

PUJ Obstruction and Laparoscopic Pyeloplasty Patient Information

What are alternative names for PUJ obstruction?

Pelviureteric junction (PUJ) obstruction, ureteropelvic junction (UPJ) obstruction

What is PUJ obstruction?

This means a blockage of the flow of urine from part of the kidney known as the renal pelvis to the ureter, which is the tube that carries urine onwards to the bladder (Figure 1). This area is known as the pelviureteric junction (PUJ). The blockage is usually due to a narrow area in the PUJ.

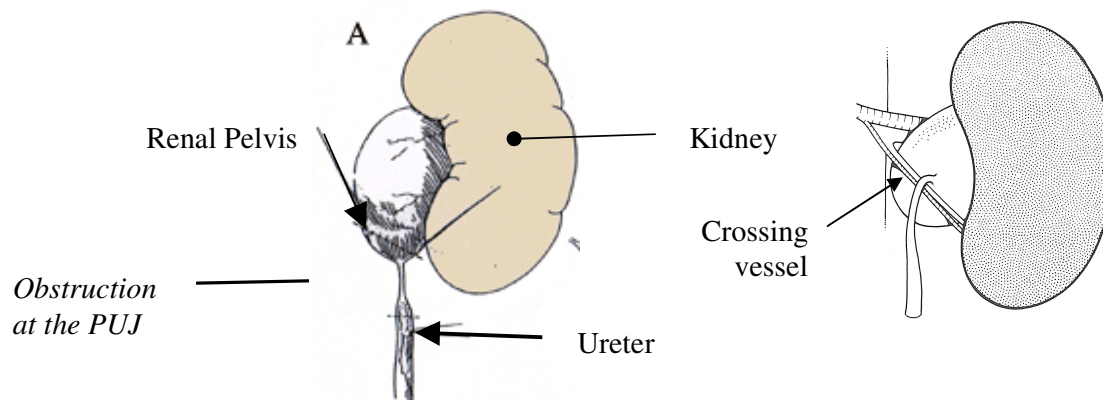


Figure 1 Anatomy of the kidney and PUJ obstruction

What causes PUJ obstruction?

There is usually an abnormality in the structure of the wall of the PUJ. This can exist from birth or develop later in life secondary to other causes such as stones or, very rarely, cancer. In about one in three cases, the PUJ passes over a blood vessel known as a 'crossing vessel' and this may cause the obstruction sometimes also. Even if PUJ obstruction is present in birth, symptoms may not occur until later in life.

What are the symptoms or features of PUJ obstruction?

In adolescents or adults, PUJ obstruction can cause pain on in the side of the back, and the pain can be worse after drinking. Other symptoms include

- kidney infection: high fevers, rigors, and pain in the loin
- stones: pain, blood in the urine and infection

Occasionally, PUJ obstruction is eventually found after tests are made because blood is in the urine.

None of these symptoms are specific for PUJ obstruction and the symptoms may be caused by other problems. Therefore, more action will be necessary to make a correct diagnosis.

What are the alternative treatments available?

The obstruction needs to be removed so that urine can pass freely from the kidney down to the bladder. This can be accomplished by several means:

PUJ Obstruction and Laparoscopic Pyeloplasty Patient Information

- Cutting out the PUJ obstruction and joining the kidney onto the ureter ('pyeloplasty').

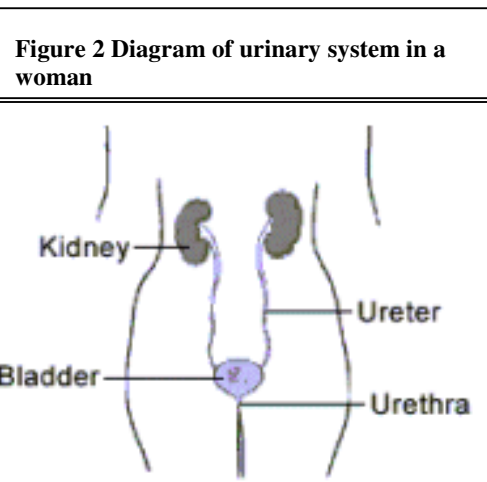
Pyeloplasty i.e. cutting out the obstruction has the best results and lasts for the longest period. This can be achieved through a traditional surgery ('open pyeloplasty') or by keyhole surgery ('laparoscopic pyeloplasty').

- Making a cut in the PUJ obstruction so that it splits open and becomes wider that way ('endopyelotomy').

A cut in the PUJ obstruction ('endopyelotomy') is less effective than cutting it out altogether (reference), but is possibly better than bursting it with a balloon. In some situations, it is dangerous because of neighbouring blood vessels.

- Bursting the obstruction with a balloon ('balloon dilatation')

Bursting the obstruction with a balloon is quick, the least invasive but is less effective and lasts for the shortest period. Furthermore, it produces scarring that can make corrective surgery more difficult. For some patients it is the best option because poor health makes other treatment dangerous.



What is laparoscopy?

This is a technique to reach parts of the body without the use of large incisions. Instead, a narrow telescope and instruments are inserted through small incisions allowing surgery to be performed. The intention is to achieve the same results as would be obtained by conventional surgery.

What is laparoscopic pyeloplasty surgery?

This is a key hole method for correcting the PUJ obstruction.

What are the benefits of laparoscopic method of surgery

These include

- Smaller incisions and better cosmetic appearance
- Less pain
- Reduced need for blood transfusion
- Magnification and possibly better surgical connection between the ureter and bladder
- Shorter time in hospital
- Earlier return to normal activities

How is a laparoscopic pyeloplasty performed?

After a general anaesthetic has been given, a telescope is placed through the urethra into the bladder (see Figure 2). A little tube (stent) is placed in the ureter, which is the tube that connects the kidney to the bladder.

PUJ Obstruction and Laparoscopic Pyeloplasty

Patient Information

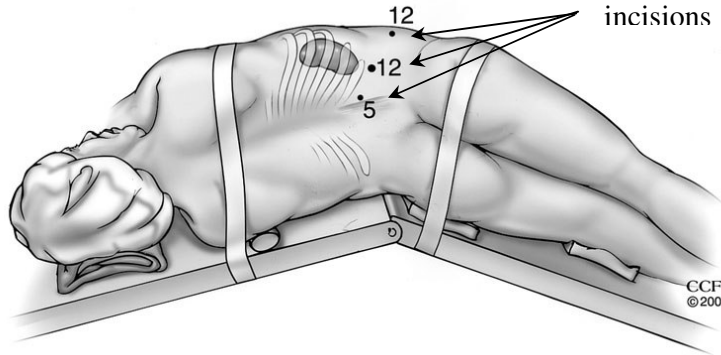


Figure 3 Sites of 3 incisions (numbers relate to size in millimetres, these vary)

Afterwards, incisions are made in the side of the abdomen. Typically, there are about 3 or 4 incisions between 0.5 cm and 2 cm just below the ribs on the side of the problem (Figure 3). The narrow part of the junction between the renal pelvis and the ureter is excised (Figure 4). A new 'join' between the kidney and ureter is constructed. The operation lasts for about 2 hours to 3 hours. If there is a crossing vessel, the join is made on the other side of the crossing vessel and this makes the operation take a longer time to complete. At the end of the procedure, there is usually a tube left inside the body near the site of the operation and this comes out through the skin ('drain'). This is removed when fluid stops draining, which is usually after a day or so. There is another tube ('catheter') coming out from the bladder through the urethra and connected to a 'catheter bag'. This is removed after a day or so also. The 'stent' placed internally between the kidney and the bladder remains at the end of the operation and is removed later under local anaesthetic about 6 weeks after surgery.

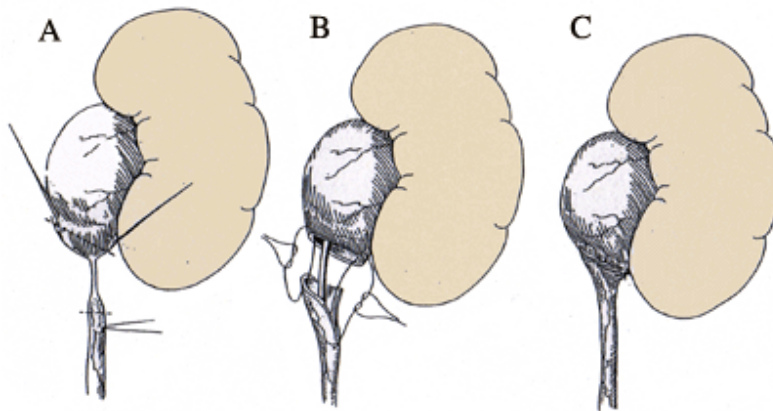


Figure 4 How the operation is performed

What are the side-effects of the laparoscopic method of performing this surgery?

There are some risks associated with laparoscopy alone and some with the surgery. The common or serious risks of pyeloplasty include

- The operation does not work. This occurs in 5 to 10% of patients.
- A drain is required for a longer period than normal. In general, a drain is required for a day after the operation. If urine leaks for longer than expected, a drain may be necessary for a longer period.

PUJ Obstruction and Laparoscopic Pyeloplasty

Patient Information

- Infection: this occurs rarely because of antibiotics, but the urine or wound can still become infected requiring further or different antibiotics
- Injury to other structures in the body. This is a risk of all surgery, but slightly higher when performed laparoscopically. Rarely, the kidney may have to be removed altogether.
- Conversion from keyhole (laparoscopic) to traditional open surgery: if there is substantial difficulty performing the operation, then a traditional or larger incision may be required to complete the operation
- Bleeding may occur and a blood transfusion may have to be given. Rarely, the kidney may need to be removed or the bleeding controlled by special techniques

The risks of laparoscopy relate to the use of the small incisions and working with small instruments. These include

- Entry into the abdomen instead of staying in retroperitoneum
- Gas entry into the skin around the incisions. This can result in the skin feeling crackly after surgery, but is short-lived
- Damage to nearby structures, which may include bowel or other organs in the abdomen. If this occurs, a large incision is necessary into the abdomen for repair

Are there any problems urinating after treatment?

Immediately after treatment, there is usually a catheter in place. This is a tube that drains the bladder. After a day or so, the catheter may be removed if all is well. Passing urine may be uncomfortable for a short period.

What can I expect post-operatively?

The drain and catheter are usually removed on the first or second day after surgery. You can usually go home between the second and fourth day of the operation. Sometimes, it is possible to leave hospital before the drain can safely be removed. In that situation, you may go home with the drain in place. This needs to be emptied periodically and the drain is removed after a few days either on the ward or in the day surgery unit. Usually, you do not need to be admitted into hospital for the drain to be removed.

Two to four weeks after the operation, it may be possible to return to work. People vary and it depends on the degree of physical activity necessary to be performed and how you feel. You can drive when you are able to brake safely, and this usually takes several weeks. In general, you may feel tired and it may be difficult to perform demanding physical or mental activities for several weeks after surgery.

The internal tube ('stent') between the kidney and bladder is usually removed three to six weeks after the operation. Whilst the stent is in place, you may have discomfort which may include pain on passing urine felt either in the back on the same side of the operation, the lower abdomen or tip of the penis. There may also be some blood in the urine. These problems can be worse if you are more active, but not always.

The stent can be removed under local or general anaesthetic. Usually it is removed under a local anaesthetic by a special telescope inserted down the urethra i.e. the tube through which urine passes out of the bladder. This will require a trip to the hospital in the morning or afternoon as an outpatient. Sometimes, the stent is removed under a

PUJ Obstruction and Laparoscopic Pyeloplasty

Patient Information

general anaesthetic. If this is the case, special X-rays may be performed to exam the anatomy of the new PUJ. This may mean staying overnight.