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Ureteroscopy for stones

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Ways of treating stones stuck in the ureter tube or in the kidney

There are several ways we can deal with the stone which has become stuck in your ureter tube – the tube that squeezes urine from your kidney into your bladder:

(1) **Watch and wait for the stone to pass.** Many stones will pass out of the ureter tube of their own accord, without us having to give you any treatment other than pain relief while the stone is working its way out. This ‘treatment’ has the advantage of avoiding an operation.

Its disadvantages are:

- (a) you may have to come back into hospital if the pain becomes severe
- (b) not all stones will pass and you may end up having to have other ways of treatment, such as an operation to remove the stone.

(2) **Lithotripsy treatment** (also known as extracorporeal lithotripsy or **ESWL** for short). This treatment is given as a day case treatment (you have the treatment and are sent home the same day). It involves a special machine which makes shock waves, which are then focused on the stone in order to break it into small pieces which are small enough to pass out of the ureter tube.

Most people tolerate shock wave treatment well. Most describe it as uncomfortable or even painful, but usually the pain can be well controlled with simple pain killers (occasionally stronger pain killers given into a vein are needed). If you do have strong pain killers you will not be able to drive or operate machinery for 24 hours afterwards.

Its main advantage is that it does not involve an anaesthetic or an operation and there is a good chance that it will successfully break up the stone. Sometimes several treatments, given over the course of several weeks or months, are required to break the stone up. If the stone does not respond to shock wave treatment, you can have an operation (telescopic stone removal) at a later date.

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Its disadvantages are:

(a) it does not always break up the stone.

(b) we have to wait several weeks to see if the treatment has worked (we get an X-Ray a few weeks afterwards). This means that we cannot tell you immediately after the treatment whether or not it has been successful and if the treatment has not been successful we have to go through the process of repeating the treatment.

(c) Because we do not have a lithotripsy machine in Oxford, we have to hire one once a month. This means that the machine may not always be available at the best time for treating your stone, and if you need repeat treatment, you may have to wait for 1 or 2 months before being able to have the treatment. Some patients find all the waiting around and uncertainty about whether the stone has been successfully treated or not frustrating. Others don't mind.

(d) Occasionally bits of stone can get stuck in the ureter tube and have to be removed by an operation (called ureteroscopy)

(3) **Ureteroscopy** . This is an operation to remove the stone telescopically. Under a general anaesthetic a long, thin telescope (known as a ureteroscope) through your waterpipe (urethra), up into the bladder and from there up the ureter tube to the stone.

Once the stone can be seen through the telescope, we can break it into little pieces using either a small pneumatic drill or a laser. We are able to successfully remove the stone fragmentation on the first attempt in about 9 out of every 10 patients. For stones in the kidney, on the first attempt we are able to remove the stone in about 7 out of every 10 patients.

The advantage of ureteroscopy is that it is a very effective way of removing stones (with our lithotripsy machine and equipment the results of ureteroscopy in terms of removing stones is better than the results of lithotripsy treatment). If we are successful in removing the stone by ureteroscopy, many patients like the fact that they know straight away after the operation that the stone has gone and that they can get back to normal very soon afterwards.

Its disadvantages are:

(a) Sometimes we cannot get the telescope up to the stone. If we cannot see the stone, we cannot break it up. In this situation we insert a small, thin tube called a J stent into your ureter tube. The top end of the J stent is positioned in the kidney, and the bottom end is positioned in the bladder with the length of the J stent tube lying within the ureter tube. We then wake you up from the anaesthetic, send you home (later that day or the day after) and bring you back into hospital a few weeks later. During this time the J stent allows the ureter to expand a little, so that when we carry out a second ureteroscopy operation we are usually able to get up to the stone, and break it up. During the time that the J stent is in place it can, in some patients, cause irritation to the bladder making you feel as though you want to pass urine much more often than normal. It can also cause some blood in the urine. These symptoms settle down within a few days after the stent has been removed.

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(b) Most patients who are treated with ureteroscopy make a completely straightforward recovery. However, like with any operation, from time to time complications can occur. Serious damage to the ureter tube (requiring an open operation to repair it) is rare. We sometimes make very small holes in the ureter tube as we are breaking up the stone with the laser. These are so small that they heal very quickly (in some cases we may leave a stent in for a few weeks). Septicaemia ('blood poisoning') is an uncommon complication. If this occurs it is treated with antibiotics.

(c) Swelling of the inside of the ureter tube can occur after the stone has been removed and in some cases this can cause a blockage to the tube. This can cause pain in the kidney. We sometimes leave a small tube (known as a ureteric catheter) in the ureter to prevent this problem from occurring. This ureteric catheter passes all the way from the kidney, down the ureter tube, across the bladder and out through the waterpipe. It is kept in position by being attached to a second slightly larger bladder catheter tube. Both tubes are usually removed in the ward the day after the operation and you are then able to go home. Sometimes we leave a J stent for a few weeks.

(d) If we do put a J stent in your ureter tube, it must not be allowed to remain in place for more than 3 months because stones can form on it and this can make removal of the stent very difficult and can lead to damage to the kidney.

(e) After a ureteroscopy mild burning on passing urine is common for a few days, as is passage of blood in the urine.

(f) Scarring of the ureter causing narrowing of the ureter and obstruction to the kidney is rare after ureteroscopy.

Rarely a stone in the ureter tube is so stuck (like a tight cork in a bottle) that we cannot reach it with the telescope, we cannot get a J stent past the stone and the stone will not break up with lithotripsy treatment. In this rare situation, after the attempted operation we will arrange for the XRay specialists to insert a special drainage tube into the kidney, under local anaesthetic, through the skin. This is called a nephrostomy tube. This unblocks the kidney and we can then use this tube to help us get access to the stone.

(4) **Open ureterolithotomy**, an open operation to remove the stone, is rarely needed nowadays.

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General risks of surgery

After any operation occasionally complications occur because of the anaesthetic or because of the 'stress' the operation puts on your body. These complications tend to occur more often in patients with underlying heart or lung disease, and in older rather than younger patients. Though they do not happen that often, when they do occur they can be **serious** and in some cases they can be **life-threatening**. They include:

- Deep venous thrombosis (DVT), a blood clots in the legs. We routinely use treatments to prevent such clots from occurring (leg stockings and special machines that squeeze the muscles of the legs to help the circulation in the legs). A bit of this clot can break off and become lodged in the lungs. This is known as a blood clot on the lung – a pulmonary embolism or PE. This can cause serious breathing problems, and patients with a blood clot on the lung may have to go to ITU, The Intensive Therapy Unit. DVT and PE will require months of treatment with warfarin, a blood thinning drug. If you have had a previous DVT or PE, you are at greater risk of developing another one following surgery.
- A stroke, leading to permanent loss of the ability to use an arm or hand, or of the ability to walk, swallow or talk.
- Heart attack (myocardial infarction).
- Anaesthetic or other heart problems can occur, sometimes requiring ITU admission.

I have read and understand the explanation of ureteroscopy and consent to the procedure

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Patient signature

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Patient name (print)

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date

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Doctor/Nurse signature

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Doctor/Nurse name (print)

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