

Vesicoureteral reflux and reflux nephropathy Overview

This infoKID topic is for parents and carers about children's kidney conditions.

This leaflet has the overview only.

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Vesicoureteral reflux (VUR) – also called vesicoureteric reflux – is quite a common condition, especially in babies and young children. When children with VUR go for a wee, some urine refluxes, or passes back up the wrong way, towards one or both kidneys.

Many children with VUR do not have any symptoms or need treatment. They may be at greater risk of urinary tract infections (UTIs) in their bladder or kidneys, and may need to take medicines to prevent or treat infection.

VUR is diagnosed (identified) in a test called an **MCUG**, which finds out how much urine refluxes and whether it is held in the kidney. There are five grades.

- Grades 1 and 2 are mild. Children will visit the clinic or hospital to check for any problems, and may need to take medicines to prevent infection.
- Grades 3, 4 and 5 are more severe. Urine refluxes all the way to one or both kidneys, causing swelling. The bladder may not fully empty. Children may need further treatment, such as medicines that protect their kidneys. Very occasionally, surgery is needed. This higher grade often gets better over time, but may take longer.

Reflux nephropathy means there is VUR and scars or abnormal development in one or both kidneys, which may be mild or more severe. Occasionally, this means that one or both kidneys work less well.



About the urinary system

The **urinary system** gets rid of things that the body no longer needs, so that we can grow and stay healthy.

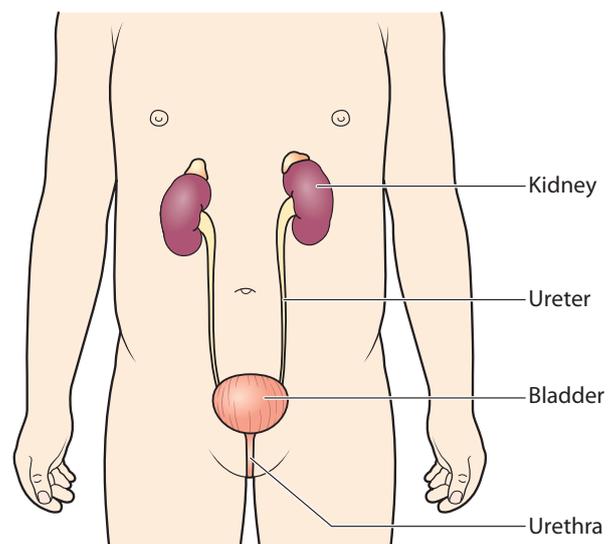
The **kidneys** are bean-shaped organs. They filter blood to remove extra water and waste in urine (wee). Most of us have two kidneys. They are on either side of our spine (backbone), near the bottom edge of our ribs at the back.

The two **ureters** are long tubes that carry urine from the kidneys to the bladder.

The **bladder** is a bag that stores urine until we are ready to urinate. It sits low down in the pelvis.

The urethra is a tube that carries urine from the bladder to the **outside** of the body.

» [More about the urinary system and kidneys](#)



Symptoms and complications

These conditions do not usually hurt and may not cause symptoms. Some children have complications – health problems caused by or worsened by VUR or reflux nephropathy.

- **Urinary tract infection (UTI)** – when bacteria (germs) get into the urine and cause an infection, usually in the bladder. Babies and children with a UTI may become irritable, have a fever, have pain on weeing, feel sick or be sick.
- **Kidney infection (pyelonephritis)** – sometimes bacteria that cause UTI travel all the way up to the kidneys, where they cause a more serious infection and illness. This is more likely in severe VUR, when urine goes back up in the kidneys.
- **Bladder problems** – in severe cases, the bladder does not empty properly, and this may cause more UTIs and further kidney damage.

Reflux nephropathy may cause the following:

- **high blood pressure (hypertension)** – especially when a child is older or reaches adulthood
- **protein in the urine (proteinuria)** – this may be found if the kidney damage gets worse over time. You cannot usually see the protein, but it can be found on a simple **urine test**.

Causes

It is not always clear why these conditions happen. They are not caused by anything that the mother does during her pregnancy.

VUR

VUR sometimes runs in families. If one of your children has it, your doctor may recommend that his or her brothers and sisters are also tested, especially if they have any complications such as frequent UTIs.

VUR is caused by a problem with the way one or both ureters connect with the bladder. In some cases, it is caused by problems with the bladder itself.

VUR may affect one side (**unilateral VUR**) or both sides (**bilateral VUR**).

Reflux nephropathy

Reflux nephropathy is kidney scars or abnormal kidney development that is seen with VUR. We understand that it develops in children with VUR who get kidney infections (pyelonephritis).

There may be scars on one kidney only (**unilateral reflux nephropathy**), or on both kidneys (**bilateral reflux nephropathy**).

It is not always known whether the kidney damage in reflux nephropathy is present at birth or starts later in life.

Test and diagnosis

Before birth

The 20 week antenatal ultrasound scan looks at your baby growing in the womb. In some pregnancies, one or both of the baby's kidneys hold on to urine, and become stretched and swollen – this is called **antenatal hydronephrosis**.

Often, the hydronephrosis goes away during pregnancy. If it continues, you may need more tests. Sometimes it is caused by severe VUR.

Diagnosis

Some babies with antenatal hydronephrosis or other problems in pregnancy are tested for VUR after birth. Older children may be tested for VUR if they have symptoms, such as one or more UTIs.

The first test is normally an **ultrasound scan**, which is similar to the scan mothers have in pregnancy. VUR can be diagnosed (identified) in a baby or older child with other scans – this is normally a test called an **MCUG**, but sometimes another test called a **MAG3 scan with indirect cystogram** is used.

Some children are referred to a **paediatrician**, a children's doctor, and/or a **paediatric urologist**, a surgeon who treats children with problems of the urinary system. He or she will talk with you about whether your child needs further tests to help find out whether he or she needs treatment.

Your child may also need to go back to the clinic or hospital for follow-up tests.

Treatment

After your child's tests, your doctor will speak with you about whether your child needs treatment.

Because VUR and reflux nephropathy may increase the risk of **urinary tract infections (UTIs)**, especially infections that keep coming back and that may affect the kidney, some babies and children need to take a small dose of **antibiotic medicine** each day for some time. This medicine kills the bacteria that cause UTIs and helps to prevent these infections. If your child does get a UTI, he or she will need to take a course of antibiotics to fight the infection.

Some children need further treatment to protect their kidneys. This includes controlling blood pressure by eating a healthy diet with no added salt and, sometimes, taking medicines. Occasionally, other treatment or surgery to correct the VUR is needed.

The scarring in reflux nephropathy cannot be treated.

About the future

All children with VUR need to go back to the clinic or hospital for more tests and to see the doctor. Children with reflux nephropathy need long-term follow-up.

Your child will be able to do all of the things that other children their age do. Your child should be able to go to nursery and school, play with other children and stay active.

As they grow, most children have no symptoms from VUR or reflux nephropathy, especially after 5 years of age.

A very small number of children, especially those with more severe VUR and/or reflux nephropathy, develop long-term problems with their kidneys and will need specialist treatment.

» **More information VUR and reflux nephropathy on www.infoKID.org.uk**

Your notes and contact information

www.infoKID.org.uk



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For details on any sources of information used in this topic, please contact us through our website www.infoKID.org.uk.

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