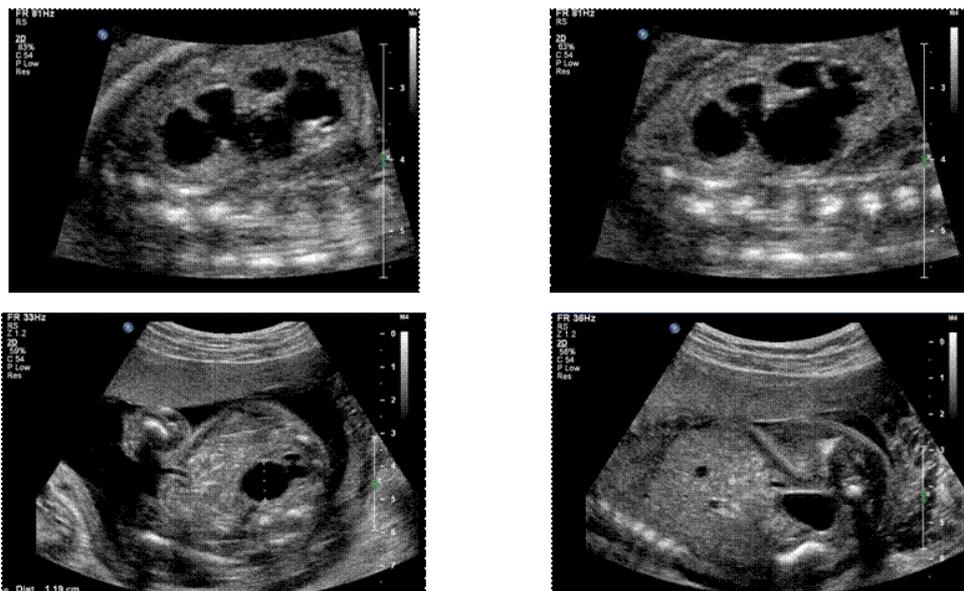


### What do [antenatal](#) scan findings mean?

Antenatal [ultrasound scans](#) look at your baby before birth to pick up any potential problems including those in the [urinary tract](#). An abnormality is found in the urinary tract about 1 in 200 babies. Scanning is becoming more and more detailed and many minor abnormalities are picked up now that wouldn't have been found a few years ago. Many of the kidney abnormalities that are found are unlikely to cause long term problems for your baby, but it's important to make sure that they get followed up, that you have the chance to talk to someone about what they mean and that you know what the plan is for your baby after birth.

### What does the scan involve?

The area related to the kidney is called the urinary tract. This consists of the kidneys themselves, the area in the kidney where the urine collects called the [renal pelvis](#) and the one way tubes ([ureters](#)), that drain down to the bladder. The scan also includes the bladder and the tube ([urethra](#)) that drains it to the outside.



Antenatal ultrasound scans showing a dilated kidney in the top panel and a dilated renal pelvis in the lower panel.

The person doing the scan will look to see if there are two kidneys and if they are in the usual place and are the usual size for the baby's age and rate of growth. They record whether the tissue of the kidneys appears normal, and whether the ureters appear big. The most common place to find a problem is in the renal pelvis (the area where urine collects) which may be bigger than expected.

They also look at the baby's bladder, and the [amniotic fluid](#) / liquor surrounding the baby. The kidneys are visible on scan from around 13 weeks gestation but problems are usually picked up later in pregnancy as the baby grows. If there are things picked up then scans are often done later in pregnancy to assess how things are going and to help to make a plan for after the baby is born

## Are all the problems picked up by the scan serious?

No, most of the problems are minor. In general most problems are related to the drainage of the kidneys and not how they work as a filter. It is very reassuring if the baby is growing normally and has normal amounts of amniotic fluid. Abnormal scans in most cases won't stop you having a normal pregnancy and delivery of your choice, in a place of your choosing. You will usually be allowed home at the usual time after delivery. In these cases your baby will then have an ultrasound scan when they are a few days old. Doctors prefer to wait a few days to make sure urine is flowing well through the kidneys.

Only in very rare cases will the obstetrician recommend an early delivery, or delivery near a centre with specialist care. If this is going to happen they may be able to arrange for you to talk to a doctor who specialises in children's kidney problems (paediatric nephrologist) or one who looks after the bladder and ureters (urologist, a surgeon who specialises in problems of the urinary tract) who will be involved with your baby after they are born.

## What are some of the possible problems picked up by antenatal scans?

- **[Hydronephrosis](#)**

This is the word used to describe the area in the kidney where urine collects being dilated or enlarged. This area is called the renal pelvis and it lies in the middle of the kidney and drains urine to the ureter. Hydronephrosis can happen if the ureter is slow to drain the kidney; either from a narrowing called a **[PUJ](#)** configuration or from urine coming back up from the bladder which is called **[reflux or VUR](#)**. Dilated ureters are sometimes seen in association with this. Mild hydronephrosis is common and does not harm the kidney. In many cases it will go away by itself over the first year or two of life. As it's important to make sure it does go away your baby will have follow up scans. In most cases these scans will be ultrasounds. In some cases, if the hydronephrosis is very big, or on both sides, a more detailed scans to rule out a PUJ or reflux that is causing problems will be done.

- **Dilated ureters**

This can be due to reflux or to a narrowing at the level at which the ureters enter the bladder. This is sometimes called a **[VUJ obstruction](#)**. Some ureters are just bigger than usual – these are called congenital mega ureters.

- **[Posterior urethral valves](#)**

This describes a membrane across the urethra leading to blockage. It only happens in boys and means that urine cannot drain out properly from the bladder. The bladder and ureters become bigger as all the urine cannot drain out freely and this in turn can damage the kidneys, which may not have formed normally also like the rest of the urinary tract. If posterior urethral valves are suspected your baby will need more scans during your pregnancy and scans soon after delivery. An operation soon after birth will usually be necessary to relieve the blockage. The long term effects on the kidneys will become clearer after the baby is born; some boys will have serious kidney problems but some have normal kidney function for many years.

- **Abnormal appearing kidney**

Possibilities for this include kidneys that appear abnormally bright or small for the age of the baby. This may happen in one or both kidneys. You may hear the kidney referred as "**[dysplastic](#)**." This

can mean that the kidney has not formed properly and might not work properly. Sometimes this is found in association with very dilated kidneys ([hydronephrosis](#)) and with [posterior urethral valves](#) as neither the ureter nor the kidney have formed properly. It does not mean that the kidneys will not work but means that they will need to be followed up with scans and blood tests to check the level at which they are working.

- **Single kidney**

This happens in about 1 in 1000 pregnancies. You can lead a perfectly normal life with one kidney of normal size as the single kidney does the work of two. Sometimes the other kidney is found on an ultrasound scan in an unusual place after the baby is born. This kidney is called an ectopic kidney or pelvic kidney.

- **Cystic kidney**

The most common form of cystic kidney is called a multicystic dysplastic kidney. This is when the kidney does not form properly and is made up of lots of large fluid filled cysts with no functioning kidney tissue. The other kidney is usually normal and takes over all the work. The multicystic dysplastic kidney will usually shrink away over time and your baby will have scans as they grow older to make sure it this has happened.

There are other types of cysts that can occur. Some types run in families and some are associated with more serious forms of kidney disease, or abnormal kidneys. These types of cysts are rare, but may require more detailed scanning and assessment.

- **Lack of [amniotic fluid](#) (oligohydramnios)**

There are many causes for this and not all involve the kidneys, but one of them is the kidney not producing enough urine. If there is a lack of amniotic fluid (liquor ) the kidneys will be checked in detail. If the scan shows abnormal kidneys but a normal amount of amniotic fluid, this suggests that the baby's kidneys are working well enough to keep them alive after they are born, even if they have overall reduced kidney function.

## **Can anything be done before my baby is born?**

Sometimes if both the kidneys are affected by blockage or if the urethra is blocked the obstetric doctors can put a tube in to drain the bladder. This would be done in a specialist centre. It may not prevent the baby being born with abnormal kidneys and kidney function.

## **If the antenatal scan has picked up a possible problem what will happen after my baby is born?**

In most cases your baby will have an ultrasound scan done of the urinary tract after they are born. They will then be followed up by the local hospital or GP depending on what the scans show. Some children may be at more risk of infection and they are given a small dose of antibiotic. In some cases more detailed scans are required to see if there are problems that require an operation. Many of these urinary tract changes go away in the first year or two of life. You will be able to get information specific to your child when you talk to the doctors after they are born.

# Glossary

## ◀ Amniotic Fluid

The fluid bathing the fetus and serving as a shock absorber

## ◀ Antenatal

Before birth

## ◀ Dysplastic

Malformed or “scarred” kidneys

## ◀ Hydronephrosis

Hydronephrosis is the swelling of the kidneys when urine flow is obstructed in any of part of the urinary tract.

## ◀ Posterior urethral valves

Posterior urethral valves is a condition found only in boys. It affects the urethra (the tube which runs from the bladder to the outside). The urethra has a blockage in it near the bladder. This makes it difficult to pass urine. As the bladder pushes hard to get the urine out, it causes pressure which may result in urine being pushed back from the bladder into the ureters and kidneys. This causes the kidneys and bladder to swell and may lead to kidney damage.

## ◀ PUJ obstruction

A narrowing or blockage where the ureter (tube that drains the kidney to the bladder) joins to the renal pelvis (part of the kidney).

## ◀ Renal Pelvis

The area at the centre of the kidney. Urine collects here and is funneled into the ureter.

## ◀ Ureters

Muscular tubes that propel urine from the kidneys to the urinary bladder

## ◀ Urinary Tract

The organs of the body that produce and discharge urine. These include the kidneys, ureters, bladder, and urethra.

## ◀ Urethra

The transport tube leading from the bladder to discharge urine outside the body.

## ◀ Ultrasound scan

An ultrasound scan is a painless test that uses sound waves to create images of organs and structures inside your body. It is a very commonly used test. As it uses sound waves and not radiation, it is thought to be harmless.”

## ◀ Vesicoureteric reflux

Vesicoureteric (or vesicoureteral) reflux (VUR) refers to a condition in which urine flows from the bladder, back up the ureter, and back into the kidneys.

## ◀ VUJ obstruction

A narrowing or blockage where the ureter (tube that drains the kidney to the bladder) joins to the bladder.

