

Urinary Tract Infections

in Infants

This sheet deals with urinary tract infections (UTIs) that occur in children before toilet training. For UTIs in older children after toilet training, see “Urinary tract infection in Children” page.

What is it?

A urinary tract infection is an infection occurring within the urinary tract. It may be a lower urinary tract infection (‘cystitis’ or bladder infection), or an upper urinary tract infection (‘pyelonephritis’ or infection in the kidney). The bacteria that cause UTIs nearly always come from the bowel.

UTIs in babies and toddlers may be associated with an underlying anomaly of the urinary tract.

Background

The kidneys make urine, which passes down the ureters into the bladder where it is stored until an appropriate time to void (wee). This is normally a one-way system, where urine is prevented from returning to the upper tracts by a valve-like mechanism in the connection between the ureter and the bladder.

Normal urine is both ‘sterile’ (does not contain bacteria) and ‘acellular’ (does not contain red or white blood cells).

Who?

In the first year of life urinary tract infections occur more often in boys. In the first year of life 3% of boys and 1% of girls will have a UTI.

Urinary tract infections are the second most common form of infections in children after upper respiratory tract infections. Even though UTIs are common, they are *not* ‘normal’.

How does it present?

In an infant, the signs of urinary tract infection can be non-specific. They include:

- fever
- lethargy
- irritability (being unusually unsettled)
- poor feeding
- failure to thrive

Less common signs are:

- prolonged jaundice
- offensive urine
- haematuria (blood in urine)

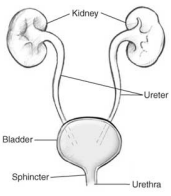
How is it diagnosed?

The doctor will ask you about any antenatal tests that you had done (tests in pregnancy with this child), and whether any abnormalities of the bladder or kidneys were noted. Any other conditions that your child is known to have, and any family history of urinary tract anomalies are important. They will also ask about any investigations or medications your child has had.

The doctors will need a urine specimen to confirm the diagnosis. A clean catch specimen is ideal. If this is not possible, a catheter may need to be placed to take a specimen. Sometimes, a ‘suprapubic aspirate’ is needed. A small needle is placed through the abdominal wall into the bladder and some urine is withdrawn directly.

A ‘bag’ specimen is not sufficient to diagnose a urinary tract infection, as bacteria on the skin will contaminate the specimen.

The urine sample is tested with a dipstick and sent for formal microbiology and culture. A confirmed UTI is when the sample is found to contain a predominant bacterial species and some white blood cells (pus cells).



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What are the treatment options?

A urinary tract infection is treated with antibiotics.

If your child is very unwell, the antibiotics may need to be started as soon as the sample of urine has been taken. These may need to be given by injection, and your child admitted to hospital. If your child can tolerate oral antibiotics, these are used preferentially and the child can be at home.

If your child is not so unwell, antibiotics may be delayed until the diagnosis is confirmed.

Oral antibiotics are usually given for 7 to 14 days, depending on the severity of infection and response to treatment.

What happens next?

Most UTIs with common organisms respond promptly to oral antibiotics.

After the infection has been treated, a repeat urine sample needs to be tested to ensure the treatment has been effective at clearing the UTI.

Once your child is recovering, other investigations need to be considered.

What further tests are performed?

Ultrasound

Ultrasound is the most appropriate first-line imaging investigation for UTIs. It does not involve any radiation and is not invasive. It should be performed for all infants after their first UTI.

A urinary tract ultrasound is able to look at the size and shape of the kidneys, and show if there is any distension of the drainage systems. It can also provide information on the size and shape of the bladder, bladder wall thickness and emptying.

Micturating cystourethrogram

This test is performed in selected cases, after review of the ultrasound. It is not routine in all babies (see MCU information sheet).

It is performed with a small tube called a catheter placed through the urethra into the bladder. Contrast material is injected through the catheter to outline the bladder. An X-ray is taken which will show the shape of the bladder, whether there is any back flow up the ureters (reflux), and whether there is any urethral obstruction to the outflow of urine

DMSA

This nuclear medicine test is performed selectively for some infants with UTIs, if there are concerns about kidney scarring.

DMSA is a test that gives information about the relative function of the two kidneys and whether there is any kidney scarring. This should be performed in a paediatric centre to obtain the best results from the study. A small amount of radioactive material is injected through a cannula into the child's bloodstream which is excreted by the kidney. A special camera measures tracer uptake in the kidneys.

What is the follow-up?

If the ultrasound examination is normal, no further investigations are required after the first event. If your child has further episodes of fever you should attend your doctor within 48 hours.

After an episode of documented urinary tract infection in infancy, review by a paediatrician is appropriate to exclude underlying risk factors for recurrence, renal scarring or other urinary tract abnormalities.