ORIGINAL ARTICLE

A COMPARATIVE STUDY OF CIRCUMCISION AND PREPUTIOPLASTY IN PEDIATRIC CASES OF PHIMOSIS: A PROSPECTIVE STUDY IN A TERTIARY CARE HOSPITAL, BHAVNAGAR, GUJARAT

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ABSTRACT

Introduction: Preputioplasty have gained a new interest now days because the retained preputial skin with mucosa after preputioplasty gives good cosmetic appearance and it can be utilized in future for urethral stricture surgery. The aim of this study was to compare the post-operative complications and post-operative hospital stay in patients operated by circumcision and preputioplasty.

Methodology: This prospective study included 50 patients (age less than 4 years) having phimosis, treated during July 2010 to July 2012. These patients were treated by two methods viz. circumcision and preputioplasty (25 cases by each method).The patients were assessed post-operatively at day 1, day 15, at 2 months and at 3 months.

Results: The study revealed that the immediate post-operative complications like pain, bleeding, oedema, difficulty in micturition and fever were present after both the procedures. But post-operative pain (84%), bleeding (24%) and difficulty in micturition (16%) were higher after circumcision than after preputioplasty (40%, 4% and 4% cases respectively). Post-operative oedema was more prominent in preputioplasty-operated patients (84%). Post-operative hospital stay was longer in cases treated with circumcision. After three months, recurrent adhesions were more common after preputioplasty (32%). Cosmetic appearance was acceptable in patients operated with both the procedures.

Conclusion: Preputioplastyis a faster, easier, relatively painless technique with excellent cosmetic results and lesser complications than circumcision, except post-operative edema and adhesions.

Key words: Preputioplasty, circumcision, phimosis

INTRODUCTION

Phimosis describes "a covered glans that cannot be retracted". Physiologic phimosis involves only non-retractability of the foreskin. There may be some ballooning during urination. In pathologic phimosis, a circular band of tight prepuce prevents full retraction, associated with pain, local infections, bleeding, frequent urinary tract infections, and painful erections. Occasionally, urinary retention is noticed.[1]

The prevalence of adhesions between prepuce and glans are age dependent: 58% after 1 year of life, 10–35% after 3 years of life. The prevalence of true phimosis (with scarring) is 8% in 6-year old boys and 1% with 16 years of age.[2]There are two surgical modalities for treating phimosis, one is preputioplasty, in which, some part of prepuce is retained[3]and conventional circumcision, in which, the phimotic foreskin is totally excised. It has been reported that preputioplasty has faster and less painful recovery, less morbidity, less cost and its various erogenous, and sexual physiologicfunctions.[4]The disadvantage is that phimosis can recur.

Circumcision is one of the most common elective procedures all over the world.[5,6]It cures phimosis without recurrence. It also prevents further episodes of balanoposthitis and urinary tract infections.[4]Butpain, difficult recovery, bleeding, infection, psychological trauma, and high cost are seen

with circumcision. Circumcision is to be avoided in childrenwith genital anomalies where the foreskin may be needed for later corrective surgery for the anomaly.[7]There is paucity of data comparing the post-operative complications of preputioplasty and circumcision. The aim of this study was to compare the post-operative complications and mean post-operative hospital stay in patients operated by circumcision and preputioplasty.

METHODOLOGY

This prospective follow-up study was carried out on 50 patients, aged less than 4 years and diagnosed as having phimosis. The study was conducted in the Department of General Surgery, Sir Thakhtsinhji General Hospital Bhavnagar, during the period of July 2010 to July 2012. These patients were treated by two methods, viz. circumcision (Group A) and preputioplasty (Group B, 25 cases by each method) after obtaining written informed consent from the parents of the children after explaining them the procedures in detail. The sampling design was purposive sampling and patients were included in the study prospectively as they were admitted. All operations were performed under supervision of a senior surgeon. Patients were assessed in detailpost-operatively at day 1, day 15, 2 months and 3 months. The patients were discharged from the hospital after recovery. The parents of the patients were then interviewed for detailed clinical history by a pre-tested questionnaire and a thorough physical examination was also carried out on the patients. The results were analyzed in Epi Info version 3.5. Chi-square test was applied for quantitative variables. Difference was said to be significant when p-value <0.05.Patients with hypospadiasis, epispadiasis, Urethral meatus stenosis, balanoposthitis and paraphimosis were excluded from the study.

In lateral-slit preputioplasty, the foreskin is retracted, dividing glandular adhesions, andthe tight constricting band is exposed. This is incised longitudinally along both the lateral surfaces of the prepuce to expose Buck's fascia.Two or three interrupted sutures with chromic 3-0 round body needle are taken along the cut margins of prepuce to widen the tube of the prepuce. Parents were advised to mobilize the foreskin regularly at home post operatively.[4]A standard technique was used for circumcision.[8]Both the procedures were performed either under local or general anesthesia. Permission for carrying out the study was obtained from the Ethical Committee of the institute.

RESULTS

The study was conducted over a period of 2 years and the following observations were recorded.
As illustrated in table 1, on post-operative day 1, pain, bleeding, edema, difficulty in micturition and fever were noted in patients operated with both the procedures. The post-operative pain was present in (84%) patients of group A and (40%) patients of Group B. This data was statistically analyzed by the application of Chi-Square test and the 'p value' was found significant ($p<0.05$), suggesting that post-operative pain was more in group A than group B.

Table 1: Post-operative follow-up findings and complications in both the procedures (n=50)

Post-operative follow-up	Group A (%)	Group B (%)	P Value
Post-operative Complications (1st 24 Hours)			
Post-op Pain	21 (84%)	10 (40%)	<0.05
Fever	6 (24%)	5 (20%)	>0.05
Oedema	19 (76%)	21 (84%)	<0.05
Difficulty in micturition	4 (16%)	1 (4%)	>0.05
Bleeding	6 (24%)	1 (4%)	<0.05
After 15 Days Follow-up			
Post-op Pain	6 (24%)	1 (4%)	<0.05
Oedema	1 (4%)	6 (24%)	<0.05
Difficulty in micturition	0 (%)	0 (%)	NA
Crust Formation	6 (24%)	4 (16%)	>0.05
After 2 Months Follow up			
Crust Formation	0 (%)	0 (%)	NA
Adhesions	12 (48%)	5 (20%)	<0.05
Non-retractile Skin	1 (4%)	7 (28%)	<0.05
After 3 Months Follow up			
Recurrent Adhesions	2 (8%)	8 (32%)	<0.05
Non-retractile Skin retractile Skin	0 (%)	0 (%)	NA

Post operative fever was seen in both cases, data were almost same. Post operative oedema was present in both groups but higher in group B (84%) than in group A (76%). The difference was statistically significant suggesting that post-operative oedema occurs more after preputioplasty. Difficulty in micturition was also a complaint in 16% patients of group A and in 4% patients of group B. The difference was statistically insignificant. Bleeding from surgical site occurred in 24% cases of groupA, while in only 4% cases of group B. The difference was statistically significant.

After 15 days follow-up period, complain of difficulty in micturition disappeared. Pain was still present in 24% cases operated by circumcision as compared to 4% cases operated by preputioplasty. The difference was statistically significant. Analgesics were continued. Edema was present in 24% cases, operated by preputioplasty. The difference was statistically significant. Crust formation was seen in 24% patients of group A and in 16% patients of group B. The difference was statistically insignificant.

After 2 months of follow-up, it was seen that crust formation was not a problem anymore. A new complication that appeared was adhesions, 48% in patients of group A and 20%in patients of group B. The difference was statistically significant. Non-retractile skin was also a complication after 2 months follow-up. It was seen in 28% patients operated by preputioplasty and in 4% patients operated by circumcision.

After 3months of follow-up, it was seen that complain of non-retractile skin disappeared. The problem of adhesions was still present in 32%cases of group B and 8% cases in group A. The difference was statistically significant.

Table 2: Post-operative hospital stay in both the procedures (n=50)

Post-op Hospital Stay (in days)	Circumcision	Preputioplasty
1	5 (20 %)	16 (64%)
2	20 (80 %)	9 (36%)

It was seen that most of the group B patients (64%) were discharged after 24 hours of the procedure and the rest (36%) were discharged after 2 days of the surgery. On the contrary, only 20% patients of group A were discharged on first post-operative day while rest 80% patients were discharged on 2nd postoperative day (table 2). It suggested that post-operative hospital stay was longer after circumcision.

DISCUSSION

This study compared the post-operative complications after circumcision and preputioplasty in patients presenting with phimosis. In the present study, the post-operative pain was present in 84% patients of group A (circumcision) and 40% patients of Group B. This was due to excision of whole preputial skin in circumcision. Analgesics were sufficient to manage the problem. Similarly, in the study conducted by Peter et. al, distress in the first 24 hours was dramatically greater in the circumcision group, despite the use of nerve blocks.[9]Post operative fever was seen in both groups, data were almost same. Fever was due to lignocaine + ketamine hydrochloride given for sedation and was managed by cold sponging. Post operative oedema was present in both groups but somewhat higher in group B (84%) than in group A (76%), suggesting that post-operative oedema occurs more after preputioplasty mainly due to oedema of residual skin which was left in situ. Patients were treated by application of glycerine-MgSo4 solution. Difficulty in micturition was also a complaint in 16% patients of group A and in 4% patients of group B (preputioplasty). This was due to pain. Analgesics solved that problem. In the study conducted by Peter et. al, difficulty in passing urine was slightly greater for patients with preputioplasty. Bleeding from surgical site occurred in 24% cases of group A. There was only a single case seen for the same after preputioplasty. Bleeding was managed by tight dressing and no one required re-operation. In the study conducted by Peter et. al, bleeding requiring re-operation was seen in 6% patients, operated by circumcision.

Fifteen days after the surgery, difficulty in micturition disappeared. Pain was still present in 24%cases, operated by circumcision and analgesics were continued for these patients. Edema was present in 24% cases, operated by preputioplasty. It was due to improper retraction of the prepuce and were managed conservatively. A crust formation was seen in 24% patients of group A and in 16% patients of group B. This was due to more exposed glans after circumcision than preputioplasty. It was managed by antibiotics and advising aqueous chlorhexidine solution bath.

Two months after the surgery, we found adhesions (48%) and non-retractile skin (4%) in patients of group A and in 20% and 28%patients of group B respectively, which may be related to improper retraction of preputial skin at home. Lane TM et al found only one patient who developed a post-operative wound infection which led to preputial

adhesions and the patient later underwent circumcision. The remaining patients reported in their study showed no post-operative problems at follow-up.[4]

In the present study, after 3 months of the both surgeries, no case was reported with non-retractile skin, suggesting that the goal of having a wide foreskin circumference with full retractability was achieved. There was no need for a circumcision after preputioplasty (group B) or revision of circumcision (group A).The problem of recurrent adhesions was still present in 32% cases of group B and 8% cases of group A. In Peter and Gerald study, recurrent adhesions (2%) and non-retractile foreskin (4%) were seen.[9] It shows that repeated retraction of remaining preputial skin at home is very necessary for a better outcome.

It was seen that most of the group B patients (64%) were discharged after 24 hours of the procedure while only (20%) patients of group A were discharged on first post-operative day while rest (80%) patients were discharged on 2nd postoperative day. This suggests a faster recovery after preputioplasty than after circumcision.

CONCLUSION

Preputioplasty is a faster, easier, relatively painless technique with excellent cosmetic results and lesser complications than circumcision, except post-operative edema and adhesions. Post-operative hospital stay was longer in cases treated with circumcision. Preputioplasty is easy to perform and fulfills the same purpose of a circumcision like, allows full mobilization of the foreskin, preserving its function and providing an excellent cosmetic result. It also avoids the loss of the foreskin, which can be utilized in future. Therefore, it is a good alternative to circumcision.

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