

Urinary Tract Infections.

Hilliard Pediatrics, Inc. – Dr. Tim Teller, M.D. – 5/13

Introduction.

Urinary tract (bladder) infections are bacterial infections of the bladder, kidneys, or ureters (the connecting tubes between the bladder and kidneys). UTIs include bladder infections, cystitis, and pyelonephritis. Most of the time an infection happens, the bacteria have moved from the outside (on the skin of the private parts) to the inside (in the bladder). If the bacteria have enough time to stick to the side of the bladder, they can make more of themselves and an infection starts. Because they are bacterial infections, UTIs need an antibiotic to get better.

Girls are much more prone than boys to urinary tract infections (UTIs). It is very rare for a circumcised boy to have a urinary tract infection. UTIs can happen at any age, from infancy to adult age.

Symptoms of a UTI.

The most common symptom of a UTI is **pain** when the urine leaves the body. Because the UTI irritates the bladder, it often causes someone to **urinate more frequently** and have an **urgency** (having to go “right now”) to urinate. A UTI can cause lower abdominal (“belly”) pain, back pain, fever, and urinary accidents (wetting the pants). Occasionally a child with a UTI will have vomiting, diarrhea, or constipation. Children with a UTI may actually urinate less often because they are trying to avoid the pain. Sometimes the urine has an unusual smell, especially if the child is not yet potty trained and the smell is noted with a wet diaper.

When a fever, back pain, and vomiting occur, we are concerned that the infection has traveled up from the bladder to the kidneys. This is called “pyelonephritis”. This is a more serious infection and the children can become quite sick, even dehydrated.

Preventing UTIs.

Urinary tract infections cannot be completely prevented. But there are things to do that make them less likely to happen. The bacteria that cause UTIs come from the bowels (intestines) and they enter the body through the tube that connects the skin with our bladder, called the urethra. In girls, these bacteria are **less likely if someone wipes from front to back**. This way any germs at the skin will not spread up closer to the urethra. It also is **less likely for infections to happen if someone urinates regularly**. Those children that hold their urine for hours and hours are more likely to have any bacteria that have traveled up to the bladder to stick and cause an infection. A few bacteria that did get into the bladder will not cause an infection if someone urinates shortly afterwards. Urinating will simply flush them out of the bladder.

Some girls are particularly prone to UTIs when they are constipated. Because the bladder and lower bowels lie so close to each other in the body, the full bowel can push on the bladder. This pressure can make an infection more likely. Having your daughter **regularly have a bowel movement** can reduce their chances of having a UTI.

Drinking plenty of fluids helps reduce the chances of a UTI. Water and **cranberry juice** work best. The cranberry juice has a protein in it that keeps bacteria from sticking to the bladder, making an infection less likely. The juices that combine grape juice or apple juice with the cranberry juice are also fine.

Although boys do not commonly have UTIs, it is true that boys who are circumcised are ten times less likely to have a bladder infection.

What else causes these symptoms.

When young girls have the symptoms of a UTI (painful urination, urinating more often, urgency), about 1 out of 4 times it is a UTI. The other 3 out of 4 times, it is not a bacterial infection and will not need an antibiotic treatment. In most of these cases, it is irritation (but not a true infection) where the urine leaves the body that is causing the symptoms. This can be caused by wiping from back to front, bubble baths, soap that irritated the sensitive areas, hot tubs, or a virus. Sometimes, none of these seem to have caused it and it just passes in a short time.

How do we tell if there is a UTI.

The only way to tell for sure if there is a UTI is to do a **urine dip test** and to send the urine off to the lab for a **culture** test. The first test, the urine dip test, we do here in the office (it takes just a few minutes). If there is a UTI, the test usually shows blood, protein, and leukocyte esterase and/or nitrites. The blood and protein are there because the lining of the bladder is irritated. The leukocyte esterase and nitrites are there when a bacteria is in the urine. Sometimes the test is really convincing that there is an infection and other times it is more of a gray area. Either way, the urine culture, done at Nationwide Children’s Hospital Lab tells us for sure whether a bacterial infection is there and what medicine will be best to kill the bacteria causing the UTI. We get an initial report in 24 hours from the lab then a final report the next day. Anytime we send off the urine for a culture, we will call you when we have the final results whether they show an infection or not.

Getting the urine for testing.

Toddlers who are potty trained and older children can urinate into a sterile cup for us here in the office. Occasionally, we are suspicious that an older child has a UTI but they cannot (or will not) urinate here in the office. If you do not live too far away, we often will send you home to see if you can collect a sample at home. In the more relaxed environment at home many children will be able to urinate into the cup that we will send with you. Then the sterile cup (it has a screw on lid) is returned to the office during office hours. Having your child drink plenty of water or juice on the way over can certainly make it more likely that they can urinate for us here.

Some young infants or toddlers with a fever have no cold symptoms and fussiness. These children may not be able to tell us if it hurts to urinate. For these children, the only way to get a good specimen for testing of the urine is to do a **catheterization**. That means we clean off the area well and place a small flexible sterile tube through opening where the urine comes out (the urethra) and into the bladder. The urine is then collected in a sterile tube and we can do the testing to rule-out an infection. This is, naturally, not very comfortable. There is an uncomfortable pressure that is felt during the test. However, it is important to do if we are suspecting a UTI.

Treatment for UTIs.

We want to see every child in the office for an appointment when a UTI is suspected. They cannot safely be treated over the phone without a culture of the urine. If this occurs over the weekend or the pain is severe, using Nationwide Children's Hospital Urgent Care centers is fine. They will send follow-up information to us in the office, be able to culture the urine, and treat with an antibiotic if an infection is found.

UTIs will respond well to antibiotics. The bacteria that cause UTIs are becoming more resistant over time. Most UTI bacteria are treated with amoxicillin, Omnicef® (cefdinir), or Bactrim® (trimethoprim-sulfamethoxazole). The treatment works quickly. Often by the time we call someone in 2 days with the urine culture results, a child is already feeling much better. Complete the full ten days of antibiotics even if your child feels better in a few days.

Some young children with a UTI will hold their urine because they know it hurts when they do urinate. This is a little tricky. We have families have them sit on the toilet and let the faucet run some water slowly in the sink (the noise can help someone relax enough to be able to go) or have the child sit in a warm bath and tell them to relax and urinate in the tub. Some families find it helpful to put a small dab of Aquaphor® ointment, Vaseline® jelly, or diaper ointment where the urine comes out to help soothe the area.

Drinking plenty of fluids will not cure the UTI but will help flush away the infection. Have your child drink plenty of water or cranberry juice.

You may be familiar with medications given to adults to help with the pain of a bladder infection. These medications are by prescription but occasionally a family will tell us they have found something similar over-the-counter. Please do **NOT** give these medications without consulting with us first. The reason is that every one of them disrupts how we can read the urine dip test, making it difficult to tell whether there is a UTI or not. Once we have a urine sample to test, we can prescribe or recommend these medications if needed. There are only pill forms of these medications. They are not available as chewables or liquid at this time

Urinary Reflux.

Urinary reflux (called vesicoureteral reflux) is a problem when the urine heads back up towards the kidneys. This is not healthy for the kidneys. In a healthy child or adult, the urine is made in the kidneys, flows down into the bladder through the ureters, and is emptied out of the body later. The urine is supposed to be flowing only this direction. When any bacteria are in the urinary tract, they are more likely to cause an infection if they do not get flushed out right away. If the urine is heading up towards the kidneys from the bladder, the urine (and a possible infection) is not getting flushed out of the urinary tract. Untreated urinary reflux, then, can cause more frequent UTIs and can damage the kidneys. It is thought that untreated urinary reflux can cause long-term damage to the kidneys. This could lead to difficult-to-treat high blood pressure or even kidney failure and the need for a dialysis or a kidney transplant.

Urinary reflux is "graded". Grade 1 is the most mild, while Grade 5 is the most severe. The higher grades mean that the flow of the urine and the pressure in the system is higher. As a general rule, the milder grades (Grade 1 and 2) gradually go away on their own and the higher grades (Grade 3, 4, or 5) need to be evaluated by the specialist in urinary reflux, the Pediatric Urologist. If your child needs to see the specialist, we recommend the Pediatric Urology group at Nationwide Children's Hospital here in Columbus. Their address is Nationwide Children's Hospital. Outpatient Care Center. 6th Floor, Suite D. 700 Children's Drive. Columbus, Ohio. 43205. The phone number is #722-6630.

The things that make us concerned for urinary reflux are children with a urinary tract infection that are a younger age, have a fever with the UTI, have more frequent UTIs, have a family history for urinary reflux, or are a boy. The only way to tell if there is urinary reflux is a test called a **VCUG**. It is done at an x-ray center, generally through Nationwide Children's Hospital's Close to Home Centers or the hospital's downtown Radiology Department. The test involves placing a small flexible tube into the bladder through the urethra. The bladder is then filled with a liquid that shows-up well on x-rays. Multiple x-ray pictures are taken with the bladder filled then after the child urinates. The results of the test are then sent to our office and we will get back with you about the results.

The other test that is often done is an **ultrasound of the kidneys and bladder** ("renal ultrasound"). This is helpful in making sure those look healthy, but it does NOT show if reflux is there. This test is painless and is also done at Nationwide Children's Close to Home Centers or the hospital's Radiology Department.

Children with milder forms of reflux are placed on an antibiotic, to be taken every day, to prevent any further UTIs until the reflux has resolved. We typically do a follow-up VCUG test every 12 months.

What to do when.

-- If the symptoms of a UTI are there without a fever: call our office (614-777-1800) during regular office hours for an appointment or come in for walk-ins at 8 a.m. If over the weekend, the Nationwide Children's Hospital Urgent Care is an option.

-- If your child has symptoms of a UTI and is feverish or has significant back or belly pain: your child needs to be seen that day, whether in our office during regular office hours, for walk-ins at 8 a.m. or at Nationwide Children's Hospital Emergency Department or Urgent Care.