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Original Article

Outcome of a standardized technique of preputial preservation surgery for phimosis: A single institutional experience

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ABSTRACT

Introduction: Pathological phimosis or preputial stenosis is a distressing problem in children leading to recurrent balanoposthitis, ballooning of prepuce, and rarely back pressure changes in the urinary tract. Circumcision has been the standard of care for such situations, although recently, various alternatives to circumcision have been reported in the literature. Most of these techniques are often complex and are met with poor acceptance. Moreover, besides personal preferences (in Hindus), advantages of preputial preservation is increasingly being realized recently. **Materials and Methods:** A prospective study was carried out in which a simple standardized technique of preputioplasty (dorsal slit) was used in 40 pediatric preputial stenosis cases. The outcome of this procedure including cosmesis and parental satisfaction was evaluated. **Results:** The average duration of this procedure was from 10 to 25 min with no intraoperative complications. The cosmetic outcome was good in 62.5%, satisfactory in 30%, and poor in 7.5% of cases. All of the boys had retractable prepuce with no functional problems. There was 100% parental satisfaction. None of the patients required a redo procedure or circumcision. **Conclusion:** A dorsal slit of adequate length i.e.; 1/3rd the length from the corona to the tip leads to a satisfactory cosmetic outcome in more than 92% of cases. Preputioplasty is a safe and simple alternative to more radical procedure of circumcision.

Keywords: Preputioplasty, phimosis, preputial stenosis

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Introduction

Treatment for the tight non retractile foreskin and complications arising due to it is almost exclusively circumcision besides religious considerations (Muslims opt for early religious circumcision). With this radical approach to prepucial stenosis, some patients experience postoperative complications (bleeding, glanular ulcers, meatal fibrosis, urethrocutaneous fistula, etc) and have poor cosmetic results. Normal protective and sexual functions of the foreskin are lost, and epithelium of glans may undergo irreversible changes. Recently a lot of awareness has developed among the treating physicians to offer prepuce preserving options for select cases of phimosis. Several alternative approaches adopted in the literature ranges from simple local resection of the phimotic ring[1] to more complex and technically challenging Y-V,[2] Z[3-5] and helicoid plasties[6] of the prepuce. More recently dorsal slit,[7,8] triple incision plasty,[9,10] and lateral slit prepucioplasty[11] have been described. Most of these approaches have failed to gain general acceptance because of their often complex and specialized nature or seemingly poor cosmetic results. We have employed a standardized technique of preputioplasty in a set of pediatric population who presented to us with preputial stenosis and complications (pain, recurrent balanoposthitis, ballooning on micturation) arising out of it. We standardized the technique and studied the outcome of preputioplasty including parental satisfaction.

Materials and Methods

Subjects were recruited for this study prospectively after obtaining Institutional Review Board and Ethical

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Committee Approval. Parental preference and consent for preputioplasty was obtained in these patients after discussing the pros and cons of both circumcision and preputioplasty and expected outcome (functional as well as cosmetic). We had encountered 68 cases of phimosis in total, in the Pediatric Surgery Department of Christian Medical College and Hospital, Ludhiana, from 1 April 2001 to 31 March 2004. Mostly these were treated by preputial adhesiolysis with or without a course of antibiotics (in 8 cases due to balanoposthitis). Forty-eight cases were unresponsive to conservative treatment up to 6 weeks and were offered surgical intervention. 40 cases were selected for prepuce preserving procedure after discussing and obtaining parental consent. Eight cases were found unsuitable because of scarred, thickened, or excessive redundant prepuce and were treated by standard circumcision. Our selection criteria included pathological phimosis complicated with ballooning, straining, recurrent balanoposthitis, painful erections/micturition, UTI, urinary retention, preputial stenosis resistant to 6 weeks trial of adhesiolysis and retraction (by parents). Our exclusion criteria included scarred fibrotic prepuce, excessive redundancy, and parental preference for circumcision instead of preputial preservation.

The technique of preputioplasty is outlined in Figure 1. The foreskin was mobilized by dividing glanular adhesions. A longitudinal incision of prepuce about one third of its length from corona to its tip is made. Incision is closed transversely with 4-0 or 5-0 catgut suture. Antibiotic (Neosporin) ointment applied locally on the glans and on the suture line. Parents were advised to retract the foreskin regularly once local swelling and discomfort subsided, usually by 5-7 days post op. All operations were conducted or directly supervised by the author. All procedures were conducted as day-care surgeries under short general anesthesia. All patients had follow up in the outpatient department, on 7th to 10th day post op to check bridging and fibrinous adhesions and then at 3 months post op to confirm full retractability.

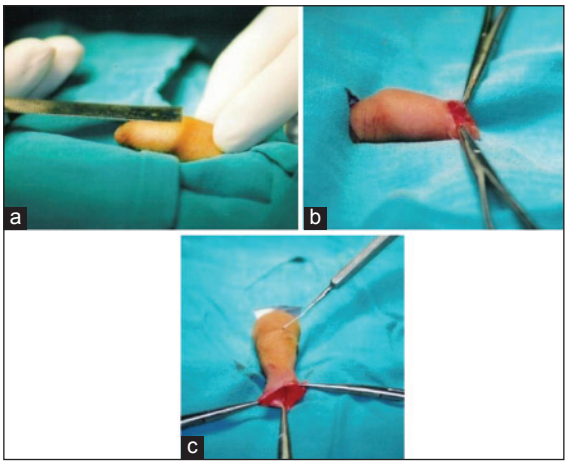

Figure 1: Technique of dorsal slit preputioplasty

During follow-up visits an independent assessor, a senior registrar surgeon, not involved in any of the operations, measured the length of the healed dorsal slit and evaluated the cosmetic appearance and functional results as well as the parental satisfaction.

Our own subjective criteria for assessment of post op outcome were as follows:

1. Good — when glans was barely visible, prepuce encircling it all around, minimal asymmetry of prepuce and prepuce retracting well.
2. Satisfactory — when glans tip is visible at the site of dorsal slit, prominent skin at the edges of dorsal slit giving a 'hanging ear' appearance and prepuce retracting well.
3. Poor — significant exposure of the glans, large dorsal slit and significant asymmetry of prepuce (more prominent 'hanging ear' deformity).

Results were compiled and analyzed using statistical averages and percentages.

Results

All 40 children had presented with phimosis and problems consequent to phimosis [Table 1]. Those with active posthitis or balanitis were managed with a course of antibiotics, analgesics, and local hygiene before considering for preputioplasty. Parents of all these children consented for preputioplasty.

The average age at operation ranged between 14 and 84 months with a median of 36 months. Operating time ranged between 10 and 25 minutes. No intraoperative complications were encountered. Edema of the preputial wound was the most common immediate postoperative event encountered in 12 (30%) of our patients. Parents of all the patients were comfortable in learning and performing

Table 1: Presentation of children with preputial stenosis

Clinical presentation	Number with % in bracket
Ballooning and straining	20(50)
Recurrent posthitis	10(25)
UTI	3(7.5)
Failed preputial dilatation	5(12.5)
Urinary retention	2(5)
Total	N=40

preputial retraction and reposition during post op follow up. Complaints of difficulty in micturition, straining, and parental apprehension were allayed in all cases within first post operative week. An independent assessor interviewed the parents and measured the final cosmetic outcome of the procedure [Figure 2]. The healed dorsal slit measured between 6 and 10 millimeters. The cosmetic outcome was good in 25/40 (62.5%), satisfactory in 12/40 (30%), and poor in 3/40 (7.5%) of cases. None of our patients required a redo procedure and none of the child's parent have requested for revision circumcision within maximum of 5 years of follow up.

Discussion

The physiological role of foreskin is being realized increasingly worldwide bringing several alternative techniques in use to treat phimosis.[12,13] It certainly protects the sensitive skin of the glans, provides additional lubrication, and allows greater freedom of movement during sexual intercourse. Several alternatives to circumcision have been put in to use, namely simple local resection of the phimotic ring[1] to more complex and technically challenging Y-V,[2] Z,[3-5] and helicoid plasties[6] of the prepuce. More recently, dorsal slit,[7,8] triple incision plasty,[9,10] and lateral slit prepucioplasty;[11] preputioplasty with intralesional triamcinalone injection even in the setting of balanitis xerotica[12] have been proposed. Unfortunately, complex nature of these procedures have caused poor acceptance among surgeons. Moreover, there is insufficient data regarding their outcome and complications in the literature.

The primary objective of all these alternatives is to widen the prepuce to allow its easy retraction and better hygiene, while retaining the normal cosmetic and physiological function. Preputioplasty by a single dorsal incision of the prepuce has been in use in Europe since 1970s.[7,14-17] Being a simple, quick, and safe technique even in the hands of inexperienced surgeons, it has earned greater acceptance than other techniques. Failures in early cases in the literature were attributable to two factors: (1) very severe fibrosis or (2) excessive length of foreskin. A careful selection approach has eliminated the problem of recurrent phimosis in our cases. Long-term follow ups ranging from 6 to 20 years[15] have shown that the successful results of preputioplasty are lasting although Barber *et al.* have reported 70% satisfaction level in their series with transverse slit preutioplasty.[17] Strict selection criteria and a standardized dorsal slit has led to satisfactory cosmetic outcome in more than 92% of cases in our series. Minimal postoperative morbidity in terms of preputial edema and absence of other complications of circumcision such as bleeding (as it avoids frenular area), glanular ulceration, irreversible epithelial changes, abnormal glanular sensation has resulted in high level of patient and parental satisfaction. Preputioplasty is a safe, quick, and simple method of preserving preputial function in patients needing surgical relief of a tight but unscarred foreskin.

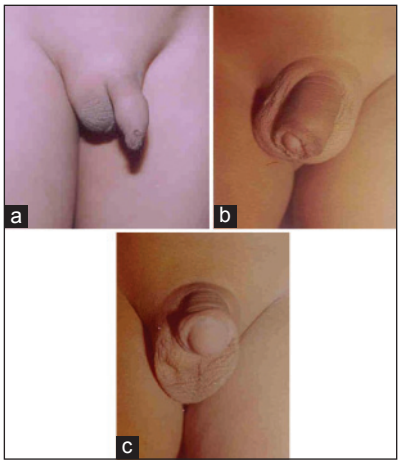

Figure 2: Cosmetic outcome following preputioplasty

Conclusions

Preputioplasty can serve as a reasonable alternative to circumcision because of good functional and cosmetic results and absence of intraoperative complications. It preserves the normal protective, lubricant, and sexual functions of the prepuce and facilitates use of preputial skin in repair of any associated hypospadias. A dorsal slit of adequate length i.e. 1/3rd the length from the corona to the tip leads to a satisfactory cosmetic outcome in more than 92% of cases. However, one should be cognizant of the fact that preputioplasty is not applicable in every patient with phimosis as in a visibly scarred and thickened prepuce, long stenosed prepuce, and a redundant prepuce.

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