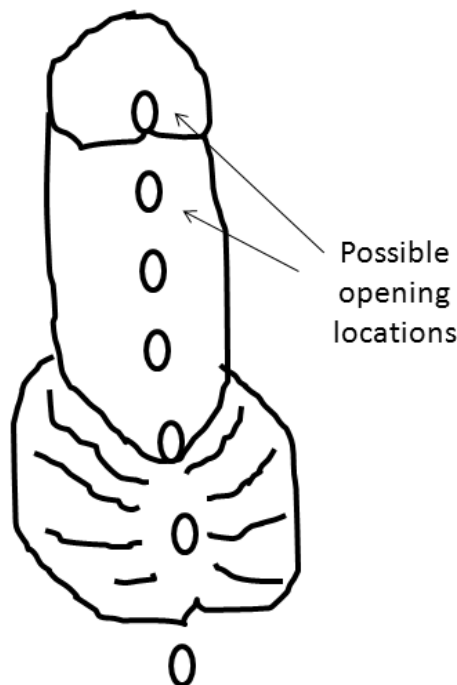


# Hypospadias & Chordee

## What is Hypospadias?

Hypospadias is a birth defect found in boys in which the urinary opening (called meatus) is not at the tip of the penis but rather on the underside of the shaft. Often times boys with hypospadias also have a condition called chordee, which is bending of the penis. Chordee can occur by itself without hypospadias. The foreskin is typically sitting on top of the penis head (called glans), giving a hooded appearance. Sometimes, the penis shaft may be twisted along its axis. This is called penile torsion.



Hypospadias is a common birth defect, occurring in about 8 out of 1,000 male births. There is some family risk of hypospadias.

There are different degrees of hypospadias - some mild and others more severe. We name types of hypospadias according to their location of the urinary opening on the penile shaft. The degree of surgery required is often determined by the amount of penile shaft bending, along with the location of the urinary opening.

## **How are hypospadias and chordee treated?**

When the urethra opening is just slightly out of position and when there is no significant chordee, surgical correction may not be necessary, but in other cases, surgery will be needed. Surgical correction of hypospadias involves straightening of any bending or twisting, and then bringing the urinary tube (called urethra) opening (called meatus) out towards the tip of the penis (called glans).

## **What is it important that this problem is corrected?**

The ability to stand and urinate is important for boys. When the urethra opens on the underside of the penis, a boy may have difficulty urinating standing up with a straight stream. If a youngster has to sit down to urinate on a toilet it may be a social problem. A straight penis is also important for satisfactory sexual function as an adult. Although this may not seem to be an important matter in childhood, this is a crucial concern later in life.

## **When is the best time for treatment?**

Early childhood (especially during infancy before toilet training) is generally the best time for surgery in terms of achieving the best surgical result and easiest post-op care. Psychologically, infancy is also the best time.

## **What types of surgeries are done to correct hypospadias?**

There are a few types of operations to repair hypospadias, but most operations mostly involve 4 steps:

- straightening the shaft
- making the urinary channel (neourethra)
- positioning the meatus in the head of the penis (meatoplasty)
- circumcising or reconstructing the foreskin

Chordee is evaluated during surgery with an artificial erection, in which the penile erectile shafts are briefly inflated by injecting saline solution. In mild to moderate cases, the bending is corrected by folding the side opposite to the location of bending (called plication technique).

More extensive hypospadias and chordee require a bigger operation.

Sometimes, due to the complexity of surgery, more than one operation is needed. In the first stage, the bent penis is straightened and the penile skin is moved from backside to front, in preparation for the neourethra reconstruction to be done at the second stage. Six months to a year later, the neourethra is constructed, using penile skin or grafts. Grafts are tissues moved to the penis from other body locations. In difficult circumstances (such as previously failed hypospadias surgeries), we have used grafts taken from inside the mouth (either lip or inner cheek) with excellent success.

### **What can I expect after surgery?**

To protect the newly constructed urethra (neourethra), the urine may be drained with a catheter (a soft tube through the neourethra). This tube may be held in place by either couple sutures at the penis head or by a balloon retention mechanism inside the bladder (called Foley catheter). Depending on the operation, a catheter may not be necessary, or it may be left in for several days according to the surgeon's discretion to maximize the chance of success

Most hypospadias repairs are done as outpatient surgery, and patients go home on the same day right after surgery, but in severe or unusual cases, they may stay at the hospital for 1 or 2 days for observation and supervision of antibiotics, and pain medication.

## How will you manage my child's pain?

The surgery is performed under general anesthesia, meaning the child is completely asleep. Nothing painful is done to the child until he falls asleep, not even an IV. Sometimes they may take a small dose of medicine to relax and become forgetful (pre-anesthesia sedation) before going to sleep. Regional blocks are procedures performed by either anesthesiologists or surgeons at the time of surgery to numb up the area of the surgery (similar to dentists making your mouth numb while working on root canals and fillings). They are done while the child is asleep. The use of regional blocks can help reduce the need for other anesthetic and pain medications that might cause post-operative side effects such as prolonged drowsiness and nausea. An effective regional block is extremely useful for helping children to be comfortable after the surgery, especially during the first day when the pain might be the greatest.

For penile surgeries, such as hypospadias and chordee repair, the following options are available:

- **Penile block.** Penile blocks are suitable for simple penile surgeries such as circumcision and meatoplasty. Through a couple of needle pokes, numbing medications are injected near the area of penile nerves to provide pain relief for several hours. For more complex surgeries like hypospadias, penile blocks may not provide complete numbing.
- **Caudal block.** Caudal blocks are similar to an epidural that pregnant moms receive during delivery. Instead of the lower back, however, it is a single-shot numbing medication injection near the tailbone area. If successful, caudal blocks provide more complete numbing for complex penile surgeries such as hypospadias and chordee repair. The medicine is injected into the area just outside of spinal fluid. The caudal block needle poke is not anywhere near the actual spinal cord itself. Caudal blocks are generally suitable for young children under the age of 4-5, and on

occasions, it may not be suitable if the tailbone area is not well developed or evenly formed.

- **Spinal block.** Spinal blocks are procedures where a needle puncture is made into the area where the spinal cord and spinal fluid are located in the lower back. Although the actual medicines injected can vary, they typically include a numbing agent, a narcotic (opioid) pain medication, or a combination of both. For penile surgeries, we tend to recommend spinal blocks for older children who cannot receive caudal blocks **and** those who will be admitted to the hospital after the surgery for further observation. Rarely, it can lead to headaches afterward due to spinal fluid leak at the needle puncture site.

You will be able to discuss the regional block options more in detail on the day of surgery with the surgical and anesthesia teams. You can also ask questions about them during your visit to the Procedure Readiness Center (PRC).

Although you do not need to decide beforehand, it is helpful for you to be aware of these options.

Children are sent home with prescription-strength (opioid or narcotic) pain medication to use after the numbing effect of regional blocks wears off.

### **What are the potential complications of hypospadias repair surgery?**

- **Bleeding** is a risk of any operation. We minimize this during hypospadias surgery with careful use of epinephrine (medicine that constricts blood vessels) and cauterization (sealing off the incision with heat). After the surgery we may also use a compression bandage. Blood transfusion is hardly ever required in hypospadias surgery.
- **Infection** is another concern. We use antibiotics to minimize this risk, especially if the child requires a catheter afterward. We recommend generous application of antibiotic ointment (either Bacitracin or triple

antibiotic) 3 times a day and with each diaper change for 4 weeks. If the child requires a temporary catheter, then he will take an antibiotic by mouth daily until the catheter removal. In babies wearing diapers, we also recommend using a double diaper to keep the opening of the catheter away from bowel movements.

- **Bladder spasms** are due to catheters. The spasms are intermittent pain that feels like either severe urgency to urinate or lower belly cramps. Medications, such as Ditropan (oxybutynin) help but do not eliminate spasms completely until the catheter is removed. Other catheter problems including kinking, which causes the bladder to fill and then leak urine around the tube.
- **Fistula** is another risk. This is an unintended urine leakage hole from somewhere along the neourethra, causing more than one urinary stream. This risk is minimal in the simple repairs of mild and moderate hypospadias but can be significant in more extensive operations. Most fistulas are usually easily fixed with an outpatient surgical procedure, although this is done no sooner than 6 months from the time of the original operation. On rare occasions, fistula is a sign of more extensive problem which may require a larger operation to fix.
- **Stenosis** is a stricture or narrowing where the neourethra meets the native urethra or at the tip of the glans. This may require a dilation (stretching) or internal urethrotomy (a cut through a small scope). On rare occasions, severe stricture or stenosis may require a larger operation.

### **What are other variations of chordee?**

- **Chordee without hypospadias.** This is an unusual problem in which penile bending exists without apparent hypospadias. Skin tethering may be the main factor in some patients, and this can be readily fixed. In some boys, the urethra, even though intact, is paper-thin (hypoplastic)

and stiff, thus causing chordee. Correction of significant chordee in this setting may involve an intentional creation of hypospadias to straighten the penis. The hypospadias must then be repaired in the same or a staged operation.

- **Penile torsion** consists of a shaft rotation, typically in a counter-clockwise direction. This is often seen in association with hypospadias and may be changed in varying degrees by hypospadias repair. Penile torsion by itself is rarely of functional significance.
- In some babies, hypospadias cannot be seen without forcible separation of the foreskin from glans. Some mild hypospadias is seen only after the foreskin removal (called **megameatus intact prepuce** variant). We usually suggest leaving the foreskin intact in these newborns and re-examining them in 6 to 12 months. By this time there is generally enough separation that hypospadias can be evaluated.
- **Webbed penis** occurs when the scrotum forms the ventral side (front side) of the penile shaft.
- **Buried or concealed penis** may be hidden by a large fat pad
- **Penoscrotal transposition** exists when the scrotum surrounds the penis rather than sitting under it

### **Does this condition require long term follow-up?**

Most patients with penile reconstructions have a satisfactory urinary and sexual function in adult life. However, these reconstructions, being man-made, require long term follow-up beyond the immediate post-surgery period. Your child will need to see a urologist at least a year. After puberty they should be monitored periodically, as necessary.

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