



# Penile Problems in Pediatrics

By J.L. Pippi Salle, MD, PhD and Roman Jednak, MD

**P**enile problems are prevalent in children and adolescents. Correct identification is usually possible by careful physical examination and is essential to avoid related complications.

## CASE 1

**A three-year-old boy comes to the office because the parents cannot expose the glans due to a narrow preputial ring. What is the best management?**

Normally, the prepuce is unretractable at birth. This is because, initially there is a physiologic adherence between the glans and the inner preputial skin. There is also a relatively narrow preputial ring.

With age, a gradual separation of the preputial adhesions will occur. As a result of production of smegma, a whitish secretion produced by the inner preputial sebaceous glands. Usually, this developmental process is completed when the child reaches seven years of age, but it can continue until later in childhood.



Figure 1: Fibrotic phimotic ring with associated BXO.

# Penile Problems

## CASE 1 *Cont.*

For many three-year-old boys, it is “normal” to present with physiologic phimosis which eventually resolve so that the foreskin can be retracted completely. For this reason, unless complications arise, such as recurrent balanoposthitis, urinary tract infection or paraphimosis, management should remain conservative. Clinicians should allow a period of observation for spontaneous resolution of the physiologic phimosis avoiding unnecessary surgical manipulation and possible psychological trauma.

We wouldn't encourage penile manipulation to dilate the preputial opening during the observation period. In our opinion, forceful manual dilation may be traumatic and can create microlacerations, which, upon healing, form permanent scars and produce an acquired phimosis. In this scenario, surgical intervention will almost certainly be necessary. Intermittent treatment with 0.1% triamcinolone cream in cases where there is a mild, non-fibrotic phimotic ring is useful and we encourage its use prior to surgical consultation. In about 10% of cases of phimosis there is severe scarring (whitish fibrotic ring) (figure 1) caused by balanitis xerotica obliterans (BXO), a genital variation of lichen sclerosus et atrophicus. If BXO is present, surgical correction is recommended because this is a progressive disease that can eventually involve the urethra and cause meatal stenosis or urethral strictures.



Dr. J.L. Pippi Salle MD, PhD, staff,  
University Health Centre, Montreal  
Children's Hospital

Dr. Roman Jednak MD, staff, University Health  
Centre, Montreal Children's Hospital

## CASE 2

**A five-year-old male presents complaining that he cannot exteriorize the glans. On examination there is no phimosis, but only balanopreputial adhesions (figure 2). What is the suggested management?**

The inner prepuce is initially attached to the glans and will undergo a gradual process of separation. In some cases, the production and accumulation of smegma can be significant, leading to the trapping of a significant amount. This may give the impression of a whitish “cyst” around the corona (figure 3).

Completing the process of separating the prepuce from the glans can eliminate progressive accumulation of smegma. In some cases, these cysts can undergo a bacterial superinfec-

# Penile Problems

## CASE 2 *Cont.*

tion. This can lead to an abscess-like collection between the glans and prepuce. Clinically this is characterized by penile erythema, local edema and a suppurative discharge. Treatment with warm sits baths and oral antibiotics can be effective.

This complication is not an indication for circumcision unless it is recurrent and associated with phimosis.



Figure 2: Balanopreputial adhesions.



Figure 3: Smegma accumulation behind the glanular groove. An abscess can form.

## What are the indications for circumcision?

This remains a hotly debated subject. There are several articles in the literature advocating routine neonatal circumcision on the basis of a number of specific medical benefits. These include protection against the development of urinary tract infection (UTI) and sexually transmitted disease (STD), as well as protection against the development of penile cancer. In addition, the partners of circumcised men may also benefit from a decreased incidence of cervical cancer.

Opponents to circumcision claim that the procedure can lead to decreased sensation in the glans as well as to the development of psychological problems. Furthermore, they feel that addressing certain lifestyle issues and stressing good hygiene are more than sufficient prevention for some of the secondary problems reported in uncircumcised men.



Figure 4: A buried penis. Only foreskin and penile skin are visible, while penis shaft is buried.

## Are there contraindications to circumcision?

The presence of a concealed or buried penis is an absolute contraindication for routine circumcision. The buried penis is concealed in the suprapubic fat, leaving only the foreskin and penile shaft skin visible (figure 4). When this diagnosis

# Penile Problems



Figure 5: Penile trapping after circumcision on a buried penis. Penile skin was inadvertently removed.



Figure 6: Obstruction to urine flow during micturition creates a large collection of urine around the trapped penis.

Table 1

## Indications for circumcisions

### Unquestionable indications for circumcision are:

- Phimosis secondary to BXO.
- Paraphimosis (penile constriction caused by a prolonged retraction of the prepuce beyond the corona).
- Recurrent balanitis in diabetic patients.

### Relative indications are:

- Recurrent balanitis.
- UTI in the first 12 months of life.
- Urological malformations which predispose to UTI, such as moderate or severe vesicoureteral reflux, posterior urethral valves with significant dilatation of the upper urinary system, ureterocele following incision, or any other malformations that cause significant urinary stasis.

is missed, circumcision may remove the penile skin in its entirety. This can lead to scarring and trapping of the concealed penis beneath the suprapubic skin (figure 5). In some cases such scarring is intense and can cause severe urinary obstruction with the formation of a large urinoma around the penis (figure 6).

Correcting the problem can be quite challenging since once the penis is released from the suprapubic fat, achieving appropriate skin coverage can be difficult. It is important that recognition of this type of anatomical variant is mandatory by all professionals who perform circumcision. When severe phimosis is associated with a concealed/buried penis, circumcision is best performed by pediatric urologists utilizing alternative techniques.

## What are the complications of circumcision?

The most common complication is penile trapping following the circumcision of a concealed penis.

Other complications include:

- Hemorrhage
- Infection

# Penile Problems

- Glans amputation
- Penile necrosis
- Meatal stenosis
- Psychological trauma

Although circumcision is the most common surgical procedure performed, it is not complication free and on rare occasion, can result in serious morbidity. Therefore, circumcision should be reserved for patients having the aforementioned medical indications.

**I was instructed to perform forceful retraction of the prepuce and on one occasion the phimotic ring constricted the glans causing extreme pain and swelling. What caused this and how should the condition be treated?**



Figure 7: Paraphimosis with intense progressive preputial edema after forceful retraction of a phimotic prepuce.

This is the typical description of a boy with phimosis who developed paraphimosis following forceful retraction of the prepuce (figure 7). When paraphimosis occurs, it should be reduced immediately since progressive venous congestion eventually leads to edema and pain. When prolonged, paraphimosis may even result in ischemia of the distal penis. The patient should be brought to the emergency room immediately for specialized care if reduction is not readily accomplished. A circumcision should be performed two or three weeks following reduction since recurrence is very common.

**Why does my son have recurrent episodes of penile redness and suppuration?**

Infections of the foreskin (posthitis) and glans (balanitis) are usually bacterial, viral, or fungal in origin. Bacterial balanoposthitis is often secondary to



# Penile Problems

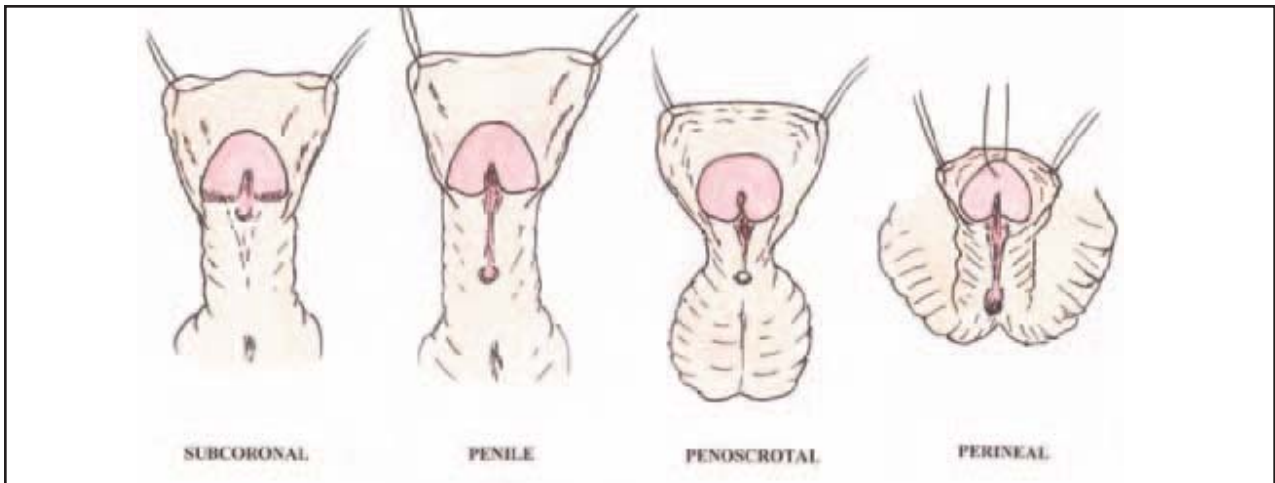


Figure 8: Classification of hypospadias.



Figure 9a: Glanular hypospadias



Figure 9b: Proximal hypospadias with a typical redundant dorsal foreskin.

the accumulation of infected smegma. Often there are underlying predisposing medical conditions, such as diabetes or an immunosuppressed state. Viral balanoposthitis is usually caused by the herpes virus and is extremely rare in children. Fungal balanoposthitis is common and usually associated with the prolonged administration of wide spectrum antibiotics. Balanoposthitis is treated conservatively. Warm sit baths, oral antibiotics, or a topical antifungal cream usually resolves the problem. In cases of recurrent bacterial balanoposthitis, circumcision may be warranted.

**My son underwent circumcision and subsequently developed an upward deviation of his urinary stream when voiding. Is this normal? How can it be treated?**

This child developed meatal stenosis, the most common late complication following circumcision. A small meatus is often seen following circumcision, but this does not preclude a normal urinary stream. In cases where a sig-

## Penile Problems



Figure 10: Penile torsion.



Figure 11: Epispadias. The distal urethra is completely open dorsally.

nificant narrowing of the meatus has occurred the stream can take on a characteristically thin appearance and is directed upwards. The child may take a longer time to void and can even empty the bladder incompletely. Although the diagnosis is evident on inspection, the best documentation is obtained by performing uroflowmetry and measuring post-void residual urine in the bladder. Meatotomy is indicated when there is poor flow, a significant post void residual or significant deviation of the urinary stream. The meatus is enlarged surgically and post-operative meatal dilation is performed to avoid recurrence of the stenosis.

**My son was born with hypospadias and I was instructed to seek specialized care. What is hypospadias and when should it be corrected?**

Hypospadias is a congenital malformation of the penis. Urethral development is incomplete and the urethral meatus opens in a ventral position. More severe hypospadias usually presents with a proximal meatus (perineal/penoscrotal) and is associated with some degree of chordee (ventral curvature of the penis). The classification of hypospadias is based on the location of the meatus without taking penile curvature into account (figure 8).

The majority of patients present with distal hypospadias with or without chordee (figure 9a). Proximal hypospadias (penoscrotal, perineal, proximal penile) represents the most severe end of the spectrum and is usually corrected utilizing preputial flaps (figure 9b). Hypospadias can be associated with other genital anomalies. Undescended testes and inguinal hernias are associated problems in up to 10% of patients. Patients with severe hypospadias and undescended testes should be investigated for an intersex condi-

# Penile Problems



Figure 12: Paraurethral cyst



Figure 13: Short frenulum causing painful erection in an adolescent.

tion. They require a karyotype as well as an endocrinologic evaluation. On occasion a voiding cystoureterogram is warranted to assess for the presence of a large utricle (pseudovagina). There is an increase incidence of hypospadias in male siblings (~ 15%) and in offspring (~ 8%). Surgical correction aims for construction of a straight penis and normal urethra, thereby giving the penis a normal cosmetic appearance. Surgery is best performed prior to toilet-training, at around six to 18 months of age. This avoids operating during the psychologic phase of genital awareness, which usually occurs after two years of age. The surgery is usually done in one stage as an outpatient procedure. Recent advances in surgical technique have significantly reduced the incidence of postoperative complications and improved the cosmetic outcomes.

## Penile Torsion

Some children are born with a deviation of the penile raphe and some degree counterclockwise penile rotation termed penile torsion (figure 10). When the degree of torsion is mild (< 90 degrees) there is no need for surgical correction. Surgical repair is warranted in more severe cases and the procedure is performed between six to 18 months of age.

## Epispadias

Rarely (one in 40,000 births), male babies can be born with the urethral meatus opening on the dorsal aspect of the penis; a condition known as epispadias (figure 11). Surgical correction focuses on the same goals as those described for hypospadias. In some cases with a proximal urethral meatus the urinary sphincter is insufficient and the patient therefore presents with total urinary incontinence. In these situations additional bladder neck surgery is required to achieve urinary continence.

## Paraurethral Cyst

Paraurethral cysts are uncommon, but can cause significant anxiety for both parents and caregivers due to the very apparent location of the cystic lesion around the urethral meatus (figure 12). Typically the cyst is smooth, soft and



# Penile Problems

white in color. With time the majority diminish in size or drain spontaneously. Larger cysts may require needle aspiration or formal surgical excision.

## Tight Frenulum

A normal frenulum should allow for erection without glanular tilt (figure 13). A short frenulum may cause pain during erection and bleeding if torn during sexual intercourse. Unless there is clear early evidence of a problem, most children should wait until puberty before being evaluated for a frenulectomy

## Micropenis

Micropenis is a condition where the penis, though normal anatomically, is markedly small. The strict definition of micropenis is one in which the stretched penile length is more than 2.5 SD below the mean for patient age. From a term newborn to be classified as having micropenis the stretched penile length should be less than 1.9 cm. The majority of patients referred for evaluation of micropenis actually have a buried/concealed penis. Careful examination pressing on the suprapubic fat should exteriorize the penile body and establish the diagnosis. Micropenis can be related to abnormal hormonal stimulation. In some cases, no hormonal abnormalities are recognized and the etiology is considered to be idiopathic. Once the diagnosis of micropenis is confirmed, consultation with a pediatric endocrinologist and urologist is warranted. In some cases, successful testosterone administration can significantly alleviate the emotional distress felt by the families of boys with the condition..

## Summary

Penile problems are prevalent in children and adolescents. Correct identification is usually possible by careful physical examination and is essential to abbreviate related complications. [CME](#)

### Recommended Readings:

1. Campbell's Urology, 8th ed. Edited by P.C. Walsh, A.B., Retik, E.D. Vaughan, Jr., and A.J. Wein. Philadelphia, W.B. Saunders, 2002.
2. Adult and Pediatric Urology, 4th ed. Edited by Gillenwater, J.Y., Grayhack, J.T., Howards, S.S., and Mitchell, M.E. Philadelphia, Lippincott, Williams, and Wilkins, 2002.
3. Clinical Pediatric Urology, 4th ed. Edited by Bellman, A.B., King, L.R., and Kramer, S.A. London, Martin Dunitz Ltd., 2002

