Intermountain® Healthcare

Hydronephrosis in a Fetus

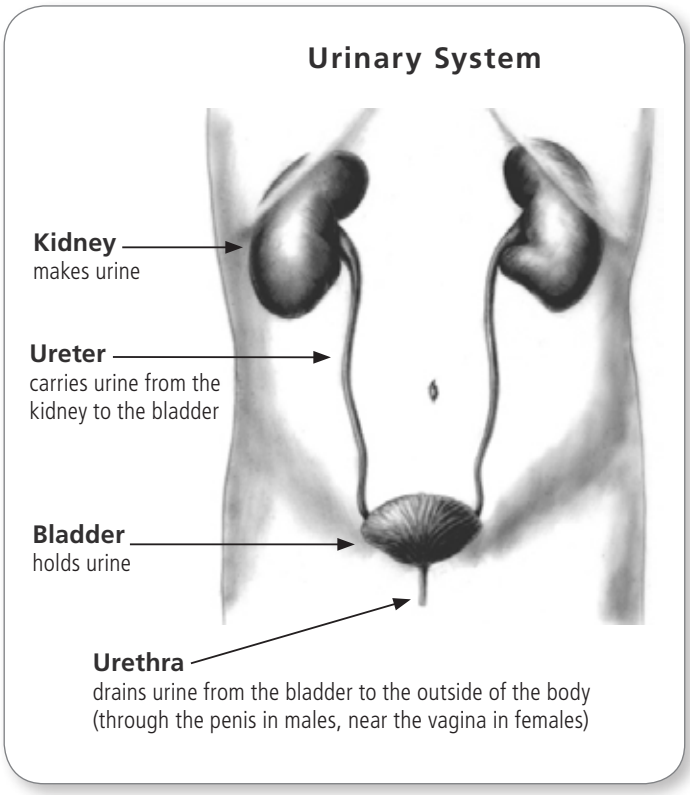
What is it?

Hydronephrosis is a swelling of the kidney. It can develop in adults, but more often it's a birth defect that is detected in a fetus during prenatal ultrasound studies. (Ultrasound uses sound waves to examine the internal organs of the fetus.)

To picture what happens with hydronephrosis, look at the image of the urinary system (urinary tract) at right. Normally, urine drains down the ureter to the bladder. But with hydronephrosis, the urine doesn't drain normally. This causes stretching and swelling of the kidney and ureter.

Unilateral hydronephrosis means that only one kidney is affected. **Bilateral hydronephrosis** affects both kidneys. If the urine buildup affects both the kidney and the ureter, it's called **hydroureteronephrosis**.

Most cases of fetal hydronephrosis resolve on their own and cause no lasting problems. However, in serious cases, hydronephrosis can damage the developing kidneys or threaten the life of the fetus.



What causes it?

In many cases of hydronephrosis, the cause is not known. Yet there are several different defects in the urinary system that can cause urine to back up into the kidneys. Some common ones include:

- **Posterior urethral valve:** an abnormal flap of tissue in the urethra blocks the flow of urine out of the bladder. (This condition only occurs in boys.)
- **Vesicoureteral reflux:** a valve between the ureter and the bladder fails to close properly, allowing urine to wash back up into the kidney from the bladder.
- **Pelvic junction obstruction:** a defect located where the ureter connects to the kidney, which blocks the flow of urine out of the kidney.

Research has not linked hydronephrosis to anything parents may have done during pregnancy. In rare cases, it's hereditary (passed on from the mother or father through the genes). Hydronephrosis is one of more common birth defects, affecting about 1 in 300 pregnancies.

How is it diagnosed?

Hydronephrosis is often detected during a prenatal ultrasound. The swelling of the kidney (or kidneys) is visible to the doctor.

Some cases of hydronephrosis are only discovered after the baby's birth. A urinary tract infection in a newborn is a common reason to suspect a blockage.

How is it treated?

If hydronephrosis is diagnosed in your unborn baby, your doctor will repeat ultrasound studies throughout your pregnancy. This will help the doctor gauge whether the condition is worsening or improving, and how it may be affecting your baby.

In most cases, no treatment is necessary until after the baby is born. After birth, your doctor may recommend one or more of the following:

- **Antibiotic medication to help prevent urinary tract infections.** This temporary measure may be all that is needed. Hydronephrosis will often resolve by itself over time.
- **Additional tests to determine the cause of the hydronephrosis.** For example, your doctor will probably order an ultrasound of the baby's kidneys. The doctor may also suggest that your baby have a **voiding cystourethrogram (VCUG)**. In this test, a small tube is placed in the baby's urethra, and a special dye is sent through the tube up into the bladder. X-rays are taken when the bladder is full and as the baby urinates. On the X-rays, the dye can reveal any defects in the urinary system.
- **Surgery to correct the cause of the condition.** When it is necessary, surgery is usually performed in the first year or two of life to prevent kidney damage.

Rarely, hydronephrosis can become life-threatening before birth. In this case, your doctor may recommend a surgery on your baby in the uterus. Fetal surgery of this kind has been very successful.

What can I do now, during my pregnancy?

Here are a few things you can do now for your unborn baby with hydronephrosis:

- **Keep all your follow-up appointments.** Prenatal care is important for every pregnant woman, and your baby may need extra monitoring.
- **Choose a pediatrician now.** Make sure the pediatrician is aware of the hydronephrosis. After your baby is born, you and your pediatrician will coordinate with a specialist to check your baby's health.
- **Try not to worry.** Most cases of hydronephrosis go away on their own and don't harm the baby in any way.

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