Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol.13 , (2024)
https://www.jneonatalsurg.com

OPEN ACCESS

Treatment of Phimosis Without a Knife in Children

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Cite this paper as: Dr. Aditi Deshpande, Dr. Durva Dighe, Dr Arya Patil (2024) Treatment of Phimosis Without a Knife in Children. Journal of Neonatal Surgery, 13, 2321-2325

ABSTRACT

Aims & Background: The aim of this study was to analyse the efficacy of conservative management for phimosis, and which grade showed the most significant response for the same.

Materials and Methods: In this retrospective study, patients were divided into mild and severe groups at 1st presentation. All were managed conservatively with topical Mometasone and Sitz baths. Parental education on prepuce hygiene and gentle retraction was emphasized. At the end of 6 weeks depending on response to this conservative treatment groups of responders and non-responders were made for analysis.

Results: Mild phimosis group showed complete and almost complete resolution with conservative management.

Severe phimosis group showed significant downgrading in first follow-up and almost complete resolution by second follow-up at 6 weeks.

Conclusion: This study emphasizes conservative management as the first-line treatment for phimosis, especially in paediatric populations, to avoid the risks of desensitization and functional loss associated with surgery apart from general anaesthesia complications.

Clinical significance: The importance of conservative management as opposed to invasive procedure even for grades of phimosis that are usually managed surgically first. It is not only cost effective, provides lesser hospital stay for patients and has lesser side effects for the same**.**

Keywords: retrospective study, phimosis, conservative management, surgical management

INTRODUCTION

The preputial skin is non-retractable during early life, but over time, it naturally separates from the glans and becomes retractable. This skin serves several essential functions, including protection, moisture maintenance, immunological defense, and erogenous sensitivity. It is richly innervated by a network of complex nerves, as well as various mucocutaneous end organs that are responsive to motion, touch, temperature, and sexual stimulation.

Phimosis is defined as the inability to retract the foreskin over the glans due to narrowing, constriction, and/or adhesions. It is divided into physiological and pathological phimosis.

Physiological phimosis is a non-retractile foreskin or prepuce over the glans till 6 months age. In pathological phimosis, the etiology is irrespective of age. It often results from recurrent infections such as balanitis or balanoposthitis, which lead to tissue damage and tightening of the foreskin. Poor hygiene can contribute to this by promoting the accumulation of smegma and debris, causing chronic irritation. Forceful retraction of a tight foreskin, especially in children, can cause microtears that heal with fibrosis, worsening the condition. Certain skin conditions like lichen sclerosus et atrophicus, a chronic

inflammatory disorder, are also known to cause pathological phimosis.

Phimosis can be managed through both non-surgical and surgical interventions, depending on its severity. Non-surgical treatments include topical steroid therapy, such as Mometasone, which can effectively reduce tightness while preserving the foreskin. Gentle manual stretching exercises may also be beneficial, but they require consistency and patience.

Surgical options such as circumcision, which involves the complete removal of the foreskin, but requires a longer recovery period. Circumcision also leads to the desensitization of the penis, resulting in the loss of these critical functions of the preputial skin and carries the risk of depriving the individual of the preputial skin's protective and immunological roles, as well as its function in sexual sensation.

Preputioplasty, a foreskin-preserving procedure, serves as an alternative for individuals who wish to retain their foreskin, but it carries a risk of recurrence. In emergencies, a dorsal slit procedure can offer immediate relief, though it may result in an unsatisfactory cosmetic outcome. Other surgical techniques, including Z-plasty or Y-V plasty, aim to expand the foreskin while maintaining its function, but they require specialized surgical expertise.

Surgical management is not only invasive, expensive but also comes with potential post-op complications like pain, bleeding, infection, meatal stenosis, scarring, loss of sensation, or painful erections and sometimes psychological distress due to body image changes. Surgical management of phimosis often requires hospital admission making the procedure costly and time-consuming. General anesthesia requirements may necessitate post-anesthesia observation.

Thus, we propose that conservative management should be considered as the first-line treatment for phimosis, before surgical options are considered.

METHODS

A retrospective observational study was carried out. In this study, data was collected from March 2023 to December 2024 in the outpatient department in a tertiary care center in the government sector in tier 2 city of India.

Inclusion criteria: Patients of the age group "birth" to "12 years" with phimosis.

Exclusion criteria:

- Physiological phimosis
- Secondary phimosis due to burns, trauma, etc
- Phimosis associated with complication of balanoposthitis

The clinical examination of prepuce, penis and external urethral meatus was done. The patients were classified according to Meuli classification (Table 1).

Grade I	fully retractable prepuce with stenotic ring in the shaft
Grade II	partial retractability with partial exposure of the glans
Grade III	partial retractability with exposure of the meatus only
Grade IV	no retractability

Table 1: Meuli classification

Here, groups that were compared were:

- Patients with phimosis grade I, II – Mild
- Patients with phimosis grade III, IV – Severe

All patients presenting with phimosis irrespective of grade were treated conservatively with a plain sitz bath with warm water for 20 minutes and topical application of Mometasone. Parents were educated on cleansing the prepuce and gentle retraction during bathing daily with soap foam, during as well as post treatment to prevent recurrence.

Patients were reassessed at weeks 2 and 6 from initiation of treatment clinically to determine consequent grade.

At the end of 6 weeks, patients were labelled as:

- Responders
- Non-responders

The group of non-responders included patients that showed no response or worsening of symptoms by 6 weeks; however, it should be noted that this group was subjected to surgical management, once good response to conservative management was found ineffective.

In this study, 6 patients met the exclusion criteria and were hence not included in the following data sets.

RESULTS

1. After application of inclusion and exclusion criteria 128 patients within the age group 2.5 months to 12 years were considered for analysis, all were initially started with conservative management. Patients presented to the outpatient department, with smegma collection, inability to retract prepuce, and ballooning of prepuce. The response to therapy was reassessed after 2 weeks as first follow-up and 6 weeks as second follow-up for all patients.

Grade	Age		
	1-5 yrs	5-8 yrs	8-12 yrs
I	35	18	6
II	8	5	2
III	14	5	4
IV	15	9	7
TOTAL	72	37	19

Table 2.1: Grades of phimosis observed with certain age groups in the study.

2. The unpaired t-test was applied to compare 'Mild' and 'Severe' according to the response. The results showed a statistically significant difference with a two-tailed p-value of 0.0165.

	Responders	Nonresponders
Mild	67	2
Severe	53	6

Table 2.2 : Observed mild and severe grades in responders and non -responders.

3. We divided the response to therapy as: worsening (which included patients who showed no response or worsening of symptoms) and good response. 120 patients responded extremely well. 8 patients (6 of which were from a severe phimosis group) however, showed no response despite regular management. For patients, who showed signs of improvement during the first follow-up, we continued the therapy with Mometasone and sitz bath for 4 more weeks. The phimotic ring disappeared within 6-8 weeks even for a few patients who presented with grades 3.

Grades	Worsened	Resolved
1	0	60
2	2	10
3	2	24
4	4	26

4. When Fischer's test was applied wherein outcome i.e., resolution or worsening was compared according to grades, the results showed p value to be 0.00041 which is significant. (Table 2.3)

DISCUSSION

This study focused on conservative management and observation of results for grades 1 to 4 to establish evidence whether grades can be compared effectively. What we also found out was 2 patients who presented with a mild variety of phimosis initially, showed worsening of symptoms instead after conservative management. The result can be interpreted as a known secondary side effect due to corticosteroid therapy.

A prospective randomised study done by Yang, Stephen Shei Dei et al [1], shows the response rates in boys treated with Betamethasone valerate and Clobetasone butyrate were 81.3% and 77.4%, respectively. However, a study done by Guy A Bronselaer et al [2] showed a similar opinion in regards to complications of surgical management. They conducted a comparative study to test the hypothesis of whether penile sensitivity was decreased due to male circumcision and the results proved the importance of preservation of foreskin for penile sensitivity and showed that a higher percentage of circumcised patients experience discomfort or pain and unusual sensations as compared with the uncircumcised population. These two studies proved a favorable outcome of non-surgical management in phimosis, consistent with the results of our study. But there were no documented studies comparing mild and severe phimosis. Thus, most paediatric surgeons show inclination towards radical surgical correction especially for severe grades. Our study defies this popular notion of circumcision being the treatment of choice for phimosis.

According to a study published by S. Fuentes et al circumcision was considered as the mainstay management in 78.4% of patients for phimosis [3]. However 21.2% of the patients included in their study were older than 13. However, a prospective study done by Czajkowski M, Czajkowska K et al concluded that male circumcision in patients suffering from phimosis relieved all clinical symptoms of phimosis and is the most effective method [4]. Both of these studies focused more on surgical management and considered it as the most effective management. Since this study tried to use a data set by focusing on conservative management, the studies mentioned above found varying results.

LIMITATIONS

The study in question was limited to a pediatric population from low socioeconomic backgrounds in a government-funded healthcare setting, which may limit the generalizability of its findings to other populations.

CONCLUSION

Although there are instances when patients with higher grades of phimosis and patients unresponsive to treatment have the need to be managed surgically, it is safe to say that initial conservative management is not only useful but also cost effective, especially for patients belonging to lower socioeconomic strata. This study compared results between patients presenting with grades 1 and 2 with those presenting with grades 3 and 4 and it can be concluded that initial management with corticosteroids i.e., conservative management is quite effective and leads to resolution in almost all cases. Resolution and downgrading to grade 2 or grade 1 can be observed in most of the cases in patients with even higher grades.

Clinical significance: The importance of conservative management as opposed to invasive procedure even for grades of phimosis that are usually managed surgically first. It is not only cost effective, provides lesser hospital stay for patients and has lesser side effects for the same

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