



## MANAGEMENT OF PHIMOSIS WITH USE OF BETAMETHASONE AND PREPUCIAL DILATATION –A PROSPECTIVE STUDY

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**ABSTRACT** **INTRODUCTION:** Physiological phimosis, a common complaint in the surgery outpatient department presenting as non-retractile foreskin is due to adhesions between the inner layer of the prepuce with glans penis or due to tight tip of the prepuce. These patients are managed with circumcision, preputial dilatation and topical application of steroid. In this study, we compare different outcomes measures in children treated with dilatation along with Betamethasone ointment.

**METHODS:** This prospective study was conducted in the department of General surgery outpatient department in 2018. We followed up 50 patients who underwent application of betamethasone ointment followed by dilatation and application of betamethasone impregnated antibiotic cream twice daily over a period of six weeks. We recorded basic demographic features, parent anxiety, parental compliance, parent satisfaction, complete response and persistence of phimosis at the end of the treatment.

**RESULTS:** The median age of the patients was 36 with range (23-48) months. At the end of six weeks, with regard to all outcome measures namely parent compliance, parent satisfaction, symptom resolution. Moreover, phimosis persisted in 3 (6%) of the patients treated with dilatation and betnovate ointment.

**CONCLUSIONS:** This study shows that Dilatation and local application of betnovate ointment is a better alternative to circumcision.

**KEYWORDS :** Phimosis; anatomy; steroids; dilatation, circumcision.

**INTRODUCTION** Circumcision is frequently performed in the United States and Canada, although in a variety of locations around the world, such as Europe and South America, this procedure is not done on a routine basis. When it is not done routinely, the incidence of pathological phimosis is increased (1). Pathological phimosis results when there are adhesions to the fibrotic foreskin ring that make it impossible to expose the penis glans (1). This situation hinders adequate penis hygiene, which favors the occurrence of foreskin infections, repeated urinary tract infections, sexually transmitted diseases and, in adults, carcinoma of the penis (2).

The correction of phimosis in infancy is performed with general anesthesia, a procedure that is not without risks, with a complication rate that may reach 34% (3). The main complications following circumcision are hemorrhage, stenosis of the urethral meatus and the foreskin ring, and even amputation of the glans (4). In addition, this procedure presents considerable costs (5).

Recently, clinical treatment of phimosis using topical corticosteroids has been proposed as an alternative to surgery with good results (6-8). Regardless of the patient's age, the results are encouraging, with success rates ranging from 67 to 95% of cases (2,8,9).

There are several classifications for the position of the phimotic ring (1,2,9,10), although only Kayaba et al. (11) demonstrated the form and degree of retractability of the prepuce. Studies that correlate foreskin anatomy with topical treatment using corticosteroids in patients with phimosis are rare, or even inexistent.

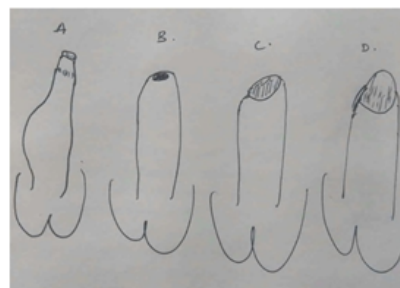
The objective of this work is to correlate topical treatment of 0.05% betamethasone in the stenosed foreskin with the different degrees of exposure of the glans and the length of application needed for the foreskin to become fully retractable.

### MATERIALS AND METHOD

Between January to December 2018, we evaluated 50 patients with phimosis for dilatation followed by topical application of betnovate ointment. The patients ranged in age from 23 to 48 months (mean age 36 month). An informed consent form was obtained from the parents (mother or father) of each patient.

The patients were divided into groups according to the degree of foreskin retraction (11) (Figure-1).

Group A consisted of patients who presented no foreskin retraction, group B presented exposure of the urethral meatus only, group C presented exposure of half of the glans, group D presented incomplete exposure of the glans due to preputial adhesions to the coronal sulcus.



**fig:1**

After classification into one of the groups, the patients were submitted to application of 0.05% betamethasone ointment on the phimotic ring (distal aspect of the prepuce). Parents were instructed to gently apply traction to the foreskin until the ring appeared, applying a thin layer of cream twice daily for a minimum of 30 days, in association with correct hygiene of the penis. These children were followed to preputial dilatation and topical application of betamethasone ointment in our outpatient department.

Therapy was considered successful when the prepuce was fully retractable with total glans exposure. Failure was considered when it was impossible to achieve glans exposure, when there was no alteration in the degree of stenosis after more than 6 months, and if there was infection during the treatment. In such cases, circumcision would be indicated.

### RESULTS

The type of foreskin anatomy found in the 50 children is shown in Table-1. There was a predominance of group A (18 children - 36%) and group B (12 - 24%). Groups C (15 - 30%) and D (5 - 10%) presented a lower incidence. Of the 50 patients, 1 (2%) abandoned the treatment.

**Table-1 The type of foreskin anatomy found in the 50 children is shown below.**

foreskin anatomy	Patients	%
Group A	18	36
Group B	12	24
Group C	15	30
Group D	5	10

Of the 46 patients (92%) who did obtain adequate exposure of the glans after treatment (fully retractable prepuce), 14 (28%) were in group A, 12 (24%) were in group B, 15 (30%) were in group C, 5 (10%) were in group D.

Independently of the group they were classified, 37 of the patients (74%) achieved glans exposure within 30 days of treatment. Only 8 patients (24%) required 4 months of treatment to obtain a fully retractable prepuce. No adverse side effects were observed from the topical betamethasone treatment and dilatation.

## DISCUSSION

Physiological phimosis affects 96% of newborns and its incidence diminishes with age. At 3 years old, 10% of boys present phimosis and by the age of 14 years, this incidence decreases to 1% (13).

In Australia at the beginning of the 1990s, Kikiros et al. (10) attested to the efficacy of topical corticosteroids in the treatment of preputial stenosis. Since then, several authors have shown satisfactory results (67% to 95%) with the topical use of betamethasone, clobetasol, sodium diclofenac, 0.05% mometasone furoate and triamcinolone acetonide (8-10).

Betamethasone is one of the steroids that present the best improvement rates (13,14), and this was the reason the drug was used in this study. Corticosteroids act by reducing the arachidonic and hydroxyecosatetraenoic acids in proliferative inflammatory disease of the skin, thereby inhibiting prostaglandin release and increasing the activity of dismutase superoxide. Additionally, they have the potential to release antioxidants (13). Collateral effects may occur, such as the suppression of the hypothalamus-hypophysis-adrenal axis or cutaneous atrophy. However, the doses utilized in topical treatment of phimosis are not large enough to lead to these types of complications (1). In our study, we did not observe any adverse effects in our patients. We obtained a success rate of 92% from the treatment with 0.05% betamethasone ointment and dilatation, which is similar to what has been found in recent studies in the literature (1,2,13,15-19). All patients were advised to continue retracting the foreskin to maintain penile hygiene. We observed parent satisfaction when the decision to pursue conservative treatment was made. Topical treatment using steroids and dilation has been shown to have low risk with an absence of side effects and good adherence to treatment.

Monthly follow-up for observation of the evolution of the phimotic ring has been shown to be fundamental in the assessment of the time at which the therapy utilized is having its effect, or whether it is ineffective. Therapy can be stopped at any time and surgery can then be indicated.

All 3 patients (6%) who showed no improvement after using the ointment & dilatation required a surgical procedure were in group A. Among the patients in group A who responded to topical treatment & dilatation, 28% obtained the desired result only after 3 or 4 months of treatment. The patients without any foreskin retraction (group A) presented an approximately 6% chance of not benefiting from clinical treatment, even after a long period of ointment use, and such patients will require circumcision. In group B, 100% of the patients showed the desired result within the first two months of ointment application and dilatation. These results are very significant at the time of indicating the treatment, especially for patients unable to have foreskin retraction (group A), which was the most frequent situation among our patients (incidence of 36%). Patients with foreskin anatomy in groups B presented a high chance of obtaining the desired result with treatment duration of less than 60 days.

In conclusion, topical treatment along with dilatation of phimosis using 0.05% betamethasone ointment presented a success rate of 92%, regardless of the form and degree of foreskin retraction.

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