

# Outcome of Plastibell Versus Open Technique For Circumcision In Children

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## ABSTRACT

*Objective* To compare the complications of Plastibell technique versus open technique for circumcision.

*Study design* Cross sectional study.

*Place & Duration of study* Department of Plastic Surgery, Urology and General Surgery, Baqai University Hospital Karachi, from January 2016 to December 2017.

*Methodology* All male babies from neonatal age to three year were included in the study. Babies were randomly divided equally into two groups. In one group circumcision was performed by open conventional technique (n=60) and in the second group circumcision was performed with plastibell method (n=60). Babies having bleeding diathesis, jaundice, hypospadias, epispadias and congenital chordee were excluded. After circumcision, these babies were followed up for complications over a period of 12 weeks postoperatively. Complications reported were entered into the software and complication rate of open technique and plastibell technique was compared. Analysis was performed by SPSS version 21. Chi-square as test of significance was applied to compare the two groups and  $p < 0.05$  was considered as statistically significant.

*Results* A total of 120 babies underwent for circumcision. The most common complication by open technique was mild pain in 16.6% (n=10) of the patients, followed by bleeding which occurred in 15% (n=9) patients. However, with plastibell technique the most common complication occurred was mild pain in 10% of the patients.

*Conclusions* Plastibell technique is a safe and preferable method of circumcision as it has less number of complications as compared to the conventional dissection method.

*Key words* Circumcision, Postoperative complications, Plastibell, Open technique.

## INTRODUCTION:

Circumcision is a widely practiced surgical procedure, specially performed for religious reason in Muslim population.

Approximately 25% of the total male population is circumcised, and it is the most common surgical procedure practiced all over the world.<sup>1</sup> In our setup, Muslims have a ritual of circumcision of males.<sup>2</sup> There are different techniques for this procedure, commonly the conventional open method and the plastibell technique are used. Each technique has its own specific complications and some common complications. The common complications associated with these techniques are bleeding, pain, infection and urinary retention.<sup>3</sup> Other techniques for circumcision have been invented like use of Gomco clamp, Mogen clamp, bone cutter method etc but amongst these plastibell method is the most

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preferable one. It is the most preferred procedure in babies from neonates till one year of age. Plastibell technique of circumcision carries the lowest risk of blood loss and trauma, with the benefit of good cosmetic results.<sup>4</sup>

This study was conducted to document the results of two techniques used for circumcision namely plastibell and open method.

#### METHODOLOGY:

This cross sectional study was carried out in 120 male babies at Plastic Surgery, Urology and General Surgery department, Baqai University Hospital Karachi, from January 2016 to December 2017. Children brought to OPD were enrolled for circumcision. All male babies from neonatal age to three years were included in the study. All male babies were randomly divided equally into two groups. In one group circumcision was performed by open conventional technique (n=60) and in the second group circumcision was done with Plastibell method (n=60). Parents were explained about the procedure, operative and postoperative complications. After clinical assessment, bleeding time, clotting profile of babies was performed. Babies having bleeding diathesis, jaundice, hypospadias, epispadias and congenital chordee were excluded from the study. After circumcision, these babies were followed up for complications for a period of 12 weeks postoperatively. Complications reported were entered into the software and complication rate of open technique and Plastibell technique was compared. Analysis was performed by SPSS version 21. Frequencies and percentages were calculated for variables like bleeding, retained plastibell, retraction of plastibell, acute urinary retention and infection. Chi-square as test of significance was applied to compare the two groups and  $p < 0.05$  was considered as statistically significant.

#### RESULTS:

A total of identified 120 male babies visiting our OPD for circumcision. After circumcision of these babies, either by open technique or Plastibell technique. Peroperative and postoperative complications were reported. Table I shows the duration of open technique and plastibell technique. Plastibell technique was performed in less than 30

minutes in all of the children, whereas 90% cases of open technique were performed in less than 30 minutes. Peroperatively haemorrhage was reported in few cases and it is shown in table II.

Postoperatively babies were followed for complications in the hospital and then in OPD. The most common complication by open technique was mild pain reported in 10 (16.6%) patients, followed by bleeding which occurred in 9 (15%) patients. With Plastibell technique the most common complication was mild pain in 10% of the patients. Table III shows the frequency and percentage of postoperative complications in open and Plastibell techniques.

#### DISCUSSION:

Each technique of circumcision has its own complications. Few studies performed have compared the techniques of circumcision and found that Plastibell circumcision can be performed easily in less than 30 minutes, whereas open technique takes more time. A study done to compare these two techniques showed that some babies had hemorrhage during circumcision by open technique and additional measures were needed to control the blood loss. Plastibell technique has 2%-4% risk of hemorrhage during the procedure.<sup>3</sup> A study performed shows that the common complication encountered in Plastibell technique are bleeding and local infection. Other complications are dysuria, bell impaction, excessive or inadequate skin removal and proximal migration of the ring.<sup>5</sup> Some cases of circumcision resulted in fatal complications like necrotizing fasciitis, ischemic necrosis of the glans and glans amputation.<sup>6</sup>

Mak et al reported in his study that the intraoperative and postoperative complication rates of open technique versus plastibell technique are 17.6% and 17.8% respectively.<sup>7</sup> Fraser et al also compared these two techniques of circumcision and suggested that Plastibell technique is the preferable method in neonates.<sup>8</sup> As mentioned in various studies Plastibell technique is preferred method, though most of our surgeons prefer conventional method of circumcision. In a trial, it was found that the conventional dissection method had 8% complication rate versus Plastibell technique in which 3%

Table I: Duration of Procedure

Duration of Procedure	Open Technique (n=60)	Plastibell Technique (n=60)
<30 min	54 (90%)	60 (100%)
>30 min	6 (10%)	0 (0%)

Table II: Peroperative Haemorrhage with Open and Plastibell Technique			
Hemorrhage	Open Technique (n)	Plastibell Technique (n)	P value
Mild	7	3	0.001
Moderate	2	0	
Severe	0	0	

Table III: Postoperative Complications With Open and Plastibell Technique (n=120)			
Variables	Open Technique (n)	Plastibell Technique (n)	P value
Bleeding	9 (15%)	3 (5%)	<0.001
Pain			
Mild	10 (16.66%)	6 (10%)	<0.001
Moderate	7 (11.66%)	4 (6.66%)	<0.001
Severe	1 (1.66%)	0 (0%)	-
Retained Plastibell	0 (0%)	1 (1.66%)	<0.001
Retraction of Plastibell	0 (0%)	1 (1.66%)	
Acute urinary Retention	2 (3.33%)	1 (1.66%)	
Infection	3 (5%)	0 (0%)	

came to be insignificant (<0.05).<sup>9</sup> Bleeding is one of the most common and fatal complications of conventional circumcision occurring in around in 36% of cases. However, it is uncommon in mass circumcision using plastic clamp. With Plastic clamp technique few cases were reported to have minor bleeding and only 50% of them needed additional surgical measures to maintain hemostasis.<sup>10</sup> Local infection is a common complication after circumcision and in our study 5% babies having circumcision with open technique had infection. Whereas babies who underwent circumcision by Plastibell technique had no infection. Mass circumcision carries an infection rate of 14.3% performed by traditional circumcisors.<sup>11</sup>

The most common factor predisposing to infections is sterilization of instruments in mass circumcision. Mass circumcisions performed by medical professionals carries an infection rate of 2.1% although sterilized instruments were used. Also it is shown in a previous study that conventional dissection method also increases the chances of infection by 7 fold.<sup>12</sup> Plastibell technique carries a low rate of infection due to the fact that during this procedure the tissue has least exposure to the outside environment, hence less chances of bacterial contamination. Plastibell technique has been found to be a satisfactory technique of circumcision for children till 7 years of age and it has less associated complications.<sup>13</sup>

**CONCLUSIONS:**

Plastibell technique is a safe and preferable method of circumcision and has less complications as compared to the conventional dissection method. Also, it is an efficient procedure of short duration.

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- Received for publication: 20-06-2019  
Accepted after revision: 31-07-2019
- Author's Contributions:  
Shafaatullah: Conception, design and statistical expertise.  
Bilal Suria: Critical revision of article for important intellectual content & data collection.  
Sadaf Iqbal: Data collection.
- Conflict of Interest:  
The authors declare that they have no conflict of interest.
- Source of Funding:  
None
- How to cite this article:  
Shafaatullah, Suria B, Iqbal S. Outcome of plastibell method versus open technique for circumcision in children. *J Surg Pakistan.* 2019;24(2):86-89. Doi:10.21699/jsp.24.2.8.