Phimosis

A nonsurgical approach to the treatment

Phimosis is a condition in which the narrowed foreskin cannot be retracted. In neonates it is accepted as physiological due to inability to retract the foreskin because of natural adhesions between the prepuce and glans. Phimosis can develop at any age, usually as a result of chronic inflammation due to poor local hygiene. When infection develops, antimicrobial agents and circumcision are treatments of choice. We present an alternative therapy to surgery, which may be preferable because of safety and high success rates.

Effectiveness of topical application of nonsteroidal anti-inflammatory ointment for phimosis evaluated.

Materials and Methods: A total of 52 children with phimosis were included in this study. Phimosis was graded according to severity. Of the patients 32 were given locally a nonsteroidal anti-inflammatory ointment prepared in ophthalmic usage form from sterile diclofenac sodium ampoules (not commercially available). The control group comprised 20 patients given sterile petrolatum ointment. Patients were seen before and after treatment, and graded according to retractabilty and appearance of the foreskin. Treatment continued for 4 weeks with 3 applications daily.

Results: Of the 32 patients 24 responded to therapy and 8 remained unchanged or had insufficient improvement. Three controls responded to therapy and 17 did not. There were no side effects.

Conclusions: Nonsteroidal anti-inflammatory ointment application for phimosis may be an alternative to surgery and steroid application.

MATERIALS AND METHODS

Diclofenac sodium ointment was applied to 32 boys 2 to 6 years old (mean age 4.57) with phimosis who were admitted to our urology and

pediatric clinics. The phimosis grading scale of Kikiros et al, which applies 2 scores according to foreskin retractabilty and appearance was used. Phimosis secondary to incomplete circumcision was excluded from study.

Sterile ointments were prepared elsewhere using 0.075 gm. diclofenac sodium, 3 Gms. Lanolin, 9 gm. petrolatum and 15 gm. distilled water. The petrolatum and lanolin were sterilized at 150C for 1 hour. This mixture was homogenized to a liquid state. As it cooled sterile diclofenac sodium from ampoules was poured in drops, mixed and homogenized until the preparation reached an ointment state. Later this mixture was placed in sterile tubes containing 15 gm. of ointment.

A total of 20 patients (mean age 4.23 years) with phimosis served as controls and sterile petrolatum ointment was applied. Study and control groups were allocated randomly. Parents were informed how to use the ointments but the initial application was made by the physician. Parents did not know whether the ointment was therapeutic or placebo.

The ointment was applied by parents 3 times daily for 4 weeks over the stenotic part of the foreskin using gentle retraction. Patients were seen by the same physician, who was blinded to the type of ointment applied, after completion of treatment and phimosis was graded again according to the same criteria.

Patients were considered responders when there was improvement to a normal or near normal state, as characterized in our study by a minimum improvement of 2 points in the retractabilty score or at least 1 point in each score. Other patients were graded as non-responders, including those who required circumcision. The Wilcoxon test was used for statistical analysis.

Results

Five patients in the study group and 3 controls had symptoms, such as a forceful stream and prolonged voiding time.

Of the 32 patients 24 responded to diclofenac sodium application. Most responders had improvement to almost normal foreskin retractabilty and appearance. According to retractabilty scores, 5 boys with a score of 1 and 3 with scores of 2, 3 and 4 respectively, did not respond to therapy with improvements in only 1 patient from a score of 2 to 1. According to appearance scores, 1, 4, and 3 patients with scores of 2, 1 and 0 respectively, did not respond to therapy with improvement in only 2 patients from a score of 1 to 0. After treatment voiding symptoms were relieved in 3 of 5 patients. The other 2 patients were non-responders who required immediate circumcision. The table also shows the average grade of responders and non-responders before and after treatment.

Of the 20 patients treated with petrolatum 3 responded to therapy. According to retractabilty scores, there was no change in 17 patients (scores of 1 in 5, 2 in 6, 3 in 4 and 4 in 2) with improvement in only 1 from a score of 2 to 1 (see table). Voiding symptoms were not relieved after petrolatum application. Of the 17 non-responders circumcision was necessary in 6 because of recurrent urinary tract infections or voiding symptoms. Petrolatum application did not seem to cure foreskin retractabilty, since it remained almost unchanged, but surprisingly, it seemed to have a positive effect on foreskin appearance.

In the majority of neonates with phimosis the condition is physiological but approximately 10% of boys have non-retractable foreskins and less than 1% has phimosis at puberty. Most cases occur in uncircumcised penises. Infection from poor local hygiene, cicatricial preputial ring due to recurrent adhesions as a result of early forceful retraction of the foreskin and sometimes excessive skin remaining after circumcision, which becomes stenotic, may cause phimosis in young boys.

In older men, especially those with diabetes, chronic balanitis may lead to phimosis. Generally the recommended treatment is antibiotics if infection persists and circumcision.

It has been reported that circumcision has advantages including better hygiene and the prevention of penile cancer, phimosis, urinary tract infection and sexually transmitted diseases.

Although Thompson *et al* indicated that there was no absolute medical indication for routine circumcision of the newborn; this procedure still seems to preserve its popularity in the United States. In Turkey circumcision is routinely performed for religious reasons. While it is not a common procedure to circumcise infants in Turkey, it has been popular to perform circumcision for phimosis after infection resolves. On the other hand, circumcision may lead to complications, such as hemorrhage, meatal stenosis, and excessive skin remnants, leading to secondary phimosis and infection. In Turkey circumcision of a boy with hypospadias by incompetent persons, electrocautery damage to the penile tissue and a damaged glans are common complications.

Local application of a nonsteroidal anti-inflammatory ointment has advantages. It is easy and avoids the complications of a minor operation. It makes circumcision unnecessary in the majority of patients whose parents are unwilling to allow immediate circumcision for phimosis. Others have described that local steroid application or even injection of steroids into the prepuce decreased phimosis.

Kikiros *et al* reported on 63 boys with phimosis of whom 51 had improved foreskin retractabilty with local steroid application. We treated phimosis in 32 boys with improvement to a normal state in 24. The other eight boys did not respond to therapy and 6 required immediate circumcision. Petrolatum application improved the appearance score in 3 patients, which we cannot explain, but it is not noteworthy since retractabilty was not improved to a normal state, as in the diclofenac group.

Generally, we found that responders had newly formed phimotic rings, especially with inflammation. Older, thick and fibrous rings did not respond well to therapy. Thus anti-inflammatory drugs have a range of action. While in some patients with slightly tight foreskins (for example retractabilty scores of 0 to 2) the condition may have been described as physiological due to young age, we used scores for evaluation. Patients less than 2 years old must be examined carefully, since they have narrow preputial openings that resemble phimosis. We excluded such cases from study.

There are few previous series on the use of diclofenac sodium in children, almost all involving the management of juvenile rheumatoid arthritis. Although oral administration is not contraindicated, diclofenac sodium is not recommended for children less than 18 months old. It was used in ointment form in this study, which is less harmful than any other form, and we did not detect any side effects rising from the application. Diclofenac sodium was used for this study because it is one of the few nonsteroidal anti-inflammatory drugs commercially available in ampoule form.

Application of a nonsteroidal drug may be preferable to that of a steroid due to safety despite systemic absorption from the application, which occurs with either substance.

In conclusion, nonsteroidal anti-inflammatory ointment application may be an alternative to surgery and steroid application, since it is a safer choice with high success rates for treating phimosis.

APPENDIX: GRADING OF PHIMOSIS

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Retractabilty of foreskin:
      0 - Full retraction
      1 - Full retraction of foreskin and tight behind
            the glans
      2 - Partial exposure of glans.
      3 - Partial retraction, meatus just visible
      4 - Slight retraction, but distance between tip and glans
      5 - Absolutely no retraction

Appearance of foreskin:
      0 - Normal
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1 – Crack in prepuce and skin splitting on gentle retraction
2 – Small, partially circumferential white scar
4 – Balanitis xerotica obliterans or severe scarring

Average grades of phimosis

	No. Pts.	Av. Retractabilty Score		Av. Appearance Score	
		Before	After	Before	After
Diclofenac sodium:*	32	2.28	0.97	1.09	0.16
Responders	24	2.45	0.79	1.20	0.04
Non-responders	8	1.75	1.50	0.75	0.50
Petrolatum:+	20	2.25	2.05	1.20	1.00
Responders	3	2.00	2.05	1.09	0.41
Non-responders	17	3.68	3.68	2.00	1.86

* p>0.001.
+ p>0.05(0.18 for retractabilty and 0.10 for appearance).

Insufficient data for statistical analysis of responders