

Circumcision with the Plastibell Device A Long-Term Follow-up

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Indications for operation, immediate postoperative morbidity and complications were recorded in 43 patients circumcised with the Plastibell device. Questionnaires were used in recording late postoperative morbidity and complications during the mean observation period of 29 months, and were followed by a clinical and cosmetic assessment. No serious complications were encountered. Compared to classical dissection techniques, dysuria is a prominent feature using the Plastibell device. The Plastibell method leaves a varying amount of foreskin intact, which could well explain why meatal ulcers/stenosis are not seen when employing this method. In areas with low hygienic standards we cannot recommend the method since the ability of retaining smegma must still be present. Used on medical grounds, the method is preferable, as it leaves some of the foreskin intact and is quick and simple to perform.

Introduction

Circumcision is still a controversial subject considering its widespread use, its role in preventing carcinoma of the penis, carcinoma of the cervix and balanitis.

Often performed as a routine in healthy children, even a low frequency of complications should naturally result in a critical assessment of the operation, especially when it is being done for other than medical reasons.

In the Scandinavian countries, circumcision is still primarily done on medical indications [1, 2, 3].

The use of the Plastibell device in circumcision is now well established and has been used for more than two decades. It was originally developed for neonatal circumcision [4], but later it was also recognized as a useful method in older children (up to the age of 10 years) [1, 5, 6].

If circumcision is the exception rather than the rule, one must be aware of the danger that the circumcised child may be teased in school and may risk to become socially isolated.

It appears that the Plastibell method, at least in older children, leaves the patient with a varying length of foreskin compared to the classical dissection technique where the entire prepuce is removed. This might make the Plastibell unacceptable in ritual circumcision, but makes it, in the authors' view, more attractive in circumcision for medical reasons.

An apparent lack of long-term studies has made it relevant to make such a study with regard to morbidity, complications and cosmetic results.

Patients and methods

Between July 1981 and December 1983 (2.5 years), 43 boys were operated for phimosis by Plastibell circumcision. The mean age at the time of operation was 6.5 years (range 1–13). Circumcision was done on the following indications (Table 1): 16 patients had recurrent balanitis, 7 had ballooning of the foreskin during

Table 1
Indications for circumcision

	No. of patients	Per cent
Balanitis	16	37
Ballooning	7	16
Mixture of symptoms*	9	21
Paraphimosis	1	2
Phimosis	10	23
Total	43	99

* See text.

micturition, 9 had a mixture of symptoms including balanitis, ballooning and various annoyances of the foreskin, 1 patient had several events of paraphimosis and 10 patients had phimosis without additional symptoms.

Plastibell circumcision was performed by the standard technique, well illustrated in the manufacturer's instruction sheet.* Most of the operations were performed by surgeons at an early stage of training.

Immediate postoperative morbidity and complications were recorded, covering the time of operation until the ring fell off. Questionnaires concerning late postoperative morbidity and complications were sent to all patients except one, who had to be reoperated by the conventional dissection technique. The questionnaires were answered by 38 patients (90%) and subsequently 30 patients (71%) were subjected to a clinical and cosmetic assessment. The mean time of observation between circumcision and clinical assessment/questionnaires was 29 months (range 14–44).

Results

The results of immediate postoperative morbidity and complications are summarized in Table 2. No serious haemorrhage was encountered. One patient was treated with antifibrinolytic medication (Cyklokapron®) which stopped the

* Plastibell®. Hollister Inc., 211 E. Chicago Avenue, Chicago, Illinois 60611.

Table 2
Immediate postoperative morbidity and complications (n = 43)

	No. of patients	Per cent
Haemorrhage	2	5
Infection	2	5
Inappropriate size of Plastibell	3*	7
Dysuria	24	56
Total	31	73

* One patient was reoperated by conventional dissection technique and excluded from further investigation.

bleeding. In another patient, haemorrhage stopped spontaneously. Infection was defined as erythema with pus, but not confirmed by culture. None of the patients received antibiotic medication. In 3 patients, too big a Plastibell had been chosen causing the ring to slip down resulting in swelling of the glans. In one of these patients this led to urinary retention which necessitated removal of the ring and reoperation by the conventional dissection technique. More than half of all patients complained of dysuria in connection with slight irritation of the meatus due to the presence of the Plastibell.

The average duration of hospital stay was 3 days. After a mean time of 10 days (range 5–21) the ring came off. In 33 cases this happened spontaneously, 1 patient had the ring removed by the family doctor and 4 patients were referred to the hospital where 1 patient had the ring removed under full anaesthesia.

Almost no late morbidity and complications were reported, except for slight irritation of the glans reported in 7 cases (17%).

Six boys (16%) were reported to have been subjected to "teasing in school" to such a degree that it became a major psychological problem. In 25 cases (66%)

Table 3
Clinical assessment 29 months (14–44) postoperatively (n = 30)

	No. of patients	Per cent
Scarring of the glans	3	10
Agglutinations	7	23
Recurrent phimosis	1	3
Hypospadias	1	3
Total	12	39

full satisfaction was expressed concerning the cosmetic result, and in 13 cases (34%) the discontent was due mainly to the belief that the length of the foreskin would be largely unchanged postoperatively.

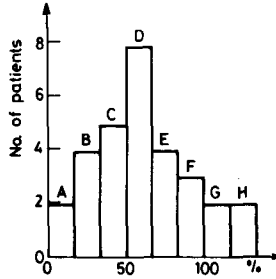


Fig. 1. Distribution of patients (n = 30) into groups (A-H) according to the percentage of the glans covered by foreskin

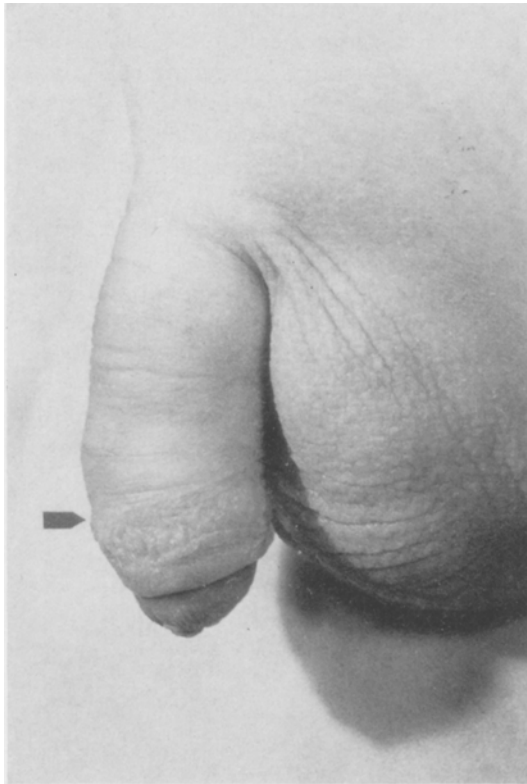


Fig. 2. Foreskin classified in group E (covering 66% of the glans). Arrow indicates former position of the string



Fig. 3. Foreskin classified in group A. The glans is completely naked. Arrow indicates former position of the string

The results of the clinical assessment are summarized in Table 3. None of these findings were actually reported in the questionnaires. Three cases of scarring of the glans appeared to have been made by pressure of the ring, but were of no functional importance. In 7 patients there were persistent agglutinations and in 3 of these the parents had tried forcefully to retract the foreskin, hereby producing small lesions to the glans and prepuce. This attempt to retract the foreskin was in 1 case even assisted by the family doctor who had treated the patient with steroid-containing ointment. One patient had recurrent phimosis because of scarring of the edge of the remaining foreskin leaving a narrow passage of 3 mm. The patient was reoperated. One case of slight hypospadias was found, apparently overlooked at the time of operation.

The patients were distributed into 8 groups (A-H) according to the percentage of the glans covered by foreskin (mean value: 60%; SD: 20%; 95% confidence limits: 21% < x < 99%) (Fig. 1). Figures 2 and 3 illustrate the appearance of foreskins classified in groups E and A, respectively. The typical appearance of



Fig. 4. Typical appearance of the foreskin as seen in 20 patients. This one classified in group B

the foreskin, as seen in 20 patients (67%), was that of a frayed and curled skinfold of varying length surrounding the glans (Fig. 4). In 20 patients (67%) we found that the string used to tighten the Plastibell to the foreskin had left a pigmented ring on the skin of the penis.

Discussion

There seems to be agreement about the following medical indications for circumcision: recurrent balanitis, paraphimosis, genuine phimosis and ballooning of the foreskin during micturition. It is claimed [3] that by loosening the foreskin from the urethral meatus with a blunt instrument, ballooning disappears and circumcision is unnecessary, although it seems to the authors that the place of resistance in ballooning must be a narrow passage in the prepuce itself. A genuine phimosis with a fibrous band preventing retraction of the foreskin is a rare con-

dition, persisting in 1 or 2% until the age of 17 years [7]. It is advisable to perform circumcision before this age, so undoubtedly some of the cases operated would have regressed spontaneously.

In a prospective study involving 46 boys circumcised with the Plastibell device and 49 circumcised by a conventional dissection technique, Fraser et al. [6] found a higher postoperative incidence of haemorrhage and infection using dissection technique (33%, 10% versus 9%, 4%), and a significantly higher incidence of dysuria within the Plastibell group (59% versus 33%). In a retrospective study of 200 boys circumcised by a conventional dissection technique, Leitch [8] found 7% with haemorrhage, 0.5% with infection and 6% with meatal ulcer/stenosis. In the present study we recorded 2 cases (5%) with haemorrhage, 2 cases (5%) with infection and 24 cases (56%) with dysuria, using the Plastibell device.

Although this seems to indicate a lower incidence of haemorrhage using the Plastibell and no major difference in infection rate, the answer to this must await a large-scale prospective study. Dysuria is a prominent feature when using the Plastibell. It is often related to a slight irritation and swelling of the glans, probably caused by a foreign body reaction. A rather convincing difference is the incidence of meatal ulcers/stenosis reported in as many as 30% of patients conventionally circumcised [9]. It supports the assumption that the varying amount of foreskin left intact using the Plastibell device must have some prospective action. The lack of homogeneity in length of the foreskin is probably due to the involvement of several surgeons, some with little training. The size of the ring is important. If it is too small, it causes difficulty with micturition, further the risks of removing too little foreskin and of scarring the glans. If it is too big, it might slip down causing swelling of the glans and maybe even urinary retention. The traction applied to the foreskin, when tightening the string, is also important. The ideal is to ensure that the ring is firmly attached to the glans with a minimum of traction. This prevents the foreskin from becoming too short and ensures that only a minimum of the inner layer of the prepuce becomes exposed when the ring falls off and traction ceases. The inner layer tends to be more rough and this greatly affects the cosmetic result (Fig. 2). It is often advisable to mark the position of the string before traction is applied.

In ritual circumcision the ability of the Plastibell method to preserve some of the foreskin probably makes it unacceptable within certain religious communities. In areas with low hygienic standards, where circumcision might play a role in preventing chronic balanitis and cancer of the penis, one can hardly recommend the method, since the ability of retaining smegma must still be present.

Among the 6 boys subjected to teasing in school we found 3 types of foreskin (A, C, D; Fig. 1) represented. One can only speculate whether this incidence would be higher if a conventional method had been used.

Proper preoperative information to parents (and doctors) is essential concerning the outcome of the operation and the fact that agglutinations between the prepuce and the glans are of a physiological nature and therefore should not be forcefully dispersed.

An assessment of the cosmetic result is of course purely subjective and is ultimately related to the patient's view. Nevertheless, we have found it important to demonstrate the presence and appearance of the foreskin after using the Plastibell device. If the aim is to preserve the entire foreskin one must recommend the dorsal incision [10], but this method demands greater surgical skill than does the Plastibell method, hereby not utilizing perhaps the greatest advantage of this method – its simple and quick performance.

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