

## Original Research Article

# Role of topical steroid in primary treatment of childhood phimosis

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### ABSTRACT

**Background:** Circumcision has been the traditional treatment for phimosis, but with some controversies due to complications. The current study was undertaken to evaluate the effectiveness of topical steroid therapy as primary treatment for childhood phimosis.

**Methods:** A prospective observational study was conducted and a total of 100 patients (age- 3 to 12 years) of phimosis were enrolled. The management consisted of topical application of 0.05% betamethasone Ointment for 4 weeks. Those with partial response were advised additional 2 weeks of therapy. Failure to treatment cases were subsequently subjected to circumcision.

**Results:** Total 100 patients were enrolled in the study. Out of 100 patients, 9 were excluded because of non-compliance and remaining 91 patients were studied and followed up. 85 cases out of 91 (93.4%) were declared a 'success'; while remaining 6 (6.6%) were declared 'failure' and were subjected to circumcision. Of the 85 successfully treated; majority (70, 82.3%) responded within 4 weeks of treatment and 15 (17.6%) responded in 6 weeks. The highest number of patients who responded to treatment within 4 weeks were < 5 years of age (54, 93.1%) ( $p < 0.05$ ).

**Conclusions:** Topical steroid (0.05% betamethasone ointment) is an effective, safe, conservative and non-surgical method of primary treatment of childhood Phimosis, especially when combined with good hygiene practices of foreskin with daily retraction and cleansing.

### INTRODUCTION

The term 'phimosis' is confusing, since it is used to denote both physiological stage of development, as well as pathological condition. Gairdner, in his classic article >50 years ago, titled 'Fate of foreskin', demonstrated this physiological state to be normal and self-limiting.<sup>1</sup> The incidence of Phimosis decreases from 8 to 1% in adolescence.<sup>2</sup>

Circumcision has been the traditional treatment for phimosis, but with some controversy.<sup>3</sup> Circumcision is associated with complications in 0.06 % to 55%; common ones being unaesthetic scar, meatal stenosis, bleeding and castration anxiety and impotence etc.<sup>4</sup>

Circumcision is hence now considered outmoded, radical, traumatic, disproportionate surgery for a minor problem. Hence, the need to look for other viable alternatives.

Since last two decades, topical steroids are being promulgated to be having high success rate in the treatment of phimosis.<sup>5</sup> Together with the added advantages of being non-surgical in nature, immunity offered by prepuce and the versatile use of preputial skin as a graft; topical steroid therapy warrants further evaluation.

The current study was undertaken to evaluate the effectiveness of topical steroid therapy as primary treatment for childhood phimosis.

**METHODS**

Type of study was prospective observational study. Study setting was in Tertiary care hospital in Central India. Study Period was for 2 years (November 2005 to October 2007). Study population involved all patients of phimosis attending surgery OPD.

**Inclusion criteria**

- Age group- 3 to 12 years
- Should have attended Surgery OPD on any day during Study period.

**Exclusion criteria**

- Physiological Phimosis
- Hypospadias or another congenital anomaly
- Undergone minor surgical intervention like preputioplasty
- Non-willingness towards non-surgical treatment.

Total of 100 patients of phimosis were enrolled as per mentioned criteria and analyzed. The management consisted of topical application of 0.05% Betamethasone Ointment. Parents and the patients old enough to understand were instructed to apply the ointment twice daily for four weeks on the phimotic ring (distal aspect of prepuce) after applying gentle traction to foreskin to make phimotic ring visible.

Those with partial response were advised additional 2 weeks of therapy. The retractions of foreskin were to be increased gradually and the importance of retractions was strongly emphasized.

**Operational definitions**

Outcomes were defined as follows:

- Success- Fully retractable prepuce with total exposure of glans penis
- Failure- Failure to achieve glans penis exposure even after 6 weeks of treatment.

Classification of Phimosis by Kayaba et al<sup>6</sup> was followed in the study. Failure to treatment cases were subsequently subjected to circumcision.

All patients were followed up every month for 6 months from the start of study to check upon complications, if any. Chi-square test was applied, with  $p < 0.05$  being considered as statistically significant. Parents of the patients were explained about the study in detail and written consents were elicited.

**RESULTS**

Total 100 patients were enrolled in the study. Out of 100 patients, 9 were excluded because of non-compliance and remaining 91 patients were studied and followed up.

Most number of cases belonged to age groups of 3 years (29.6%) and 4 years (19.7%). Dysuria (36.3%) was the commonest presenting complaint/symptom, followed by ballooning (25.3%), non-retractable prepuce (19.8%) and drop-by-drop micturition (13.2%).

More than half of cases were of type II (51.6%), followed by type III (25.3%), type IV (20.9%) and type I (2.2%). As for response to treatment, 85 cases out of 91 (93.4%) were declared a ‘success’; while remaining 6 (6.6%) were declared ‘failure’ and were subjected to circumcision (Table 1).

Of the 85 successfully treated; majority (70, 82.3%) responded within 4 weeks of treatment and 15 (17.6%) responded in 6 weeks. The highest number of patients who responded to treatment within 4 weeks were < 5 years of age (54, 93.1%) ( $p < 0.05$ ). (Table 2).

**Table 1: Treatment outcomes with topical steroid in phimosis.**

Outcomes with topical steroid (0.05% betamethasone ointment)	Number (n)	Percentage (%)	Significance (p value)
Success	85	93.4	0.001
Failure	6	6.6	

**Table 2: Age versus response to topical steroid treatment in phimosis.**

Age (no. of patients)	Number of patients who responded in 4 weeks	Percentage
≤5 Years (58)	54	93.1%
≥5 Years (27)	16	59.3%

Thus, the results show that the response varies with the age of patient and is better in younger ages. Figure 1 illustrates one such case of a 3 and half year-old boy with phimosis in the study.

Urinary Tract Infection (UTI) was reported in 6 patients, of which 3 (50%) patients were of Type I; followed by Type II (2, 33.3%) and Type III (1, 16.7%); results being statistically insignificant ( $p = 0.61$ )



**Figure 1: A three and half year-old boy with phimosis treated with topical steroid (0.05% betamethasone ointment) (pre- and post- treatment comparison).**

It was observed that, all the patients (6) who had to undergo circumcision were later diagnosed as Balanitis Xerotica Obliterans (BXO). Treatment failure didn't vary significantly with the type of phimosis. Regarding age distribution of failure cases, 5 patients were >5 years of age and 1 patient of age 3 years. The recurrence rate in the study stood at 4.2%

## DISCUSSION

In recent years, topical steroid has been propagated as an effective alternative to circumcision for treatment of phimosis; with success rates ranging from 67% to 95%.<sup>5,7</sup>

The associated complications and disadvantages of conventional plastibell circumcision are many-fold; from wound infection, bleeding, inadequate or excess removal of foreskin, penile adhesions, urinary retention, meatal ulceration/meatal stenosis/meatitis, migration of plastibell to midshaft; to even bladder rupture.

With the inherent advantages of this conservative, non-surgical treatment plan in mind, we enrolled 100 participants over 2 years and studied a final sample of 91 patients for effectiveness of topical steroid in treatment of Phimosis. Nine participants were excluded due to non-compliance.

In current study, around 50% patients were 3-5 years old (3 year- 29.6%, 4 years- 19.8). Nzayisenga et al reported 41.5% patients in the age group of 3-5 years.<sup>8</sup> Tatiana et al reported 82.8% patients to be >3 years old; of which 38% were in the age group of 3-5 years.<sup>9</sup> Orsola et al also reported 38% patients to be <5 years old.<sup>5</sup> As age increases, the physiological preputial retractability also increases, leaving the child asymptomatic. In present study, highest patient reported with dysuria (36.3%) and ballooning (25.3%) as presenting symptom/complaint. Griffiths et al studied 120 patients referred by GPs for circumcision.<sup>10</sup> The reasons for referral were: balanoposthitis/dysuria- 36%, ballooning- 36%, non-retraction-28%. In another study by William et al, dysuria

was reported by 36.2% similar patients.<sup>11</sup> Stenram et al also reported dysuria (38.5%) and ballooning (35%) to be major presenting complaints in patients with Phimosis.<sup>12</sup>

According to Kayaba et al classification, the highest incidence of type II phimosis (51.6%) was found in the study.<sup>6</sup> Griffiths et al reported the incidence of type II phimosis to be 21%.<sup>10</sup> In the study by Tatiana et al, there was predominance of type II phimosis (45.2%), followed by type I (35.7%); but the age group involved in the study was 19 months to 14 years.<sup>9</sup> Orsola et al reported the type II incidence to be highest (44.2%), like the study.<sup>5</sup>

In present study, the treatment failure rate was 6.5%. The percentage of treatment failure in our series is compatible with that of Zampieri et al at 4.0% and Golubovic et al at 5%.<sup>13,14</sup> The failure rate is much lower than Wai-Hung et al series results (14.8%).<sup>15</sup>

Majority of patients (82.4%) responded within 4 weeks to topical steroid (0.05% betamethasone ointment). Significantly highest number of patients who responded within 4 weeks were <5 years old. In the series of Wai-Hung et al, there was significant difference on the first treatment outcome (four weeks) between boys <3 years (92.6%) and >3 years (70.4%) of age.<sup>15</sup> Orsola et al also reported 82% patients to have responded to the treatment within 4 weeks.<sup>5</sup> It appears that the response varies with the age group of the patient and decreases as the age of the patient increases. The exception to this rule are the patients of BXO won't respond to steroid therapy; irrespective of age of the patient. Study reported the recurrence rate at 4.2%. Some studies have reported the recurrence rate to as high as 34%.<sup>16</sup> As per Orsola et al, the recurrence can be prevented by daily routine foreskin retraction and maintenance of hygiene.<sup>5</sup>

## CONCLUSION

The study concludes by recommending topical steroid (0.05% betamethasone ointment) as an effective, safe, conservative and non-surgical method of primary treatment of childhood Phimosis, especially when combined with good hygiene practices of foreskin with daily retraction and cleansing.

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