
Introduction

In Pakistan, neonatal circumcisions are performed commonly out of ritual and religious obligations. Minimal local data is available about the number of procedures performed by non-medical persons, general practitioners, gynecologists, pediatricians, general surgeons, plastic surgeons, urologists, and pediatric surgeons. A wide variety of methods are used by different practitioners including bone cutter, different kinds of clamps, open method, and Plastibell [1]. Complication rate depends upon the method used, age and general condition of the baby, co-morbid, anatomical abnormalities, training of the practitioner and settings in which circumcision has been carried out. Circumcision with Plastibell is the most popular method among surgeons. It is safe and has minimal complications with excellent outcome in infants. However, it is associated with significant complications in children of more than one year of age [2]. It is seldom used in children older than 2 years because of thickening of prepuce skin. Age of circumcision also varies depending upon preference of the family, rituals and condition of the baby. Many complications are reported in literature, commonest being bleeding [3]. Prepuce, glans and frenulum are highly vascularized areas, so even little blood loss is a risk and can become fatal if not addressed promptly [4]. Post circumcision bleeding rate can be reduced to minimum with subtle and careful technique of hemostasis of frenular band and its area.

There is variable incidence of post circumcision bleeding reported in different studies, ranging between 4-35% [5,6]. In our practice, our incidence was thought to be a bit higher, so it was decided to do hemostasis of frenular area to curb any
post-operative bleeding. A comparative study was planned to
document the incidence of post circumcision complications
particularly bleeding before and after using the technique of
coaulation homeostasis of the frenular area.

**Material and Method**

Patients with any significant history of coagulopathy in
the family, cardiac problem, hypospadias, epispadias or other
genital anomalies were not included.

All circumcisions were done on babies between 2 days to 2
years of age, under penile ring block local anesthesia followed
by adequate oral analgesic drops. After adhenolysis between
prepuce and glance with artery forces, a vertical incision was
given in the dorsal prepuce skin for insertion of appropriate
sized Plastibel. After ligation of thread in the groove of
Plastibel, excess of proximal skin was trimmed. Handle of bell
was broken to complete the procedure. Ring falls off in 4–8
days leaving a circumferential wound around glans.

Over the span of 1 year, from 1st October 2014 to 30th
September 2015, a total number of 170 circumcisions were
performed with Plastibell under local anesthesia in outpatient
department. The retrospective data of these 170 infant was
reviewed for post circumcision complications. History,
examination, type of complication, day of presentation,
management provided and outcome were recorded.

An audit was undertaken to look for the causes of bleeding
and to establish and implement vigilant measures to minimize
this complication. It was decided to avoid the Plastibell with
silk thread. During circumcision, frenulum was inspected for
any band or bleeding. If band was found, coagulation of band
was done with help of warm probe. A spirit lamp with a probe
was used to coagulate the obstructing frenular band if present,
because of non–availability of bipolar diathermy in outpatient.
Pressure of gauze in diaper and revisit of wound after 15-20
minutes was made a routine. Thorough counseling of parents
was stressed, particularly about minor swelling, redness and
slight serous or blood stains after procedure or at the time of
separation of Plastibell.

In next year from 1st October 2015 to 30th September 2016,
a total of 193 infants underwent Plastibell circumcision along
with hemostasis of frenular band and its area. Patients were
followed at 01 week and 01 month period and they were advised
to visit if any complication arises.

After approval from hospital ethical committee, a
comparative study was undertaken to document the incidence
of post circumcision bleeding, its causes, treatment provided
and other complications before and after incorporation of
coagulation hemostasis in Plastibell circumcision.

**Results**

In Group A, among 170 babies, 123 were neonates, 42 were
infants and 05 were between 1–2 years of age. Post–operative
complications recorded were, proximal migration of ring in
1/170 (0.58%), Phimosis in 1/170 (0.58%) while 28/170 (16.47%)
patients had significant post circumcision bleeding within 48
hours of procedure, which required hospital visit, removal of
the bell and cauterization of bleeder and/or suturing of raw
area in operation theater. Antibiotic cover was given to all of
them after suturing. None of them required blood transfusion
or hospital admission.

In group B, after incorporation of coagulation hemostasis of
the area, a total number of 193 circumcisions were performed
during the period of 1st October 2015 to 30th September 2016. Out
of 193 patients, 151 were neonates, 38 were infants and 04 were
between 1–2 years of age. Frenulum obstructing the placement
of Plastibell or causing hindrance in snug fitting of Plastibell
on glans was looked for and found in 98 /193 (50.77%). It was
coagulated with the help of warm probe, heated over a spirit
lamp in absence of bipolar diathermy in outpatient. Impaction
of bell in glans in 1/193 (0.51%) and post–operative phimosis
in 1/193 (0.51%) patients were recorded post–operative
complications in this group. No incidence of post–operative
bleeding was noted during this period in Group B (Table 1).

**Discussion**

Hollister Inc. invented the Plastibell in 1950, and
circumcision with plastihibited was first reported in 1953 [7].
Initially it was called scalpel free because prepuce skin was not
cut but left to slough off. We can call it stitch free, dressing free
and pain free procedure. Though Plastibell circumcision is a
simple, quick, easy and safe procedure but various reasons may
lead to a potential life threatening hemorrhage. Kaplan et al
reported proximal migration of the bell, necrotizing fascitis of
skin of penis, injury to the glans, rupture of bladder secondary
to the proximal urinary obstruction, hematoma and impacted
Plastifell after circumcision [8]. Late complications include
wound infection, mental stenosis, phimosis, inadequate or
overdone circumcision leading to buried penis, urethral fistula,
and sepsis. Even death due to significant hemorrhage has been
reported in literature [9,10]. In our study, total 28 cases of
post circumcision bleeding, 01 case of proximal migration of
Plastibell, 01 case of impacted Plastibell in glans and 02 cases
of post circumcision Phimosis were recorded (Figure 1).

Causes of post circumcision bleeding identified were, shaft
hematoma 02/28 (07.14%) either due to puncture of superficial
dorsal vein at the time of insertion of local anesthetic or
retraction of vein while dorsal slit at the time of insertion of

<table>
<thead>
<tr>
<th>Complications</th>
<th>Group A Plastibell application (n=170)</th>
<th>Group B Plastibell along with coagulation hemostasis of frenular band (n=193)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post circumcision bleeding</td>
<td>28 (16.47%)</td>
<td>None</td>
</tr>
<tr>
<td>Phimosis</td>
<td>1 (0.58%)</td>
<td>1 (0.51%)</td>
</tr>
<tr>
<td>Proximal migration of Plastibell</td>
<td>1 (0.58%)</td>
<td>None</td>
</tr>
<tr>
<td>Impacted Plastibell</td>
<td>None</td>
<td>1 (0.51%)</td>
</tr>
</tbody>
</table>

Post circumcision Phimosis Post circumcision bleeding Impacted Plastibell

Figure 1: Post Circumcision Complications.

Post circumcision Phimosis Post circumcision bleeding Impacted Plastibell

Figure 2: Causes of Post circumcision bleeding, done with Plastibell, Total no= 28.

Selection of appropriate size of bell and proper placement of the Plastibell over glans, avoid other complications like impaction, meatal coverage, urinary retention and glans injury. Care should be taken not to apply EMLA cream or any local ointment over meatus, which may form crust after injury. Care should be taken not to apply EMLA cream or any local ointment over meatus, which may form crust after injury.

Post circumcision cosmetic results were assessed on parent’s satisfaction. Inadequate or excessive loss of skin and buried penis are commonly reported complications in literature but it was observed that with passage of time they get better as penis grows. Overlying skin adjusts well in accordance to the length of shaft of penis, rarely requiring surgical correction [2,3].

Post circumcision cosmetic results were assessed on parent’s satisfaction. Inadequate or excessive loss of skin and buried penis are commonly reported complications in literature but it was observed that with passage of time they get better as penis grows. Overlying skin adjusts well in accordance to the length of shaft of penis, rarely requiring surgical correction [2,3].

Conclusion

Circumcision with Plastibell in children less than 2 years is safe with minimal complications especially in infants. Strict vigilance, slight changes in practice and minor innovations in frenular hemostasis can lead to risk free circumcisions with almost no risk of bleeding.

References


