

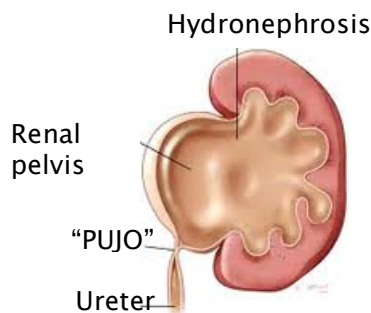
# Pelviureteric junction obstruction

## What is it?

Pelviureteric junction obstruction (PUJO) refers to an impairment of urine flow at the junction of the pelvis (collecting system of the kidney) with the ureter (tube which takes urine to the bladder).

## What causes it?

Often there is a short section of ureter, which is narrowed (see below). Sometimes there are additional blood vessels, which cross the ureter and may contribute to a blockage.



## Who gets it?

1 in 750 to 1000 people will have or develop PUJO. There are no known risk factors. It may occur in the presence of other urinary tract abnormalities. In babies, it is more common in boys than in girls, and more common in the left kidney than the right.

## How does it present?

When there is restriction to urine flow, the urine builds up behind the blockage, distending the collecting system within the kidney. This can be seen on ultrasound, even before birth. (See "Antenatal hydronephrosis sheet).

After birth, PUJO may present with:

- flank pain, often severe
- urinary tract infection
- abdominal mass
- haematuria (blood in the urine)
- incidentally (when ultrasound is performed for another reason)

## What tests are performed?

### Ultrasound

An ultrasound is usually the first indication of concern, particularly in babies or young children where no symptoms may be present.

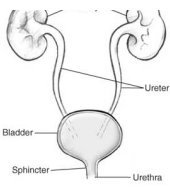
The ultrasound shows a number of important signs:

- how severe the distension (stretching) of the collecting system is
- what the parenchyma (kidney tissue) looks like
- what the drainage tube (ureter looks like): usually not seen in PUJO
- presence and state of the other kidney
- what the bladder looks like

### Nuclear medicine (MAG3, DTPA)

Specialised nuclear medicine studies can determine the function of each of the two kidneys relative to one another. They can give information regarding rate of drainage from each system. These should be performed in a paediatric centre to obtain the most reliable results.

A small amount of radioactive material is injected through a needle into the child's bloodstream and a special camera takes pictures of the kidneys and records the material passing through and draining from the kidneys.



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## What are the treatment options?

Many apparent PUJO cases are now identified on antenatal ultrasound.

Some of these cases will settle spontaneously and not require active treatment (see 'Antenatal hydronephrosis' information sheet).

For some, treatment can be postponed until the situation worsens. The medical team will take into consideration a combination of factors to determine whether intervention is indicated. Often, monitoring with serial ultrasounds while the baby grows is appropriate.

In some cases, early intervention is required to protect or salvage kidney function.

When treatment is required, it involves an operation called a 'pyeloplasty'. This involves removing the narrowed section of ureter where the blockage is, rejoining of the remaining ureter to the renal pelvis (See "Pyeloplasty" sheet).

## What are the outcomes?

The most important aim of treatment and follow-up is the preservation of kidney function.

Many children improve as they grow, with stable or less distension being seen with time. Even if the dilatation persists but does not worsen, this is a positive sign. The child's urine flow is increasing with body size – stable dilatation indicates there is no significant 'blockage' requiring surgery.

For the children who require operative correction of the blockage, the success at salvaging or protecting kidney function from deterioration is very good (around 98% successful).

In some patients (<2%), recurrent blockage occurs due to scarring and requires further intervention. For this reason, follow-up does not stop immediately after the operation.

## What is the follow-up?

Ultrasounds comprise the majority of the follow-up imaging. This study is non-invasive, does not hurt and does not use any radiation.

Sometimes, repeat nuclear scans are needed when the situation changes unexpectedly.

The frequency of follow-up will depend on the severity of dilatation and the rate of any changes.

## Future problems?

Follow-up will usually stop after 2 years of improvement or stability. At this point, the risk of adverse events in the future is so low that ongoing routine imaging is not considered beneficial.

However, there are occasional cases of PUJO presenting in late teens or adulthood. Obviously, any symptoms of pain, infection or blood in the urine developing after follow-up has stopped, should prompt further medical review.