Original paper

Physiological phimosis, do we manage it according to current recommendations in primary care?

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Abstract

Introduction: phimosis is one of the most frequent presenting complaints in pediatric primary care. Most cases are physiologic, and there is increasing consensus in recommending its conservative management, focusing on foreskin care and hygiene. The aim of our study was to analyze the management of this condition in primary care and compare the results to current guidelines.

Material and methods: we conducted survey through a questionnaire distributed to pediatricians in our area and performed a literature search for foreskin care protocols or guidelines for the management of phimosis on the main scientific websites.

Results: the majority of pediatricians adopt a watchful waiting approach before toilet training (83.6%). One of two years after toilet training, 78.7% of providers start topical treatment, referring the patient to surgery if it fails, even if the child is asymptomatic. Current international guidelines advocate for conservative management of physiological phimosis. In specific cases that require intervention, topical treatment is preferred before considering surgery.

Conclusions: in our area, the management of phimosis in primary care adheres to current recommendations in most cases. It is still not clear when asymptomatic phimosis is not going to resolve spontaneously and will require referral to surgery. Education of parents and communication between care teams is essential for adequate management in each case.

Key words:
- Corticoid therapy
- Foreskin
- Phimosis
- Surgery

Fimosis fisiológica, ¿la manejamos en Atención Primaria de acuerdo con las recomendaciones actuales?

Resumen

Introducción: la fimosis supone uno de los motivos de consulta más frecuentes en edad pediátrica. Es fisiológica en la mayoría de los niños y se aboga cada vez más por una actitud conservadora centrada en la higiene y el correcto cuidado del prepucio sano. El objetivo de este estudio es analizar la situación actual del manejo de la fimosis en edad pediátrica en Atención Primaria y comparar los resultados con las recomendaciones vigentes.

Material y métodos: se ha realizado una encuesta que ha sido distribuida entre los pediatras de nuestra comunidad y una búsqueda bibliográfica sobre protocolos de cuidado del prepucio o *guidelines* para el manejo de la fimosis en las principales webs científicas.

Resultados: la mayoría de los pediatras encuestados mantienen una actitud expectante antes de la retirada del pañal (83,6%). A partir de 1-2 años tras la retirada del mismo, un 78,7% de profesionales indican tratamiento tópico y derivan a cirugía cuando ha sido inefectivo, aunque el paciente se encuentre asintomático. Las guías internacionales vigentes abogan por un manejo conservador de la fimosis fisiológica. En casos específicos que precisan intervención, se favorece el tratamiento tópico antes de plantear una cirugía.

Conclusiones: en nuestro medio, el manejo de la fimosis en Atención Primaria se ajusta a las recomendaciones en la mayoría de los casos. Queda por discernir en qué momento la fimosis asintomática precisará la derivación a Cirugía. La información a los padres y la comunicación entre equipos es fundamental para un correcto manejo en cada caso.

Palabras clave:
- Cirugía
- Corticoides
- Fimosis
- Prepucio

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INTRODUCTION

Phimosis is a term used to describe inability or difficulty retracting the foreskin. Phimosis is physiological in most cases, and it is one of the most frequent reasons for primary care visits in boys as well as one of the most important aspects to consider in their assessment and followup.[1]

Pediatricians play a key role in educating parents on foreskin care and hygiene and in the followup of physiological phimosis until its full resolution. In recent years, there has been a trend toward increasingly conservative management on account of the high rate of spontaneous resolution. In this approach, appropriate foreskin care is of the essence, accompanied, in select cases, by topical treatment of phimosis.[2,3]

Topical treatment consists in the application of a corticosteroid cream for several weeks which, combined with gentle stretching of the foreskin, achieves a success rate of 80%.[2] This approach is widely accepted due to its simplicity and effectiveness, but it must be prescribed appropriately and at an age at which both the boy and the parents are cooperative and committed to ensure adequate adherence to treatment.

Thanks to these measures, only a very small percentage of boys end up requiring surgery for pathological phimosis, which is rare in the pediatric age group, or associated conditions, such as balanitis, recurrent urinary tract infection or pain on retraction in older boys or adolescents.

At the same time, assessing the extent to which real-world clinical practice adheres to the existing evidence is an essential aspect of any research conducted with the aim of improving health care quality. The resulting findings can guide the development of improvement measures for optimizing care delivery, followed by an evaluation of their impact.[4] In this sense, for instance, some of the countries neighboring Spain have made available sources of information on foreskin care that can help providers as well as families and patients old enough to understand care measures and the natural history of physiological phimosis.[3] The aim of our study was to assess the management of physiological phimosis at the primary care level in our area and its adherence with current recommendations.

MATERIAL AND METHODS

We conducted a cross-sectional, observational and descriptive study by means of a questionnaire developed by our team that covered the key aspects of foreskin care in healthy children. The questionnaire was distributed online to primary care pediatricians in our area between September 2022 and May 2023. The age range of the population served by these providers was 0 to 14 years. Participation in the survey was anonymous, and we made a descriptive analysis of the data collected from the responses. Next, we searched the literature for protocols for foreskin care and for guidelines for the management of phimosis in the PubMed and SciELO databases and the websites of the main international societies of urology, pediatrics and pediatric surgery. We compared the results obtained in the survey with the recommendations provided in the identified protocols and guidelines.

RESULTS

We received a total of 124 responses out of a possible 290 (response rate of 42%). **Table 1** summarizes the most relevant results.

Based on the received responses, 83.6% of pediatricians did not give any recommendations while the patient used diapers, and 73.8% did provide recommendations once the patient was out of diapers. As for treatment, a majority prescribed topical treatment (93.4%), in 86.2% of cases after 1 to 2 years of correct retractions following toilet training. The most commonly used corticosteroid was betamethasone 0.1% (69.7%) and the most commonly prescribed duration was 4-8 weeks (85%). In addition, 73.3% of respondents reported prescribing up to two courses of corticosteroids. The most frequent reason for referral was failure of medical

Table 1. Survey results		
Physician recommendation before child is toilet trained (in diapers)		
	None	83.6%
	Gentle retractions during diaper changes	16.4%
	Progressive forcible retractions	0%
Physician recommendation after toilet training/diaper removal		
	None	26.2%
	Gentle retraction during bathing	52.5%
	Gentle retraction during bathing and urination	21.3%
Topical treatment of phimosis		
	Yes	93.4%
	No	6.6%
Timing of treatment in asymptomatic patients		
	At birth	12.1%
	At age 1 year	0.9%
	Once the child is toilet-trained	0.9%
	1-2 years after toilet training if correct retractions have been performed	86.2%
Indication for medical treatment		
	Recurrent balanitis or UTI	56.7%
	Non-retractability after toilet training	25.8%
	Other	17.5%
Prescribed corticosteroid		
	Betamethasone 0.1%	69.7%
	Betamethasone 0.05%	26.1%
	Other	4.2%
Importance of foreskin retraction during medical treatment		
	Very important	79.3%
	Not important	20.7%
Duration of corticosteroid course		
	4-8 weeks	85%
	1-2 weeks	5.8%
	Other	9.2%
Number of additional corticosteroid courses prescribed if there is no improvement		
	Only one course	14.2%
	Up to 2 courses	73.3%
	More than 2 courses	12.5%
Indication for referral to pediatric surgery in asymptomatic patients		
	Phimosis refractory to medical treatment after toilet training	98.3%
	Phimosis without medical treatment after toilet training	1.7%

UTI: urinary tract infection.

treatment (98.33% of respondents), and the questionnaire did not explore the age of the patient at the time of referral.

When it came to the current recommendations from the main guidelines we found in the literature, we ought to mention that there is no specific guideline in Spain for the care of the foreskin in healthy boys. The sources we used as references were the European Association of Urology,[5] the Prepuce Health review published in Canada[1] and the Foreskin Conditions Commissioning Guide of the United Kingdom,[3] given the similarity of the target populations and health care systems to our own, contrary to the health care systems of the United States and other countries where most male infants undergo newborn circumcision.

DISCUSSION

The study of real-world clinical practice and its adherence to the current scientific evidence falls within the scope of quality improvement research. The WHO defines quality of care as the degree to which health services for individuals and populations increase the likelihood of desired health outcomes. We have chosen phimosis as the focus of our quality assessment study on account of its high incidence, its physiological nature and the significant shift towards conservative management that has been taking place in our area in recent years.

In the vast majority of boys, phimosis resolves spontaneously. The separation of the foreskin from the glans and its progressive opening begins in the later stages of gestation and is only complete at birth in 4% of cases.[6] Subsequently, throughout childhood, the process of skin desquamation, the formation of keratin "pearls" (commonly known as smegma) and physiological erections, together with the growth of the penis, facilitate the detachment and dilation of the foreskin until it can retract fully, an outcome usually achieved between ages 3 and 10 years. The percentage of boys with complete retraction of the foreskin increases with age. At birth, 96% have phimosis. Around 50% of boys aged 1 year and 10% of boys aged 3 years may have phimosis. In adolescence, only a small percentage continue to have phimosis possibly requiring treatment.[7]

Pathological phimosis is a completely different condition characterized by the impossibility of retracting the foreskin due to scarring. Its incidence ranges between 1-16% depending on the case series,[8,9] and it is extremely rare in children.[10-12]

Surgical treatment is reserved for cases of pathological phimosis or cases of physiological phimosis associated with comorbidities that make intervention necessary, such as urological disease, urinary tract infections, recurrent balanitis or discomfort or pain on retraction in late childhood or at the onset of sexual activity in adolescence.

Recommendations on how to care for the healthy foreskin are essential to reduce parental anxiety and prevent complications.[13,14] Most guidelines on the care of the foreskin are based on expert opinion and focus on adequate cleaning and hygiene practices (**Table 2**).

Pediatric primary care teams play a key role in this work.

Based on the results of our survey, most of the pediatricians that submitted responses adhere to these recommendations.

Taking the selected guidelines as reference (European Association of Urology,[5] Prepuce Health Canada[1], Foreskin Conditions Commissioning Guide[3]), pediatricians adhered to current recommendations in regard to the indication of retraction, as most of respondents recommended their initiation after toilet training. These guidelines recommend initiation of retraction once it is easy and during bathing or cleaning. They also emphasize the importance of educating parents and children, and our survey showed that, overall, pediatricians considered hygiene measures very important. As regards conservative management, the reviewed guidelines recommend topical treatment for management of physiological phimosis for a total duration of 4-8 weeks and application twice a day. The responses show that treatment is generally adequate, as most pediatricians prescribed topical treatment for the correct duration. Current guidelines indicate that the success rate of topical treatment does not vary based on the use of a mild versus moderately potent corticosteroid formulation. Lastly, as concerns the reasons for referral, guidelines emphasize that referral should be restricted to cases with uncertain diagnosis or that are clearly clinically significant. In our survey, respondents referred patients in whom medical treatment had failed.

An aspect that has yet to be elucidated is how to determine when it is necessary to treat asymptomatic phimosis, or how to determine that the foreskin is not going to spontaneously become retractile at some point, to ensure that boys do not reach adolescence and experience discomfort or complications later on.

Table 2. Summary of recommendations in international guidelines

	European Urology	Prepuce Health Canada	Foreskin Conditions Commissioning Guide UK
Education	No forcible retractions Retractions during bathing	Importance of educating parents and children on foreskin care Clear information about foreskin hygiene and retraction instructions (never forced, gentle retractions)	Importance of educating families and improving access to information for patients with physiological phimosis
Indications for retraction	When they can be performed easily	Assessment of foreskin without forcible retraction in annual checkups	
When to use topical treatment	Primary pathological phimosis or physiological phimosis associated with genitourinary anomalies	In the case of pathological phimosis	Consider treatment with topical corticosteroids in the case of pathological phimosis
Type of topical treatment	Topical corticosteroid: 0.05-0.1%, twice a day for 4-8 weeks	Topical corticosteroid. Low and moderate potency corticosteroids are equally effective	Topical corticosteroid 0.025-0.1%. Maximum 3 months
Reason for referral to Surgery			Uncertain diagnosis or obvious pathology
Indications for surgical treatment	Recurrent balanoposthitis or symptomatic phimosis with failure of topical treatment	Phimosis refractory to topical steroids, balanitis xerotica obliterans, paraphimosis, recurrent urinary tract infection, phimosis associated with genitourinary anomalies	Pathological phimosis: lichen sclerosus, balanitis xerotica obliterans, recurrent episodes of balanoposthitis

UTI: urinary tract infection.

None of the reviewed guidelines provided a clear recommendation regarding the optimal age for the topical treatment of phimosis in asymptomatic children. Our own experience suggests that if the child does not cooperate in the care and retraction of the foreskin, the full positive effect of the cream will not be achieved. Sometimes the effect does not persist over time, as the retractions that soften the skin are not performed consistently. In addition, the foreskin continues to be exposed to the effects of direct contact with retained urine if it is not retracted during urination.[2,15] Thus, there is no specific therapeutic window for the prescribing of this treatment, and it would be reasonable to wait for the child to be cooperative to administer it, as long as he remains asymptomatic.

In the event that the foreskin still cannot be retracted despite adequate topical treatment, yet the patient remains completely asymptomatic, the following question arises: when is surgery indicated? Current guidelines are clear in not recommending surgery for asymptomatic children with physiological phimosis, but the concern of many clinicians, as well as parents, is that these boys will reach an age when surgery may be more traumatic or the postoperative recovery longer. This may explain the high percentage of clinicians that reported referral to surgery for phimosis refractory to topical treatment, despite current recommendations.

This issue has yet to be settled, so clinicians need to consider the percentage of spontaneous resolution as well as the psychological impact and the risks associated with surgery in a young child and balance them against the risk of complications and the experience of patients circumcised at an older age.

The main limitations of this study are the low response rate and the difficulty of covering all the nuances of foreskin care in healthy children in just a few questions.

CONCLUSION

The management of physiological phimosis at the primary care level in our area is generally homogeneous and adheres to current international guidelines, both in terms of the initial care measures and the prescribing of conservative treatment. The indication for surgery in asymptomatic patients needs to be reviewed in relation to the optimal age of referral in order to optimize resources and allow sufficient time for the results of conservative management to become apparent.

CONFLICTS OF INTEREST

The authors have no conflicts of interest to declare in relation to the preparation and publication of this article.

AUTHORSHIP

Author contributions: questionnaire development, data collection, drafting of manuscript (ER), original concept, data analysis, drafting of manuscript (SF), data collection, data analysis, revision of manuscript (AG), data collection (AA), data analysis, revision of manuscript (NV), original concept, questionnaire development, data analysis and revision of final manuscript (CG).

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