

# **URINARY TRACT INFECTION**

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One of the most common urinary problems among children is infection of urinary tract (UTI). An estimated 3 % of girls and 1% of boys have had a urinary tract infection (UTI) by the age of 11. The symptoms are not always obvious to parents, and young children are usually unable to describe how they feel. However recognizing and treating urinary tract infection is important. Untreated UTI can lead to serious kidney problems that could threaten the life of your child.

## **Normal Functions of the Urinary Tract:**

The kidneys filter and remove waste and water from the blood to produce urine. The urine travels from the kidneys down two narrow tubes called the ureters. The urine is then stored in a balloon- like container called the bladder. When the bladder empties, urine flows out of the body through the urethra, a tube at the bottom of the bladder.

## **How Does the Urinary Tract Become Infected?**

Normal urine contains no bacteria (germs). Bacteria may, at times, get into the urinary tract (and the urine) from the skin around the rectum and genitals by traveling up the urethra into the bladder. This results in swelling and pain in the abdomen and side. This is called “cystitis.”

If the bacteria travel further up through the ureters to the kidneys, a kidney infection can develop. The infection is usually accompanied by pain and fever. Kidney infections are more serious than bladder infection. In some children a urinary tract infection may be a sign of an abnormal urinary tract that may be prone to repeated problems.

## **Signs of Urinary Tract Infection:**

The lining of the bladder, urethra, ureters, and kidneys become irritated with a urinary tract infection, just like the inside of the nose or throat with a cold.

- Your child may urinate often.
- If your child is an infant or is only a few years old, the signs of a urinary tract infection may not be clear, since children that young cannot tell you just how they feel.
- Your child may have a high fever, be irritable, or not eat.
- On the other hand, sometimes a child may have only a low- grade fever, experience nausea and vomiting, or just not seem healthy.
- The urine may have an unusual smell.
- An older child with bladder irritation may complain of pain in the abdomen and pelvic area.
- If the kidney is infected, your child may complain of pain under the side of the rib cage (the flank) or low back pain.

Crying or complaining that it hurts to urinate and producing only a few drops of urine at a time are other signs of urinary tract infection. Your child may have difficulty controlling the urine and may leak urine into clothing or bedsheets. The urine may smell unusual or look cloudy.

### **How Do You Find Out Whether Your Child Has a Urinary Tract Infection?**

- **Urine routine microscopy**-- Some of your child's urine will be collected and examined. The way urine is collected may depend on how old your child is. An older child may be asked to urinate into a container. The sample needs to come as directly into the container as possible to avoid picking up bacteria from the skin or rectal area. A doctor or nurse may need to pass a small tube into the urethra. Urine will drain directly from the bladder into a clean container through this tube (called a catheter). Sometime of this will be examined under a microscope. If an infection is present, bacteria and sometime pus will be in the urine.
- **Urine Culture**: The process of growing bacteria in the laboratory is known as performing a culture and often takes a day or more to complete. The reliability of the culture depends on how the stands before the culture are started.

### **How Are Urinary Tract Infection Treated?**

Urinary tract infections are treated with antibiotics (infection fighting drugs). After a urine sample is obtained, the doctor may begin treatment with a drug that treats the bacteria most likely to be causing the infection. Once urine culture results are known, the doctor may switch your child to another antibiotic, if necessary.

The way the antibiotic is given and the number of days that it must be taken depends in part on the type of infection and how severe it is. When a child is sick or not able to drink fluids, the antibiotic may need to be put directly into the bloodstream through a vein in the arm or hand. After a few doses of the antibiotic, your child may appear much better, but often several days may pass before all symptoms are gone. In any case, your child should take the medicine for as long as the doctor says.

### **Additional Tests which may be needed**

Once the infection has cleared, additional tests may be recommended to check for abnormalities in the urinary tract. Repeated infection in abnormal urinary tract may cause kidney damage. Hence renal function tests may be done.

- **Kidney and bladder ultrasound**:  
This is a test that examines the kidney and bladder using ultrasound waves. This is very simple test and does not require any injection or invasion. However, function cannot be measured with ultrasonography.
- **Voiding cystourethrogram(VCUG) (MCU)**  
This is a test that examines the urethra, while the bladder fills and empties. A liquid contrast, which can be seen on X-rays, is placed into the bladder through a

catheter passed from the urethra. The bladder is filled until the child urinates and the bladder empties. The test can also determine whether the flow of urine is normal when the bladder evacuates.

- **Intravenous Urography(IVU):**

This is a test that examines the whole urinary tract. A liquid that can be seen on x-rays is injection into a vein. The substance travels into the kidney and bladder, revealing possible obstructions.

- **Radio-nucleide nuclear scan (DMSA, DTPA, MAG3, Ec Renal scans):**

A number of tests using radioactive materials that are usually injected into a vein how well the kidneys work, the shape of the kidneys, and whether urine empties from the kidney in a normal way. The many kinds of nuclear scans each give different information about the kidney and bladder. Nuclear scans expose a child to no more radiation than he or she would receive from a conventional x-ray. At times, it can even be less.

### **Abnormalities leading to Urinary Problems?**

Many children who get urinary tract infection have normal kidneys and bladders, but children who have abnormality need to have it detected as early as possible in life to try to protect their kidneys against damage. Abnormalities that could occur include the following:

- **Vesicoureteral reflux.**

Urine normally flows from the kidneys down the ureters to the bladder in one direction. With reflux, when the bladder fills, the urine may also flow backward from the bladder up the ureters to the kidneys. This abnormality is common in children with urinary infection.

- **Urinary obstruction.**

Blockages to urinary flow may occur at many sites in the urinary tract. Blockages usually occur if the ureter or urethra is too narrow or a kidney stone at some point stops the urinary flow from leaving the body. Occasionally, the ureter may join the kidney or bladder at the wrong place, preventing urine from leaving the kidney in a normal way.

### **Do Urinary Tract Infections Have Long-Term Effects?**

Young children are at the greatest risk for kidney damage from urinary tract infection, especially if they have some unknown urinary tract abnormality. Such damage includes kidney scars, poor kidney growth, poor kidney function, high blood pressure, and other

problems. For this reason it is important that children with urinary tract infection receive prompt treatment and careful evaluation.