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## Kidneys - urinary reflux

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### Summary

- There is a valve at the meeting point between each ureter and the bladder to prevent the backflow of urine into the kidneys.
  - Urinary reflux means that one (or both) of these valves is not working properly.
  - If you have urinary reflux, during urination the urine travels up the affected ureter to the kidney instead of flowing out of the body.
  - Urinary reflux most commonly occurs in babies and children.
  - In most cases, the valve will correct itself as a child grows and matures.
  - In severe cases, surgery may be needed to remodel the valve.
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The urinary system is made up of the kidneys, bladder and ureters (tubes that connect the kidneys to the bladder). The kidneys act as filters removing extra fluid and waste from your blood to make urine.

Urine passes from the kidneys into the ureters, which drain into the bladder. When the bladder is full, urine flows out of the body through a tube called the urethra.

The ureters normally enter the bladder at a diagonal angle and have a special one-way valve system that prevents urine from flowing back up the ureters in the direction of the kidneys.

If this system doesn't work, urine can flow back towards the kidneys. This is called urinary reflux (also known as vesicoureteric reflux and kidney reflux). Urinary reflux most commonly occurs in babies and children.

Sometimes urinary reflux can be associated with other 'plumbing' problems in the urinary tract and with small, damaged or malformed kidneys.

### Symptoms of urinary reflux

Urinary reflux does not have any symptoms. However, urinary tract infections, which can result from urinary reflux, can cause:

- burning sensation when passing urine
- wanting to urinate more often, if only to pass a few drops
- cloudy, bloody or very smelly urine
- pain in the lower part of the body
- stomach aches
- wetting – new day or night wetting in a child who has been dry
- fever
- poor feeding, vomiting and ongoing irritability in babies and young children.

If your child has any of these symptoms, take them to a GP (doctor) so that simple tests for urinary reflux can be performed.

### Causes of urinary reflux

Some of the conditions that may cause or contribute to urinary reflux include:

- physical problems (congenital abnormalities) of the kidney, present at birth
  - physical problems (congenital abnormalities) of the bladder and the bladder outlet
  - bladder stones
  - trauma or injury to the bladder
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- temporary swelling after surgery (such as kidney transplant).

A family history of urinary reflux can indicate that someone may be at higher risk of developing urinary reflux.

### **Most cases of urinary reflux correct themselves**

Most children who have urinary reflux do not need treatment, but may need to see their doctor regularly. However, some children who have urinary reflux may be advised to take an antibiotic every day to prevent further urinary tract infections, especially very young children or children with other problems with their kidneys or urinary tract.

### **Diagnosis of urinary reflux**

Urinary reflux is diagnosed using a number of tests including:

- kidney ultrasound
- voiding cystourethrogram.

For children who have had infections, the tests your child receives will depend on their age, how many infections they have had and how bad the infections have been.

In children who haven't had infections, further tests may be needed if the ultrasound is not normal. In order to find reflux, an x-ray called a voiding cystourethrogram (also called a micturating cystourethrogram or MCUG for short) is needed.

### **Kidney ultrasound**

Most children being tested for urinary reflux will have an ultrasound of the kidneys and bladder. This is a painless test that gives the doctor a good look at the kidneys and bladder. By doing this, structural abnormalities can be detected, which may indicate urinary reflux (although urinary reflux itself does not show).

### **Voiding cystourethrogram (MCU)**

For this test, a fine plastic tube is placed into your child's bladder and a liquid is passed through the tube to fill the bladder. This liquid shows up on an x-ray and gives a good view of the bladder.

X-rays (normal x-rays or sometimes a nuclear medicine scan or special ultrasound) are taken as your child passes urine. If the liquid is seen on x-ray to pass up the ureters towards the kidney then your child has reflux.

Reflux is graded from grade 1 (mild) to grade 5 (severe). Your doctor will discuss the degree of reflux seen on the x-rays with you and your child.

Sometimes urinary reflux is diagnosed before birth during an ultrasound scan – urinary reflux can make the baby's kidney appear larger than normal.

### **Treatment for urinary reflux**

Most children who have urinary reflux don't need surgery, but may require regular appointments with their doctor.

Children who may need surgery include those who:

- continue to get urinary tract infections while they are on antibiotics
- have other complex abnormalities of the urinary tract.

Surgical correction of reflux consists of either re-inserting the ureters back into the bladder to make a new tunnel, or injecting special material around the bottom of the ureters. Both of these operations restore a functional backflow valve and successfully prevent reflux.

If your child needs surgery, your doctor will discuss the options with you.

### **Screening for urinary reflux**

If a child is diagnosed with urinary reflux, it may be important to test the other members of the family as there is a chance siblings may also be affected. Discuss this with your doctor.

### **Where to get help**

- Your doctor

- **Kidney Health Australia** helpline Tel. **1800 454 363**

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Kidney Health Australia

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