

Foreskin management

Survey of Canadian pediatric urologists

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ABSTRACT

OBJECTIVE To study the approaches to foreskin management of pediatric urologists in Canada.

DESIGN An online questionnaire comprising several survey questions and clinical vignettes.

SETTING Canada.

PARTICIPANTS All members of the Pediatric Urologists of Canada.

MAIN OUTCOME MEASURES Diagnoses and management strategies for common foreskin conditions seen in consultation, including how many pediatric urologists perform neonatal circumcisions, patient costs, and the reasons for performing the surgery.

RESULTS Of the 32 members surveyed, 24 (75%) responded. By far most respondents do not perform neonatal circumcisions; however, many perform circumcisions under general anesthesia for religious and cultural purposes. Typically, patient costs for circumcision range from \$500 to \$1000. Management of asymptomatic physiologic phimosis is very conservative, with surgeons unlikely to intervene. Neither the presence of ballooning of the foreskin during voiding nor the child's age affects physicians' tendency toward conservative management. Balanitis xerotica obliterans was the only scenario in which most respondents believed there was a need to intervene with either topical steroids or circumcision.

CONCLUSION Our data support the hypothesis that pediatric urologists across Canada are very similar in their conservative approach to the management of common foreskin issues. Our goal is to improve the knowledge base among primary care providers and subsequently decrease patient and family anxieties.

EDITOR'S KEY POINTS

- Neonatal circumcision has decreased dramatically over the past decade, with pediatric urologists maintaining a conservative approach to foreskin management, despite consistent surgical referrals by family physicians.
- Pathologic and physiologic phimosis and asymptomatic ballooning while voiding are common reasons for referral; however, only in cases of pathologic phimosis, caused by balanitis xerotica obliterans, do all pediatric urologists advocate intervention, most with circumcision.
- Foreskin management typically involves reassuring the patient and parent, educating the patient on self-care, and topical steroids.
- Family physicians should be educated on the conservative management and care of the prepubertal foreskin and be able to distinguish between physiologic phimosis and balanitis xerotica obliterans in order to decrease patient and parent anxieties and manage most common foreskin conditions in practice.

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Prise en charge des problèmes du prépuce

Sondage auprès des urologues pédiatriques canadiens

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RÉSUMÉ

OBJECTIF Examiner les approches adoptées par les urologues pédiatriques au Canada en ce qui concerne la prise en charge des problèmes du prépuce.

TYPE D'ÉTUDE Questionnaire en ligne comportant diverses questions et vignettes cliniques.

CONTEXTE Canada.

PARTICIPANTS Tous les membres des Urologues pédiatriques du Canada.

PRINCIPAUX PARAMÈTRES ÉTUDIÉS Les diagnostics et les stratégies de prise en charge des problèmes courants du prépuce observés en consultation, y compris le nombre d'urologues pédiatriques qui effectuent des circoncisions néonatales, les frais assumés par les patients et les raisons de la chirurgie.

RÉSULTATS Des 32 membres sollicités, 24 (75%) ont répondu. La grande majorité des répondants ne font pas de circoncisions néonatales; par contre, beaucoup le font sous anesthésie générale pour des raisons religieuses et culturelles. Typiquement, les frais de la circoncision varient entre 500 \$ et 1 000 \$. La prise en charge du phimosis physiologique asymptomatique est très conservatrice, c'est-à-dire que les chirurgiens n'interviendront probablement pas. Ni la présence d'un ballonnement du prépuce durant la miction ni l'âge de l'enfant n'influencent la tendance des médecins à prendre le problème en charge de manière conservatrice. La balanite xérotique oblitérante est le seul scénario où la plupart des répondants croient qu'une intervention est nécessaire au moyen de stéroïdes topiques ou de la circoncision.

CONCLUSION Nos données corroborent l'hypothèse voulant que les urologues pédiatriques au Canada adoptent une approche conservatrice très semblable dans la prise en charge des problèmes courants du prépuce. Nous avons pour objectif d'approfondir la base de connaissances des médecins de première ligne et d'atténuer ainsi l'anxiété des patients et de leur famille.

POINTS DE REPÈRE DU RÉDACTEUR

- Le nombre de circoncisions néonatales a connu une baisse dramatique au cours de la dernière décennie, car les urologues pédiatriques adoptent une approche conservatrice dans la prise en charge des problèmes du prépuce, malgré les demandes de consultation constantes en chirurgie présentées par des médecins de famille.
- Le phimosis pathologique et physiologique et le ballonnement asymptomatique pendant la miction sont des motifs fréquents de demander une consultation; par ailleurs, ce n'est que dans les cas de phimosis pathologique causé par une balanite xérotique oblitérante que les urologues pédiatriques préconisent une intervention, le plus souvent la circoncision.
- La prise en charge des problèmes du prépuce consiste habituellement à rassurer le patient et ses parents, à enseigner au patient les soins personnels et à administrer des stéroïdes topiques.
- Il faudrait renseigner les médecins de famille sur la prise en charge conservatrice et les soins du prépuce avant la puberté, et ils devraient être capables de faire la distinction entre un phimosis physiologique et la balanite xérotique oblitérante pour réduire l'anxiété du patient et des parents et prendre en charge dans leur pratique la majorité des problèmes les plus courants du prépuce.

Cet article a fait l'objet d'une révision par des pairs.
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In 1975, the Foetus and Newborn Committee of the Canadian Paediatric Society (CPS) published their position on prophylactic neonatal circumcision, stating that there was a lack of medical support for the procedure¹; this position was affirmed by the American Association of Pediatrics (AAP).² In their statements, they concluded that despite the potential benefits, there were no medical indications for circumcision.¹ Further, infringement on the rights of the neonate^{3,4} and the potential for both minor and major complications⁵⁻⁸ detracted from any potential medical benefit of this practice. This controversial position generated considerable opposition,^{9,10} but both the AAP and CPS later reaffirmed their statements.¹¹

The trend in infant circumcisions in Canadian hospitals appears to reflect the position of the CPS, with a substantial reduction in numbers performed after the consensus statements were released. In 1975, the proportion of male infants circumcised was 44.3% nationwide, compared with 13.9% in 2003.^{12,13} Similarly, the number of annual circumcisions performed in Canadian hospitals has declined over the past 10 years, from approximately 38 000 in 1996 to 16 000 in 2006.^{12,13}

Because of the growing population of uncircumcised children, it is important that physicians, residents, and other health care practitioners be proficient at dealing with patient and family concerns about the proper care of the foreskin. McGregor et al demonstrated that this was an area in need of improvement among primary care physicians and some subspecialists.¹⁴ Of the 284 referrals for phimosis (the inability to retract the foreskin) in their study, only 48 (16.9%) were pathologic. Most of these referrals were from family physicians and pediatricians; therefore, the authors thought that distinguishing pathologic from physiologic phimosis merited further education.¹⁴⁻¹⁷ The misinformation and lack of understanding around this topic likely requires a similar process of reacceptance and reeducation to that which was needed to encourage breastfeeding again after society had abandoned it for a generation.

There are absolute indications for surgical or medical intervention for the care of the foreskin; however, there is diagnostic uncertainty as to what these indications are and how they present.¹⁴⁻¹⁷ The purpose of this study was to gather data about the practices of pediatric urologists in Canada with regard to foreskin care and management. We anticipated that most would favour a generally conservative approach to the care of common foreskin-related conditions. We hope that this survey will serve as an educational tool for physicians and other health care providers with respect to care of the foreskin, as well as provide a foundation for patient and family education.

METHODS

Ethics approval was obtained from the University of Alberta Health Research Ethics Board, and a survey was created using the online survey generator **SurveyMonkey.com**. It consisted of 12 multiple choice questions, which included topics relating to circumcision practices and costs, as well as several clinical vignettes with images of foreskin-related conditions. The clinical scenarios were meant to present commonly encountered concerns and reasons for referral and were intended to elucidate physicians' actions in each scenario. The vignettes incorporated conditions such as balanitis xerotica obliterans (BXO), redundant foreskin, persistent phimosis, foreskin ballooning while voiding, and other issues. The Internet-based survey allowed for high-quality photographs, which were used for several questions regarding foreskin pathology. The surveys and information sheets were mailed out electronically to the active members of the Pediatric Urologists of Canada, comprising 32 physicians nationwide.

RESULTS

Upon receiving the survey responses, the data were compiled and the results were analyzed. Of the 32 members, 24 physicians responded, for a response rate of 75%.

Our results indicate that by far most of the pediatric urologists who responded did not perform routine neonatal circumcisions. As for elective circumcisions performed under general anesthesia for reasons of religion, cultural norms, personal preference, or cosmesis, 67% (16 of 24) of urologists responded that they performed them at least occasionally.

Respondents reported a range in costs for circumcision, with 54% (13 of 24) requiring both a surgical and a hospital fee. The patient cost varied from nil to more than \$1000, although fees were most commonly between \$500 and \$1000.

The first clinical question of the survey involved an asymptomatic 6-year-old boy unable to retract his foreskin. The description was meant to portray a child with physiologic phimosis (**Figure 1**). More than half (15 of 24, 63%) of respondents indicated that they would not actively treat this child and would simply reassure him and his mother, while 8 (33%) said they would prescribe a trial of topical steroids to promote retraction by softening and stretching of the prepuce. None of the urologists would recommend circumcision, nor would any promote aggressive methods of foreskin stretching.

The next question described a 5-year-old child with pathologic phimosis who likely had a case of BXO (**Figure 2**). In this case, all of the responders said they would intervene, and more than half (15 of 24, 63%)

Figure 1. A healthy foreskin with physiologic phimosis. *The distal ring is closed, but there is no evidence of scarring or BXO.*



BXO—balanitis xerotica obliterans.

Figure 2. These photographs depict 3 foreskins with the classic appearance of BXO. *The phimotic ring is closed, but the indurated, white scar is readily discernible from normal, healthy skin.*



BXO—balanitis xerotica obliterans.

would perform either a circumcision or a dorsal slit. The remaining 9 (38%) would first try a course of topical steroids in order to avoid surgery.

We also asked the surgeons how they would treat an asymptomatic, 10-year-old child who was still not able to retract his foreskin. Once again, no one would perform a circumcision; however, most (19 of 24, 79%) indicated they would prescribe topical steroids. Three urologists (13%) said they simply reassure the child and family, and 2 (8%) said they would educate the boy and mother in this case about methods of stretching the foreskin.

With respect to painless foreskin ballooning while voiding, the responses were evenly split between prescribing topical steroids (11 of 24, 46%) and providing reassurance but no treatment (11 of 24, 46%). None of the physicians thought a circumcision or dorsal slit was needed, and the remaining 2 (8%) indicated they would prescribe gentle stretching or retraction techniques.

The final question pertained to an 8-month-old whose mother was unsatisfied with the results of his neonatal circumcision owing to some redundant foreskin that was still partially adherent to the glans. The most common approach in this case was to reassure the mother

that no treatment was required (14 of 24, 58%). Three (13%) physicians would perform a revision circumcision, 3 (13%) would prescribe topical steroids, and the final 3 (13%) physicians would educate the mother about foreskin stretching methods. One physician did not respond to the question.

DISCUSSION

Most Canadian pediatric urologists do not perform routine neonatal circumcisions. We believe that this reflects the consensus on a lack of medical benefit. However, most do perform elective circumcisions (desired for religious or cultural reasons) under general anesthesia. These circumcisions are likely to be associated with substantial costs for patients.

The remaining questions were meant to deal with commonly encountered reasons for referral to pediatric urology clinics. Previous work has demonstrated that the most common foreskin-related issues that result in specialist referral for circumcision are ballooning, the inability to retract the foreskin, and balanitis or balanoposthitis.¹⁵⁻¹⁷

One of the more common conditions that our survey addressed was phimosis. The differentiation between physiologic and pathologic phimosis results in a great deal of confusion and anxiety. It is clear from this survey that most pediatric urologists in Canada do not believe in a "set age" by which the foreskin should be retractile. The natural history of foreskin retraction requires the accumulation of epithelial debris (ie, smegma) to separate the prepuce from the glans and the force of penile erections to push through the distal ring.¹⁵ Gairdner, in 1949, asserted that by 3 years of age, approximately 10% of boys will still have nonretractable prepuces and that by 5 to 13 years of age that number would only marginally decrease to 6%.¹⁸ Similarly, in 1968, Oster demonstrated that 4% of boys aged 6 to 17 years had nonretractile prepuces.¹⁹ As Wright put it, when referring to the achievement of full foreskin retractability, "nature will not tolerate the assignment of a strict timetable to this process."⁷ In spite of this, children with physiologic phimosis are being referred to specialists for possible circumcision, even though most cases are not treated surgically—circumcision rates range from 14% to 28%.^{15,16,20,21} Further, the persistence of physiologic adhesions after a neonatal circumcision is very common, reported in up to 71% of infants, 30% of 5-year-olds, and 2% of children older than 9 years.²² Practices such as aggressive retraction have long been discouraged, as they can be very painful and can result in pathologic phimosis or BXO.¹⁹

Balanitis xerotica obliterans is a chronic dermatitis, resembling lichen sclerosis of the genital epidermis, which involves primarily the prepuce, but occasionally the glans and urethra.²³ The clinical diagnosis is very

reliable among pediatric urologists, but this knowledge and expertise has not been well disseminated.^{14,24} The pathognomonic physical finding of a thick white cicatrix at the distal phimotic ring is easily differentiated from a healthy prepuce (**Figure 1** vs **Figure 2**). The incidence is unknown, but certainly accounts for a few phimosis referrals. Although relatively benign with respect to the pediatric prepuce, BXO of the meatal opening or urethra is associated with substantial morbidity and complex surgical reconstruction.^{24,25} Topical steroids have been used to treat phimosis secondary to BXO, but the results are poor, with 10% responding at 3 months and 30% responding after 14 months.²⁶ Topical tacrolimus therapy has recently also been advocated, but the only published data refer to meatal patency after circumcision for BXO.²⁷


This information suggests that physicians are in need of further education about this topic. In 2007, McGregor et al published an informative article meant to serve this purpose.²⁰ They reviewed the differences between physiologic and pathologic phimosis, and discussed proper foreskin care and the indications for referral. Two of the questions in our survey pertained to phimosis in different age groups. As expected, none of the surgeons surveyed would perform a circumcision on a child with an asymptomatic physiologic phimosis, regardless of his age. What we did find was that surgeons were more likely to intervene with topical steroids in the case of a 10-year-old child with phimosis than in the case of a 6-year-old. However, when it came to a pathologic phimosis, all responders intervened, with most favouring a circumcision. This obvious difference speaks to the accuracy with which BXO is differentiated from physiologic phimosis.

Foreskin ballooning during voiding is another common complaint that brings families to the clinic for referrals. This phenomenon often causes anxiety among parents as well as concern among physicians about urine outflow obstruction. In 2004, Babu et al conducted a study that objectively assessed this concern.²⁸ The authors found that all patients with physiologic phimosis and ballooning foreskin had urinary tracts that appeared normal on ultrasound, as well as normal bladder wall thickness. Further, maximum urinary flow rates of boys with ballooning were not significantly different from normal controls.²⁸ The benign nature of painless foreskin ballooning is reflected by the results of our survey, in which no one recommended surgical intervention.

Conclusion

Our study is limited by the "artificial" nature of the clinical vignettes used in the survey, as it is often hard to make concrete decisions on patient care without more detail; however, we wanted to keep the scenarios simple to maximize applicability. Our response rate was only 75%, which might have been because of the online

nature of the survey, biasing the responses toward a more computer-literate population. However, the Internet-based survey allowed for excellent-quality photographs, which were important to distinguish physiologic phimosis from BXO.

Our results indicate that the Pediatric Urologists of Canada, as a group, employ a very conservative and consistent approach to the management and care of the prepubertal foreskin. This approach is in line with the published literature on the topic and with current recommendations; however, concerns over foreskin pathology still remain a common reason for referral. Ideally, this article will help increase awareness of these views and decrease patient and family anxieties. 

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Contributors

Drs Metcalfe and **Elyas** contributed to the concept and design of the study; data gathering, analysis, and interpretation; and preparing the manuscript for submission.

Competing interests

None declared

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