

Is the Plastibell of Any Haemostatic Value after 24 h?

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Abstract

Background: The Plastibell is the most popular circumcision method among mothers in our city. Haemorrhage is its major problem. At our centre, we have recorded many circumcision problems resulting from prolonged retention of the Plastibell ring and this study, therefore, sought to explore the ways of reducing complications resulting from prolonged retention of the ring. **Patients and Methods:** This was a prospective study, in which a total of sixty consecutive male neonates were recruited with all undergoing circumcision using the Plastibell device. Thirty patients were assigned to the subject group, in whom the Plastibell ring was removed by the investigator at 24 h while the other thirty constituted the control group whose Plastibell rings were allowed to fall off on their own. The patients selected were aged between 7 and 28 days. **Results:** Overall, 4 (6.6%) of the sixty neonatal circumcisions in this study were complicated by haemorrhage. There was minor bleeding in 3 (10%) of the thirty subjects and 1 (3.3%) of the thirty controls. There was no statistically significant difference between the groups ($P = 0.3006$). One patient each from the subject and control groups bled following slipped ligature a few hours after Plastibell circumcision. The other two patients in the subject group bled following the removal of the Plastibell ring at 24 h. All the bleeding episodes were effectively controlled within 5 min by firm digital pressure only administered through a piece of dry, sterile gauze. **Conclusion:** Post-circumcision haemorrhage was not significantly different between circumcised babies whose Plastibell rings were removed at 24 h and those in whom it was left to fall off on its own.

Keywords: Circumcision, fall-off day, haemostasis, Plastibell

INTRODUCTION

Circumcision, the partial or complete removal of the foreskin on the male genitalia, has been practiced for thousands of years and was initially thought to have originated in ancient Egypt as a means of marking male slaves.^[1] In Nigeria, the performance of this surgical procedure has undergone a major transformation with many now being performed in hospitals with the Plastibell device being the most popular circumcision method among mothers in Lagos.^[2,3]

Circumcision is the most common surgical operation carried out in newborn males worldwide and is universally practiced in West Africa.^[4] More recently, a reduced rate of heterogeneous transmission of the human immunodeficiency virus - the virus which causes the acquired immune deficiency syndrome has been credited to routine male neonatal circumcision, especially in those parts of the African continent lacking in good personal hygiene, clean sources of potable water, and unsafe sexual practices.^[5]

Male circumcision is consequently encouraged now in Central, East and South Africa as part of a wider effort to combat the disease.^[5,6] In West Africa, the indications are mostly cultural. On the whole, there has been an increase in interest in performing male newborn circumcisions in much of the continent.^[7]

Although the Plastibell device is widely used, haemorrhage is one of its major problems.^[8] At the Lagos University Teaching Hospital (LUTH), we have recorded many circumcision problems resulting from prolonged retention of the Plastibell ring. The aim of this study was to determine the effect of removal of the Plastibell ring after 24 h on the rate of haemorrhage following male neonatal circumcision.

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PATIENTS AND METHODS

Sixty consecutive newborn males were recruited from consenting parents at the LUTH. Institutional Ethical Committee approval was obtained from LUTH. The patients were allocated into two groups consisting of thirty subjects (S Group) and thirty controls (C Group) by closed balloting. All the sixty newborn males underwent circumcision using the Plastibell device. In the controls, the Plastibell ring was allowed to fall off by itself as recommended by the manufacturers while in the subjects (S) group, the device was removed on follow-up at 24 h.

All patients for circumcision had packed cell volume (PCV) estimation preoperatively. They were required to arrive in the hospital by 8 a.m. on the operation day after having fasted for 2 h before the procedure. Each patient was taken into the operating room well covered to prevent hypothermia. He was then restrained in the modified lithotomy position by an assistant, and the perineum swabbed with Savlon lotion (1 in 60 concentrations). Proper draping was ensured and penile ring block using 0.25% plain xylocaine given circumferentially at the root of the penis. All the circumcisions were performed under aseptic conditions. Each patient was observed for a minimum of 1 h before discharge. All mothers were encouraged to breastfeed their babies soon after the procedure to minimize crying. Oral paracetamol, 10–15 mg/kg body weight every 6–8 h and promethazine 2.5 ml every 12 h were given as analgesia and tranquilizer, respectively. Parents of the subjects group were instructed to bring the patients 24 h post-circumcision for removal of the Plastibell ring. All parents were instructed to report sooner if a complication was suspected to have arisen. Written instructions with 24-h helpline telephone numbers were given to each parent. The parents of the control group were instructed to visit the investigator on alternate days until the plastic ring fell off. Those in the subject group had their Plastibell rings removed after 24 h in a dressing room with their mothers present. A pair of sterile stitch scissors was used to remove the string while donning a pair of sterile gloves. The removal of the string was easy with the use of a small, sharp, stitch scissors while a pair of artery forceps was used to hold the knot for stability.

RESULTS

The boys were aged between 7 and 28 days, with a mean age of 11.3 ± 5.3 days. The modal age was 8 days, with 28 (46.7%) babies presenting for circumcision on that day. The patients weighed between 2.7 and 4.2 kg with a mean weight of 3.4 ± 0.4 kg. The mean PCV of the sixty babies was $38.4\% \pm 5.1\%$, with a range of 30.0%–52.0%. The age, weight, and PCV of the subjects and controls were comparable, and no significant difference was observed between the two groups in any of the three variables when subjected to Student's *t*-test.

Four (6.6%) of the sixty neonatal circumcisions in this study had significant haemorrhage post-operatively. There was minor bleeding in 3 (10%) of the thirty subjects and 1 (3.3%) of the



Figure 1: Immediate postoperative appearance following removal of Plastibell ring

thirty controls. One patient each from the subject and control groups bled following slippage of the ligature a few hours after Plastibell circumcision. The other two patients in the subject group bled following removal of the Plastibell ring at 24 h. All the bleeding episodes were effectively controlled within 5 min by firm digital pressure alone administered through a piece of dry, sterile gauze. The difference in bleeding as a complication was not statistically significant between the subjects and controls ($P = 0.3006$).

DISCUSSION

Circumcision is the most commonly performed surgical procedure in male newborns in Lagos.^[9,10] Most of them are performed by paramedical staff and some by untrained hands while the rest are performed by medical doctors. Among all groups, the complication rate varies from 0.5% among doctors to 30% among untrained practitioners.^[2,4,9]

All four cases that bled occurred in the initial period of the study and were among the first seven circumcisions. This was caused by the use of an inappropriate-sized stitch scissors which was insufficiently sharp and thus tended to cause more movement than was necessary at the circumcision site. A modification of this means of removal with the use of a smaller, sharper stitch scissors eased the procedure, and improved the outcome. Haemorrhage is potentially diminished with increasing experience in using the Plastibell device. If the string is applied too tightly, the ring digs into the glans with the potential for causing glanular ischemia and when it is too loose, slippage of the ring occurs with resulting haemorrhage. This technicality is important in deciding on its use for circumcision in hemophiliacs.^[11]

The modal day, the 8th day of life, in which circumcisions were performed was no coincidence. It has a religious and cultural basis. In Lagos, most parents seek this procedure on the day after the naming ceremony which usually takes place on the 7th day of life. Some give the excuse that the

baby should not be cranky during the ceremony as a result of recent circumcision and so would wait till a day later for the procedure. In Judeo-Christian practice, however, this practice has a biblical basis where the sons of Abraham were instructed to have circumcision done on the 8th day, the very same day, in which Jesus Christ was taken to the temple for circumcision.^[1]

In an average time of 5 min, haemorrhage was effectively controlled in this study. It had a low occurrence, was acceptable and comparable to the control. Since haemorrhage was not significant, it follows that early removal of the device is justified [Figure 1]. The surgical community seems to have forgotten the injunction of Ross who designed the precursor of the Plastibell six decades ago when he advised that the ring he designed could be removed in 24 h.^[11] It is the adherence to that recommendation in this study which has seen such uniformly encouraging results and therefore justifies the early removal of the Plastibell ring.

CONCLUSION

Post-circumcision haemorrhage was not significantly different between circumcised babies whose Plastibell rings were removed at 24 h and those in whom it was left to fall off on its own. It is therefore recommended that early removal of the Plastibell circumcision ring can be done safely and without any significant deleterious effects.

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Conflicts of interest

There are no conflicts of interest.

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