp principle, the prepuce is left intact following crush, allowing it to slough off along

with the plastic shield within a week.³ Circumcision by the Plastibel method is simple and easy to learn.

Recently there has been an upsurge in the controversies surrounding circumcision.^{4,5} However, the overwhelming evidence is in support of circumcision. There are documented advantages, and these include reduction in the risk of acquiring HIV infection, HSV2 infection and the carrier prevalence of HPV. It is effective in reducing the risks of penile cancer and cervical cancer in female partners of circumcised men and urinary tract infections in infants and children.⁶ There is good evidence that sexual function is not adversely affected in circumcised

men compared with uncircumcised men. From the foregoing, it has become imperative to ensure safety during circumcision.^{7,8} The aim of this study is to determine the indication and safety of Plastibell circumcision and to review the literature on it.

METHODS

This was a prospective study carried out in two hospitals for a period of one year. Two senior resident surgeons were involved in the procedures (Plastibell circumcision). The parents were counselled on the procedure. The children were assessed to identify conditions that might adversely affect the outcome. These included history of bleeding disorders in the family, jaundice, ammoniacal dermatitis, hypospadias, epispadias and other congenital anomalies that might affect outcome. The age of the babies, indication, size of Plastibel and complications were recorded.

Surgical method: The patient was placed in supine position with the legs held apart by the assistant and the genital prepared with antiseptic.

The patient was then draped, and a dorsal penile nerve block administered using 0.5% lignocaine in a 2ml syringe at 1 and 11 o'clock positions at the root of the penis. A curved artery forceps was used to open up the prepuce and another curved artery forceps used to open up the potential space between the glans and the prepuce. The prepuce was then retracted to the corona, the glans inspected and the smegma cleaned off with a dry piece of gauze, simultaneously the inner aspect of the prepuce was dissected off the glans.

The prepuce was crushed at 12 o'clock position using straight artery forceps. The clamp was removed, and a dorsal slit effected on the crushed skin to its proximal limit exposing the glans.

A Plastibell of appropriate size was pushed over the glans and the slit prepuce drawn over the Plastibell ring and held in place using a hemostat over the handle of the Plastibell ring. The string of the Plastibell or a vicryl 2-0 suture was tied over the skin of the prepuce to fit snugly proximal to the groove on the Plastibell ring. The prepuce distal to the tie is then resected using a number 15 blade and the handle of the Plastibell is broken off cleanly. Post operatively the patient is placed on oral paracetamol and topical gentamycin ointment. The Plastibell usually falls off after 3-7 days exposing the glans.

RESULTS

Two hundred and forty-five infants were enrolled into the study. The age range was seven to one hundred and sixty-eight days. Majority of the circumcision was done in the first month of life (63.8%). The age (in days) grouping is shown in Figure 1.

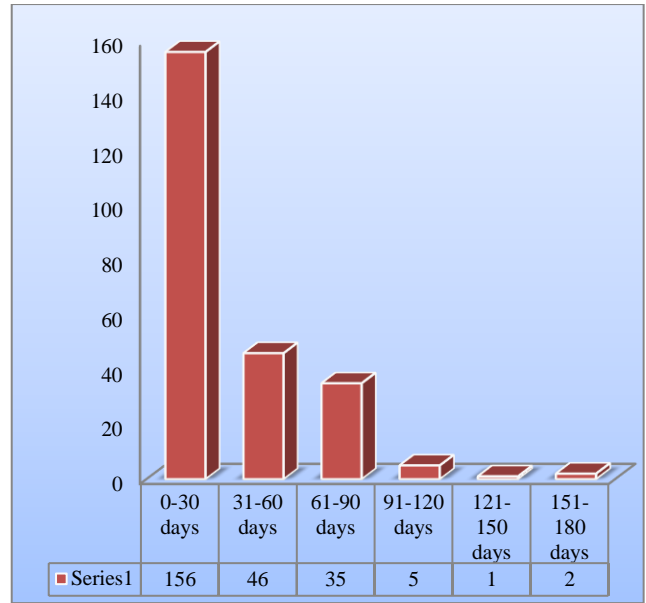


Figure 1: Age group of children who had circumcision.

The range of the Plastibell size used was 1.1 to 1.5. The commonest size used was 1.3 (Figure 2). Ten of the children had complications representing 4.10%.

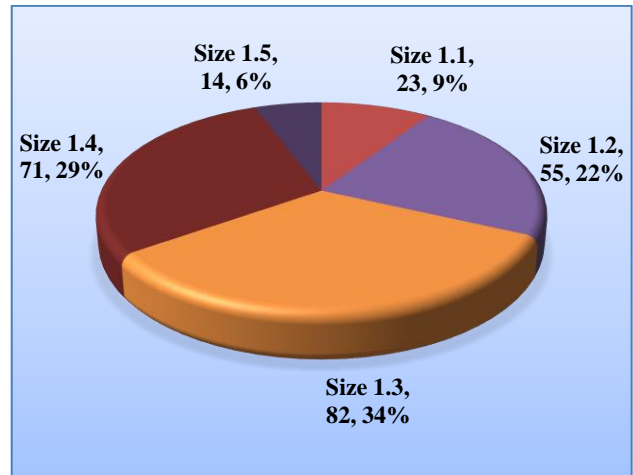


Figure 1: Size of Plastibell used for the circumcisions.

The commonest complication was retention of the Plastibell (n=5, 50%), followed by bleeding (n=3, 30%). The complications are depicted in Table 1.

Table 1: Complications of Plastibell circumcision.

Complications	Frequency
Retained Plastibell	5(50%)
Bleeding	3(30%)
Retraction of Plastibel	1(10%)
Acute urinary Retention	1(10%)
Total	10(100%)

Bleeding was from the frenular artery and required formal dorsal slit circumcision and haemostasis. Revision of the Plastibell Circumcision was done for Plastibell retention and retraction. The Plastibell was removed and formal circumcision was done for acute urinary retention.

DISCUSSION

Most circumcisions are done in the neonatal period. This study reflects this fact, with 63.8% (156 cases) of the circumcisions performed in this period. Al-Marhoon et al in their series noted that 92% of the circumcisions were performed in the neonatal age group while Bioku et al in a multicenter study had 61.2% of the boys circumcised at second week of life.^{9,10}

Religion remains the main reason why circumcision is done in this part of the world. In this study 100% of the circumcisions were on religious grounds. This is the usual finding in predominantly religious society where circumcisions are done mostly as rituals (religious) without medical indications.^{9,11}

Medical indications for circumcision include prevention of penile and cervical cancer, the prevention of sexually transmitted infections, particularly HIV, and the prevention of urinary tract infection.¹² Other indications include phimosis, paraphimosis, balanoposthitis and balanitis, Balanitis xerotica obliterans and trauma to the prepuce.¹³

Medical indications for circumcision are rare in our environment because almost all the individuals are circumcised in childhood hence obviating medical complications that may require treatment by circumcision.

The size of Plastibell deployed is important to a successful outcome, it also reduces the incidence of complication.¹⁴

The size 1.3 was the most used and it cut across all the infants. It is also the commonest size used by other investigators.^{8,9} Ring complications are common when inappropriate Plastibell sizes are used.¹⁵ The complication rate in this study was 4.1% which is quite low and comparable to the findings by other investigators who used Plastibell for the circumcisions. In a study in Tanzania involving 308 infants who were circumcised using the Plastibell, Manji et al found overall complication rate of 3%.¹⁶ They noted that the complications were minor and easily remediable. A multicenter study in Nigeria recorded a complication rate of 1.1% which reinforces the fact that the procedure is safe.¹⁰

The commonest complication in this study was retained Plastibell followed by bleeding. Other complications were acute urinary retention and retraction of the Plastibell device.

Bleeding was from the frenular vessel. This was treated by removal of the Plastibell, haemostasis and conventional flap circumcision. Acute urinary retention was also treated by removal of the Plastibell and conventional circumcision. Retained Plastibell and Plastibell retraction required revision of the circumcision. Plastibell retraction could result in iatrogenic phimosis and other complications hence the need for revision of circumcision with excision of the crushed proximal preputial skin.¹⁵

Palit et al in a nine year audit of Plastibell circumcision found that the commonest complications were problems with the ring and bleeding.¹⁷ This is similar to our finding. Overall, there was 96% satisfaction rate among the service users in his study. In the study by Moosa et al the most common complications were delayed separation of the ring (ring complication), bleeding, localized superficial infection and proximal migration.¹⁸ These complications even though distressing for the parents were easily managed without any long-term effects. Adequate counselling of the parents on care of the infants, careful follow-up and sound technical knowhow on the use of the Plastibell device are factors that mitigate against adverse events.¹⁹

A randomized trial of routine circumcision by Fraser et al in children using the Plastibell device and conventional dissection method concluded that the Plastibell device was a satisfactory and acceptable method for circumcising children.

CONCLUSION

Ritual circumcision due to religious demands was the main indication for circumcision. The Plastibell method of circumcision is a simple procedure which is not devoid of complications but is however, a safe procedure if performed by appropriately trained personnel.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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