EVALUATION OF MEDICAL MANAGEMENT OF PHIMOSIS IN PEDIATRIC PATIENTS: A DESCRIPTIVE CROSS SECTIONAL STUDY

Jasmine Bajracharya,[1] Bineet Thapa,[2] Kaushal Oli,[3] Deepika Lamichhane,[4] Rit Shrestha[4]

[1]Department of Pediatric Surgery, [2]Department of Surgery, [3]Intern, [4]Medical Student, Nepal Medical College and Teaching Hospital, Attarkhel, Gokarneshwor-8, Kathmandu, Nepal

ABSTRACT

Phimosis is considered virtually universal in newborn males. Circumcision is mostly done for unresolved phimosis. There is a stream of evidence that suggests steroid cream application is effective in these children prior to any surgical decision. A cross-sectional descriptive study from October 2021 to November 2022, was designed to include all cases of phimosis in male children up to 15 years of age. Caregivers of the patients were counseled and advised for management with hydrocortisone 1.0% ointment twice a daily and follow up in 2 weeks. The resolution rates were noted in 2 weeks and 4 weeks and unresolved children were counseled for either continuation of medical management or circumcision. Electronic registry was used to enroll all the cases and note the outcomes. A total of 146 boys were evaluated. Median age of presentation was 4 years, 113 children (77.4%) were successfully treated with medical therapy and only 33 children (22.6%) had failed medical therapy requiring circumcision. A total of 66 children (58.4%) required only 1 followup for resolution of phimosis. By contrast, 47 children (41.6%) required more than 1 follow-up for resolution. Topical steroid in treatment of phimosis is a very safe, effective, inexpensive and easy approach that attenuates the need for surgical intervention. The response rate is very high and adverse effects are minimal. In the developing world, medical therapy can thus be more feasible of an option as compared to surgery.

KEYWORDS

Phimosis, pediatric, newborn, management

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CORRESPONDING AUTHOR

Dr. Jasmine Bajracharya
Assistant Professor,
Department of Pediatric Surgery
Nepal Medical College Teaching Hospital,
Attarkhel, Gokarneshwor-8, Kathmandu, Nepal
Email: jas20005@hotmail.com
Orcid No: https://orcid.org/0000-0002-9100-2102
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INTRODUCTION

Phimosis is defined as a non retractile foreskin of the prepuce preventing complete exposure of glans penis.[1] Phimosis may be physiological or pathological. It is termed pathologic when non retractability is associated with local or urinary complaints and circumcision has been considered the mainstay of treatment for pathologic phimosis.[2]

Phimosis is considered virtually universal in newborn males with prevalence ranging from 0.5%-13% with a 3.4% risk as revealed by a systematic review of 43 studies conducted in 2020.[3] While newborn circumcision decreases incidence of urinary tract infections in the first year of life, at present the only definitive indication for circumcision other than religious reasons is the development of pathological phimosis.[4] Topical steroids are a suitable alternative to surgery in phimosis with a rate of therapeutic success that is higher than that of placebo.[5]

MATERIALS AND METHODS

This is a descriptive cross-sectional study conducted at a single center, Nepal Medical College and Teaching Hospital, where all pediatric children of age less than 15 years presenting to pediatric surgery outpatient clinic and diagnosed as phimosis were eligible for this study. The exclusion criteria were missing or incomplete data regarding treatment and scarred and fibrotic prepuce requiring circumcision in index visit. The study spanned from October 2021 to November 2022. Electronic registry was used to enroll all the cases and note the outcomes.

After approval by the institutional review board of Nepal Medical College Teaching Hospital, Attarkhel, Gokarneshwor-8, Kathmandu, Nepal in November 2022 (Ref. No.: 32-079/80), sampling was started. Procedure was explained and written informed consent was taken from parents of all patients. Those that did not have preputial scarring were given Hydrocortisone cream for 2 weeks and parents were counseled to return in 2 weeks. After 2 weeks, the response was noted and grading was done. In cases that had partial response resulting in improvement in retraction of prepuce but not complete retraction were again prescribed Hydrocortisone 1% cream for 2 more weeks. After 2 more weeks, counseling was done for either continuation of medical management or circumcision. All patient data were entered in the electronic registry of the hospital and analyzed using SPSS version 17 .

RESULTS

A total of 146 patients up to 13 years were enrolled in this study. The median age of presentation was 4 years. Age groups of 5 years or less formed the majority (63.7%).

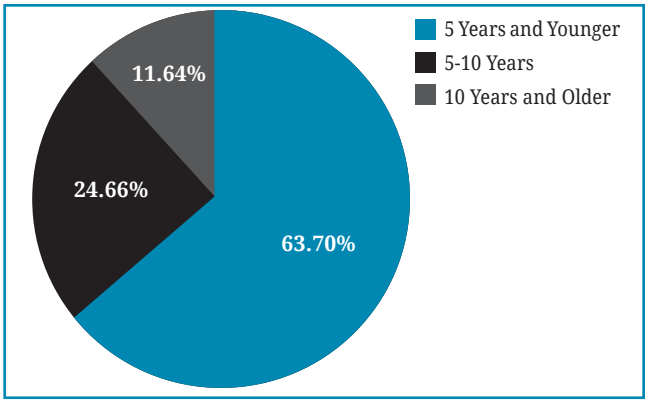

Fig 1: Pie chart showing age distribution of the study population

Co-existing conditions were found in 51 participants (34.9%). Balanitis and urinary tract infection were by far the most commonly associated findings followed by smegmal cyst. Others included balanoposthitis, bullous impetigo, buried penis, cystitis, epididymitis, fibrotic prepuce, meatal cyst, paraphimosis, right sided hydrocele,urticaria and webbed penis.

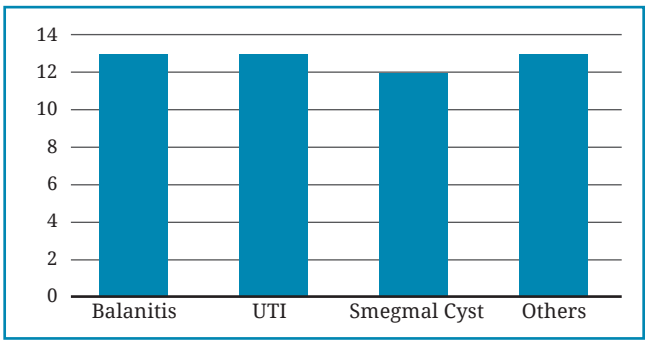

Fig 2: Bar diagram showing coexisting conditions in the study population (n=51)

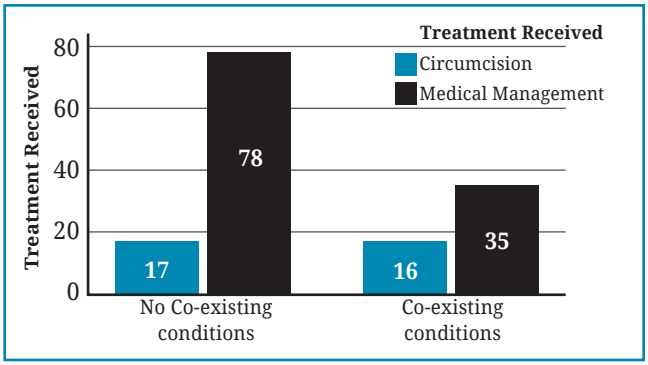

Fig 3: Bar diagram of treatment received vs co-existing conditions

Table 1: Treatment modalities amongst different age groups in the study population

		Age groups			
		≤5 years	6-9 years	≥10 years	Total
Treatment	Medical	72 (77.4%)	28 (77.8%)	13 (76.5%)	113 (77.4%)
	Circumcision	21 (22.6%)	8 (22.2%)	4 (23.5%)	33 (22.6%)
Total		**93 (100.0%)**	**36 (100.0%)**	**17 (100.0%)**	**146 (100.0%)**

Table 2: Number of follow ups amongst patients with medical and surgical treatment

		Number of follow-ups (1 follow up = 2 weeks)			Total
		1	2	More than 2 Follow ups	
Treatment received	Medical	66 (58.4%)	25 (22.1%)	22 (19.5%)	113 (100.0%)
	Circumcision	17 (51.5%)	10 (30.3%)	6 (18.2%)	33 (100.0%)
	Total	**83**	**35**	**28**	**146**

Amongst patients with co-existing conditions, 31.4% underwent circumcision.In comparison to it, only 17.9% underwent circumcision amongst patients without any coexisting conditions (Fig. 3). Amongst the study population treated with circumcision, 51.5% required only 1 follow up in comparison to 58.4% amongst those who received medical treatment.

DISCUSSION

Around 96.0% of males at birth are found to have a foreskin that is non-retractile. Choice of treatment for phimosis is dependent on the age of child, type of non-retraction, severity of phimosis, cause, and associated morbid conditions.[4]

In the present study conducted amongst 146 boys, more than two thirds (77.4%) of them underwent successful treatment with topical therapy using corticosteroids. This is similar to a study conducted in 2021 amongst 45 boys with symptomatic phimosis in which about 77.8% were successfully treated with use of topical steroids.[6] Studies have shown that the use of topical creams for phimosis yield dramatic results with efficacy ranging from 65.0% to 95.0%.[4]

The present study revealed that more than half of the affected children were successfully treated with medical management in the course of two weeks. Likewise, long-term prospective study carried out in 2012 amongst 260 symptomatic boys on the use of local steroid therapy for treating phimosis in boys showed that 88.0% of the children responded within two weeks.[7] Another prospective study carried out in China in 2021 among 1499 patients, long-term success rate of steroid therapy was 66.0% over a mean follow-up of 26.9 months with 65.7% of patients responding favorably to treatment by the end of 2 weeks.[8]

The different modalities of treatment for phimosis apart from topical steroids include circumcision, manual retraction therapy, dorsal slit with transverse closure, preputioplasty, frenulotomy and meatoplasty among others.[4] Scarred foreskin appearance, which is present in the spectrum of pathological phimosis, usually warrants circumcision.[9]

A 2014 Cochrane systematic review had concluded that topical steroids significantly increased complete or partial clinical resolution of phimosis and the use of topical corticosteroids as the first-line of treatment in phimosis (both physiological and persistent pathological) is favored.[10] Similarly, a meta-analysis of eleven studies with 1,699 patients revealed that, compared to placebo or the manual reduction method, topical steroid therapy is more effective in the treatment of phimosis in children.[11] The use of steroid cream for physiologic phimosis is also associated with a decreased risk of recurrent UTIs in uncircumcised male infants with a normal renal ultrasound.[12] Circumcision, on the other hand, may cause pain, bleeding, infection, meatal stenosis, psychological trauma, and increased economic burden.[13]

More than a third of boys in the present study had coexisting conditions, with balanitis and urinary tract infections being the most common ones. Moreover, a relatively higher proportion of cases with co-existing conditions underwent circumcision (31.4%) in comparison to those

without any such conditions (17.9%). In a study conducted between 1996 to 2000, among 194 patients who received topical steroid therapy, 25 had coexisting balanitis and 4 had a history of urinary tract infection. Conservative treatment was successful in 87.0%, 88.0% and 75.0% of patients respectively with phimosis alone, phimosis coexisting with balanitis and history of urinary tract infection. Overall, circumcision was avoided in 87.0% of patients treated with topical steroids.[14]

Our study has several limitations: the design is retrospective observational and it is based on a relatively small number of patients. Moreover, it is a single-center data, and lack of data regarding long-term follow-up can also be an issue. Grading of phimosis was not done and thus practicality of the treatment protocol for all grades cannot be assessed from our study.

Despite the shortcomings, our study adds a part to the growing body of evidence in favor of liberal use of corticosteroids in phimosis. In low resource settings like Nepal and other developing nations where circumcision is not a feasible option due to the possibility of complications, economic implications and lack of resources, steroid therapy can be extremely useful.

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