

PLASTIBELL CIRCUMCISION; EVALUATION OF A TECHNIQUE IN 800 CASES.

By

Khairi A., FRCS,MD,* El-Kholi N., MD,** Tolba M., FRCS,** Ismail T., MD,* Dwaba M., FRCS,*** Hafez M., FRCS,* Soliman S.,***

*From the Department of Surgery, Dallah hospital, Riyadh, KSA, **From Pediatric Surgery Unit, Alexandria Faculty of Medicine, Egypt, ***From Department of Surgery, Ein-Shams Faculty of Medicine, Cairo, Egypt.

Purpose: Evaluation of plastibell device as an option for circumcision in neonates and infants.

Material & Methods: Between August 2002 and July 2004, 800 cases had been circumcised by the authors using the plastibell device. Eighty five percent (680 boys) were circumcised before their mothers were discharged from the hospital after delivery. This was performed as an office procedure under local anaesthesia. The babies were reviewed one to two weeks later by the same surgeon.

Results: The mean time for executing the procedure was 5 minutes. In 584 cases (73%) the bell fell off spontaneously between the 5th and the 7th days. Complications occurred in 48 cases (6%). Twelve cases (1.5%) had minor bleeding during the procedure. In five cases the bell had to be taken off and circumcision proceeded in the conventional suturing technique to control bleeding. Twenty-seven cases (3.4%) had minor infection in the form of yellowish slough that responded to simple measures at home. The results were satisfactory for the parents in (792) cases (99%). Eight cases developed phimosis (1%), only four cases required re-circumcision.

Conclusion: plastibell device is a simple, safe and convenient option for circumcision. It is easily learned, less time consuming and having satisfactory outcome.

Keywords: Plastibell, circumcision, phimosis.

INTRODUCTION

Male circumcision is depicted in Egyptian tombs 5,000 years ago. There are evidences that it originated in prehistory up to 15,000 years ago. Well before it acquired its religious overtones, it was clearly sacrificial, demanding the loss of something of great value⁽¹⁾ Circumcision is the most common surgical procedure performed in boys among the Islamic community of the world.^(2,3) It is also common in the United States and Canada. Although the exact frequency is unknown, it is estimated that 1.2 million newborn males are circumcised in the United States annually⁽⁴⁾ In Canada, 48% of males are circumcised.⁽⁵⁾ Circumcision is uncommon in Asia, South America, Central America, and most of Europe.

The plastibell device is a development from the previous metallic devices used as templates for ischemic necrosis of

redundant foreskin in circumcision. It was developed for simplicity particularly in neonates.⁽⁶⁾⁽⁷⁾

PATIENTS AND METHODS

Over a period of two years (August 2002 till July 2004), 800 boys were circumcised using the plastibell device (Hollister Inc., Libertyville, Illinois, USA). In 680 boys (85%), the procedure was carried out during the 2nd or 3rd day of life and before the mother was discharged from the hospital and after a well informed consent was signed by the parents. Cases with local problems as small size penis or hypospadias, or with any medical problem as jaundice were postponed and reviewed one month later in the outpatient clinic. In the remaining 120 cases (15%), the procedure was carried out on outpatient clinic visit basis. The plastibell device is composed of a small ring attached to a breakable handle with a groove in the ring for

ligature (Fig 1). All the cases were carried out as an office procedure. One hour before the procedure, lignocaine ointment 2% were topically applied as a means of local anaesthesia. Xylocaine spray 10% was applied both shortly before as well as during the procedure.^(4,25,26)

After cleaning the genitalia, the congenital adhesions were separated. The prepuce was held with curved mosquito forceps on either sides and a straight forceps was applied to the dorsal skin of the prepuce, which was crushed and slit with a scissor. An appropriate size plastibell was placed over the glans. Its position was judged with care. The prepuce was pulled over the plastibell and a ligature was applied around the prepuce in the groove of the plastibell and tied firmly. The prepuce was trimmed with scissor and the plastibell handle was finally broken off.^(6,7) No dressings were applied after the operation. Parents were given a printed explanation of the method and care required. They were seen in the outpatient clinic seven to fourteen days later by the same surgeon.

Proper selection of the plastibell device was based on the circumference of the glans and confirmed by placing the bell over the glans before initiating the procedure Eight different sizes are available as produced by Hollister Inc.

RESULTS

Separation of the plastibell leaving a clean scar occurred after 5-7days in 73% of the cases (584 boys) (Fig. 2). In no case was it reported to be an unpleasant event, often

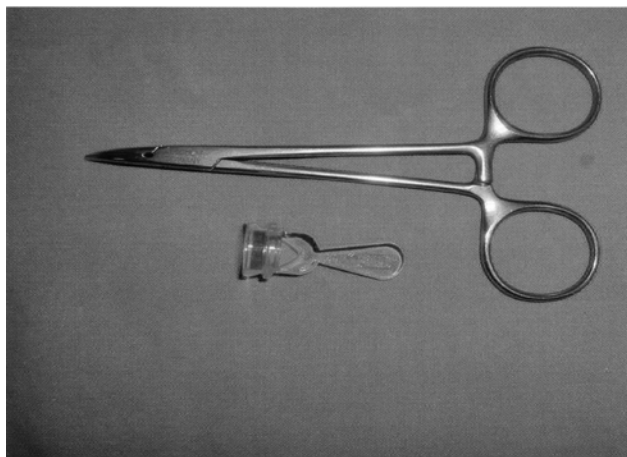


Fig 1. The Plastibell device (Hollister).

DISCUSSION

The true incidence of complications after newborn circumcision is unknown.⁽⁸⁾ Reports of large series have suggested that the complication rate is somewhere between

passed unnoticed. The earliest it occurred was the 3rd day and the latest was the 12th. In 13 cases (1.6%) it was still present after the tenth day in which case it was removed by the surgeon. In all such cases it was found to be easily separated from crusted serum, leaving an already healed edge.

For the 800 circumcised boys, there were 48 complications (6%). These included 12 incidences of bleeding (1.5%) of which two cases required only another tie over the bell after making sure that the whole edge circumference had been included under the string, while five cases required taking the bell off and ligature to control the bleeder and completing the procedure in the conventional suturing technique. In the remaining five cases the bleeding stopped spontaneously after simple dressing. No case required transfusion. Twenty-seven cases had local infections (3.4%). This was in the form of yellowish slough mostly on the ventral surface that responded to simple frequent cleaning at home. There were no cases of glanular injury during the procedure or urinary tract infection during the follow up. Parents were satisfied with the result in 792 of our cases (99%).

Inadequate skin excision was seen in 8 patients (1%). Four boys only required re-circumcision because of tight phimosis. The others showed good response to frequent manual retraction of the excess skin and improved with time.



Fig 2. The appearance after the bell fall-off.

0.2% and 1.85%.^(9,10,11,12,13) However, some other big series claimed complication rates of as high as 55.0%.⁽¹⁴⁾

This difference in figures claimed might be due to the variability in the definitions of complications.^(15,16)

In our series, complications occurred in 48 cases (6%) which is still within the range of others. Bleeding occurred in 12 patients (1.5%) though has been reported by some to be as high as 35.0%.⁽¹⁷⁾ Bleeding occurred mostly because of improper tying of the ligature. Ligation of the bleeding vessel and completing the procedure in the conventional suturing technique or application of another tie were the two active measures required to control bleeding.

Infection did not appear to be a significant problem. Twenty-seven patients (3.4%) had yellowish patches of sloughed tissue suggestive of infection. However, still this could not be confirmed of being so, as no wound cultures were taken. In any case, simple cleansing at home was all that was required. Foreign body reaction can produce erythema and swelling with the plastibell device, which can look like a superficial infection.⁽¹¹⁾ Serious infections with major problems, though not happened in our series, have been reported, such as scarring and deformity, major skin lesions, scalded skin syndrome, generalized sepsis, osteomyelitis, meningitis and death.^(18,19,20,21,22,23)

Reviewing the records of 100,157 newborn boys who were circumcised in US Army hospitals from 1980 to 1985, there were 193 complications (0.19%). These included 62

local infections, 83 incidences of bleeding (31 requiring ligature and three requiring transfusion), 25 instances of surgical trauma, and 20 urinary tract infections.⁽²⁴⁾

It's important to stress the practicality of this method in the neonatal period, thus reducing both emotional trauma and financial cost of doing the procedure at a later date.⁽¹¹⁾ Our routine practice was to circumcise babies in their 2nd or 3rd day of life during the same admission and before the mother was discharged from the hospital. In 120 cases (15%) the procedure was carried out on routine outpatient visit basis.

Experience is required for proper placement of the bell ring over the glans, the amount of skin to be included in the tie as well as proper selection of the suitable plastibell size in the first place. Selection of plastibell too large runs the increased risk of proximal migration onto the penile shaft. Selection of plastibell too small can result in disfigurement of the glans by pressure necrosis.⁽¹⁵⁾ There have been several reports of dislocation of the ring proximal to the glans if improperly fitted.⁽¹⁴⁻¹⁷⁾ This was mostly produced by the injudicious combination of fitting too large ring and taking too much skin. This allowed the ring to slip back on to the shaft of the penis. This was not seen in our series. However, eight of our cases (1%) had recurrent phimosis during the follow-up presumably because of inappropriate original placement of the ring. Only four had to be re-circumcised, again using the plastibell with satisfactory late result. So in conclusion, the plastibell technique described is simple, easy

to use, and probably quicker than most other techniques. An understanding of certain technical points is necessary as in any other operation. Its results are as satisfactory as other circumcision methods.

REFERENCES

1. Gairdner D. The fate of the foreskin. A study of circumcision. *BMJ*.1949;2:1433-7.
2. Akoz T, Erogan B, Gorgu M. Unusual complications of circumcision. *Plast Reconst Surg*.1998;101:195-8.
3. Yazici M, Etensel B, Gursoy H. A very late onset urethral fistula coexisting with skin bridge after neonatal circumcision: A case report. *J Pediatr Surg*. 2003;38:642-3.
4. American Academy of Pediatrics . Circumcision policy statement. *Pediatrics*. 1999;103:686-93.
5. Leich IO. Circumcision: a continuing enigma. *Aust Paediatr*. 1970;6:59-65.
6. Kareihier DH and Smith TW. Immediate circumcision of the newborn. *Obstet.Gynecol*. 1956;7:50-3.
7. Al-Sammarai AYI. Use of the plastibell device for neonatal circumcision. *Saudi Med J*. 1984;5:457-8.
8. Niku SD, Stock JA, Kalan GW. Neonatal circumcision. *Urol Clin North Am*. 1995;22:57-65.
9. GeeWF, Ansel JS. Neonatal circumcision; a ten year overview with comparison of Gomco clamp and plastibell device. *Pediatrics*.1976;58:426-7.
10. Hrkavy KL. The circumcision debate.*Pediatrics*. 1987;79:649- 50.
11. Al-Samarrai AY, Mofti AB, Crankson SJ,Jawad A, Haqui K, Al Mashari A. A review of plastibell device in neonatal circumcision in 2000 instances, *Surg Gynecol Obstet*. 1988;167:341-3.
12. Baskin LS, Canning DA, Synder HM, Duckett JW. Treating complications of circumcision. *Pediatr Emerg Care*. 1996;12:62-8.
13. Baskin LS, Canning DA, Synder HM III, Duckett JW. Surgical repair of urethral circumcision injuries. *J Urol*. 1997;158:2269-71.
14. Patel H. The problem of routine circumcision. *Can. Med. Assoc. J*. 1966;95:576-81.
15. Cilento BG, Holmes NM, Canning D. Plastibell complications revisited. *Clin Pediatr*. 1999;38:239-42.
16. Kaplan GW. Complications of circumcision. *Urol Clin North Am*. 1983;10:543-9.

17. Procopis PG, Kewley GD . Complications of circumcision. *Med J Aust.* 1982;1:15.
18. Thorek P, Egel P. Reconstruction of the penis with split-thickness skin graft. Case of gangrene following circumcision for acute balanitis. *Plat. Reconstr. Surg.* 1949;4:469-72.
19. Annunziato , Goldman LM. Staphylococcus scalded skin syndrome. A complication of circumcision *Am J Dis Child.* 1978;132:1187-8.
20. Kirkpatrick B.V. Neonatal septicemia after circumcision. *Clin Pediatrics.*1974;13:767-8.
21. Scurlock JM, Pemberton PJ. Neonatal meningitis and circumcision. *Med J Aust.* 1977;332-4.
22. Sathaye UV, Goswami AK, Sharma SK. Skin bridge-A complication of circumcision. *Br J Urol.* 1990;66:214.
23. Williams N, Kapila L. Complications of circumcision. *Br J Surg.* 1993;80:121-3.
24. Gee WF, Ansell JS. Risks from circumcision during the first month of life compared with those for uncircumcised boys. *Pediatrics.* 1989;83:1011-5.
25. Ryan CA, Finner NN. Changing attitude and practices regarding local analgesia for newborn circumcision. *Pediatrics.* 1994;94:230-3.
26. Lander J, Bradey-Fryer B, Metcalfe JB. Comparison of nerve block, dorsal penile nerve block and topical anesthesia for neonatal circumcision. *JAMA.* 1997;278:2157-62.