

Plastibell Circumcision: How Safe is it?

Experience at Sultan Qaboos University Hospital

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ختان الذكور بواسطة (Plastibell): مدى سلامتها؟ تجربة مستشفى جامعة السلطان قابوس

المخلص: الهدف: المضاعفات التي تترتب على عملية الختان قد تهدد الحياة. تهدف هذه الدراسة إلى استعراض مضاعفات الختان بواسطة (Plastibell) المسجلة في الأدبيات وتلك التي حصلت هنا للتعرف على مدى خطورة مثل هذه العملية. **الطريقة:** ضمت هذه الدراسة الاستيعابية 171 وليداً ثم ختانهم بتلك الطريقة في مستشفى جامعة السلطان قابوس خلال أربع سنوات للفترة من 1997 إلى 2000. **النتائج:** ظهرت مضاعفات بسيطة في 4 (2.3%) من حالات الختان. اثنتان تم تحويلها إلى ختان إصلاحى وذلك بسبب النزيف والفتل في إدخال الجرس. وكانت هناك حالة واحدة تأخر فيها خروج البول لمدة 24 ساعة. وفي حالة أخرى كان والدا الطفل قلقين بسبب عدم إزالة الجلد بصورة كاملة. **الخلاصة:** ختان الذكور بواسطة الطريقة المذكورة تقنية سليمة إذا أجريت بواسطة أيدي كفوءة وقد تزداد مضاعفات هذه الطريقة 8 مرات إذا أجريت من قبل الممرضات مقارنة بالجراح.

ABSTRACT Background: Plastibell circumcision complications can be life-threatening. **Objective:** The aim of this paper is to review the complications of Plastibell circumcision reported in the literature and in our own patients to determine the safety of the procedure. **Method:** A retrospective study of 171 neonates circumcised in Sultan Qaboos University Hospital over a 4-year period from 1997 to 2000. **Results:** Minor complications occurred in 4 (2.3 %) of circumcisions. Two cases were converted to formal circumcision due to bleeding and failure to introduce the bell respectively. One had delayed passage of urine for 24 hours and in one neonate, the parents were concerned about inadequate removal of foreskin. **Conclusion:** Plastibell circumcision is a safe technique in experienced hands. The risk of complications with this procedure is increased eight-fold when performed by nurses compared to surgeons.

Keywords: Plastibell, circumcision, neonates.

CIRCUMCISION IS PROBABLY THE MOST COMMON surgical procedure in children worldwide. The practice of circumcision is thought to be at least 15,000 years old.¹ Cave drawings dated to paleolithic age show illustrations of circumcised men. There are reports of royal mummies who were circumcised. The role of circumcision owes its origin from the circumcision of Abraham when he was circumcised at age of 99 years as a covenant with God. Muslim tradition dates the ritual to the circumcision of Ishmael, Abraham's eldest son who was circumcised at age of 13 years with his father.² During World War II tropical diseases of foreskin in American servicemen led to an increase in the trend towards routine neonatal circumcision. Neonatal circumcision as a routine procedure

underwent a phase of controversy in non-Islamic countries. A report issued in 1975 by the committee on the fetus and newborn of the American Academy of Pediatrics stated that there was no absolute medical indication for routine circumcision of the newborn.³ In Islamic countries circumcision is a must for all males for religious reasons, but the issue here is whether to do neonatal circumcision or operate at older age.

The natural history of the foreskin was described in 1949. In newborn males the foreskin is fully retractable in 4%, the glans can be retracted to the urethral meatus in 54% and the tip of the glans cannot be seen in the remaining 42%. The foreskin is retractable in 25% of children at 6 months of age, 50% at one year, 80% at two years and 90% by four years.²

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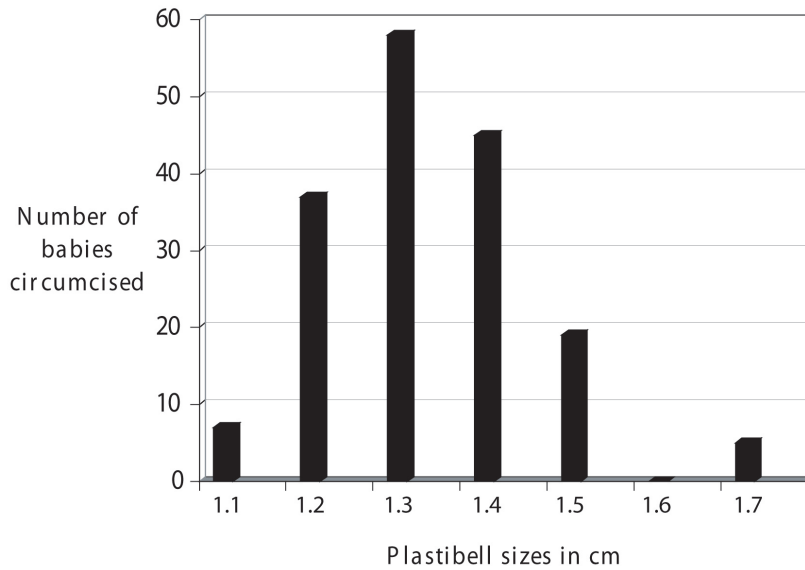


Figure 1. *Plastibell sizes (cm) used in the circumcision of 171 babies.*

The indications for circumcision in Oman are mainly for religious reasons, besides the medical indications of phimosis, paraphimosis, recurrent balanoposthitis and recurrent urinary tract infections. A variety of clamp methods were developed including the Gomco clamp in the 1930's and the Plastibell in the 1960's. They are the most commonly used devices in newborn circumcisions.

The aim of this paper is to review the complications of Plastibell circumcision reported in the literature and to review our own complications in Sultan Qaboos University Hospital (SQUH) and to emphasize the need for skilled surgeons to perform the procedure to make it free of the serious complications.

METHOD

This study included 171 neonates who underwent Plastibell circumcision. They were operated on by one surgeon over 4 years period from 1997 to 2000 at SQUH. The data, including complications of the technique, were collected retrospectively by going through the

Table 1. Complications observed in 4 cases out of 171 cases.

Complication	Number of cases (%)
Not passing urine for 24 hours	1 (0.58)
Inadequate removal of foreskin	1 (0.58)
Conversion to formal circumcision	2 (1.17)

patients' files including emergency visits. A policy of preoperative genital examination, consent-taking and full explanation to the parents is used. All neonates with jaundice, hypospadias and small size penis were not circumcised.

The procedure was performed as follows:

The baby is identified and restrained. The penis is prepared with an antiseptic solution and local anesthesia provided by 1% Lignocaine as penile block. The preputial ring is dilated with a hemostat and the urethral meatus definitely identified. The foreskin is grasped with hemostats at 10 and 2 o'clock positions. A dorsal slit is made after crushing the skin for 5 seconds. The foreskin is freed off the entire glans and completely retracted to expose the whole glans, then the correct size Plastibell is selected by testing it directly on the glans. The foreskin is pulled over the Plastibell which is stabilized by a hemostat clamping the skin to the handle of the Plastibell. The tie is applied on the Plastibell groove using a surgeon's knot for the first throw. The foreskin is excised just past the outermost edge of the Plastibell taking care not to damage the glans. Final checking for bleeding, meatal opening and correct position of the tie was performed at the end of the procedure. The parents are advised to watch for complications and strongly encouraged to come back to the hospital in case of any problems and they were given contact numbers for any queries.

Table 2. Complications of plastibell circumcision

Some of the reported complications of Plastibell circumcision	
Wound infection	
Bleeding	
Inadequate removal of foreskin	
Penile adhesions	
Phimosis	
Excess removal of foreskin	
Necrotizing fasciitis	
Sepsis	
Urinary retention	
Meatal ulceration/Meatal stenosis/Meatitis	
Bladder rupture	
Penile hematoma(due to local anaesthesia)	
Failure of plastibell to separate	
Plastibell ring too tight	
Migration of plastibell to midshaft	

RESULTS

The commonest Plastibell ring size used was 1.3 cm with sizes ranging from 1.1 to 1.7 cm [Figure 1]. Most circumcisions were performed in the neonatal age group (158 cases (92 %)). The majority of circumcised babies (93.6 %) had birth weights ranging from 2.5 to 4 Kg. Preoperative examination of the infants revealed 2 babies with congenital hydroceles, one with left undescended testis, one with umbilical hernia, and one with glandular hypospadias. The complications observed, shown in Table 1, included one child who was unable to pass urine for 24 hours. He was brought to the emergency department where he passed urine with no intervention. One child who was brought by his father to the outpatient clinic because he was concerned about inadequate removal of foreskin, but the circumcision was deemed adequate. Two cases were converted to formal circumcision. The first was converted in the same sitting due to excess dorsal slit

Table 3. Summary of the 31 children out of 168 with complications after plastibell circumcision⁵

Complications	Number of cases (%)
Bleeding	7 (4.2)
Ring tracking back in penile shaft after separation	6 (3.5)
Early separation of ring	12 (7)
Wound infection	4 (2.3)
Post-op pyrexia	1 (0.6)
Inadequate removal of foreskin	1 (0.6)

which made no room for the bell to fit in. The second was converted due to bleeding within 24 hours. This child had a very adherent prepuce with difficulty in releasing it, which had created raw oozing areas.

DISCUSSION

Plastibell circumcision is a simple technique for neonatal circumcision. However, the complications of this technique can sometimes be life-threatening. The reported complications of plastibell circumcisions range from very minor ones to serious ones as shown in Table 2. Complications of concern that have been reported in the literature include proximal migration of the bell on to the distal penile shaft causing circumferential compression; denudation of penile skin or persistent disfigurement of the glans penis;⁴ two cases of necrotizing fasciitis;⁵ one case of rupture of bladder due to urinary obstruction by the Plastibell.⁶

The complication rate of Plastibell circumcision performed by trained nurses in Bradford Hospital in UK⁷ [Table 3] was 18.5 % (31 out of 168 cases) compared to, only 2.3 % (4 out of 171 cases) in this study and 2.4 % (5 out of 205 cases) in the Jamaican study.⁸ The low complication rate in the present study and the Jamaican study may be attributed to the procedures being performed by experienced surgeons. Therefore we strongly support that this procedure is performed by surgeons or trained doctors rather than nurses. Although Plastibell circumcision is a simple technique and can be easily learnt, it is not to be taken lightly as serious complications like necrotizing fasciitis and rupture of bladder have been reported.

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