Vesicoureteral Reflux

Vesicoureteral reflux is "backwards flow" of urine. When your child urinates, some of the urine in the bladder flows back toward the kidneys instead of out of the body. It is most often a congenital (present since birth) condition. Kidney damage may occur if the reflux is severe or there are frequent or severe kidney infections. Antibiotics may be used to prevent infection. Vesicoureteral reflux often resolves with time. Surgery can be performed if needed.

What is vesicoureteral reflux?

Vesicoureteral reflux (VUR) most commonly results from a birth defect involving the urinary system. Normally, urine flows from the kidney, through tubes called the ureters, into the bladder, and through the urethra out of your child's body. VUR occurs when some urine from the bladder flows back up the ureters, toward the kidney, when your child urinates. This happens because the ureters aren't properly connected to the bladder. The condition is most commonly present since birth (congenital).

The backward flow of urine can lead to kidney damage. This risk depends on how severe the reflux is. Urinary tract infections are often the first sign of VUR. In other children, VUR is detected during tests for problems with urination or suspected kidney disease.

Prompt recognition and treatment can prevent or reduce the damage caused by VUR. Most children are treated with antibiotics to prevent infections until the abnormality causing urine reflux clears up. Most mild cases resolve with time. In certain situations, surgery may be done to fix the reflux problem.

What does it look like?

VUR is most often recognized as part of the evaluation for a urinary tract infection in an infant or young child. Children most commonly evaluated for VUR include:

- Girls younger than 3 to 5 years old who have their first urinary tract infection.
- A school-aged girl who has had more than one urinary tract infection.
- Any boy with a urinary tract infection.
- In children 2 years or older, symptoms of urinary tract infection include:
  - Pain with urination.
  - More frequent urination.
  - Sometimes fever, nausea and vomiting, or diarrhea.
  - Abdominal, side, or back pain.
- In infants or toddlers, symptoms may include:
  - Just fever.
  - Sometimes vomiting or decreased appetite.
  - Abnormal-smelling urine.

VUR itself causes no symptoms. Sometimes, VUR is diagnosed during tests for other problems, such as difficulty urinating or frequent urination.

What are some possible complications of vesicoureteral reflux?

- Damage to the kidneys. Over time, VUR, usually associated with infections of the kidneys, can, if severe enough, cause scarring and damage to the kidneys.

What increases your child's risk of vesicoureteral reflux?

- VUR affects about 1% of children.
- VUR runs in families:
- The risk of VUR is much higher for children with various other kidney or urinary tract diseases, especially those causing blockage of urine flow.

Can vesicoureteral reflux be prevented?

Prompt diagnosis and treatment may prevent complications.

How is vesicoureteral reflux diagnosed?

A test called a *voiding cystourethrogram* (VCUG) is performed to find out whether your child has VUR and, if so, how severe it is.

- The test is performed by placing a small tube called a catheter into your child's bladder. Catheter placement does not harm your child, although he or she may find it upsetting. If needed, a mild sedative may be given to relax your child.
- Usually, a small amount of dye is placed into your child's bladder, along with enough liquid to fill the bladder. Then x-rays are taken while your child is urinating. These x-ray pictures can be used to tell whether VUR is present and how severe it is.

Your child will probably also have an *ultrasound test* of the urinary system, to see whether there is any damage to the kidneys. This test uses sound waves to produce pictures of the urinary tract. It can give information on other abnormalities, and about how VUR and infections have affected the kidneys.

How is vesicoureteral reflux treated?

Treatment depends on the cause and severity of VUR. Your doctor may recommend a visit to a kidney specialist (a nephrologist) or a doctor specializing in the treatment of urinary tract diseases (a urologist).

- *Antibiotics.* For some cases of reflux, antibiotics are given to prevent urinary tract infections until the reflux clears up.
  - Your child should take the antibiotics every day. By preventing infections, antibiotics help to prevent damage to the kidneys.
  - Your child will undergo regular follow-up tests to see whether the VUR has resolved. This usually occurs by age 6 or 7.
- *Surgery.* In some situations, the urologist may recommend surgery to correct the abnormality causing your child's VUR:
  - If the VUR is very severe, if reflux is worsening despite antibiotics, or if repeated infections have caused kidney damage, surgery may be recommended immediately.
  - Surgery for VUR is highly effective, with success rates of 95% or higher. Even for children in the most severe category of VUR, the success rate is around 80%.
  - Although surgery is highly effective in curing VUR, it is very important to be alert for any signs of continued problems with urination or urinary tract infections.
- *VUR as a complication.* The situation may be different if your child has VUR occurring as a complication of other urinary tract diseases. In this case, the specialist directing your child's care (a urologist or nephrologist) can advise you of the best treatment options for your child.

When should I call your office?

Call our office if your child has any symptoms of urinary tract infection (frequent urination, pain, fever, nausea and vomiting).

Please type your custom instructions and/or office contact information here.