Information for patients undergoing percutaneous nephrolithotomy

This leaflet tells you about the procedure known as percutaneous nephrolithotomy, explains what is involved and what the possible risks are. It is not meant to replace informed discussion between you and your doctor, but can act as a starting point for such a discussion.

Whether you are having the percutaneous nephrolithotomy as a planned or an emergency procedure, you should have a sufficient explanation before you sign the consent form.

What is a percutaneous nephrolithotomy?
Kidney stones are a very common problem, and often need dealing with surgically. It is no longer necessary to remove kidney stones by open surgery; they can now be removed by ‘keyhole’ surgery, through a very small incision in the skin.

Because this is done through the skin, this procedure is called percutaneous, and nephrolithotomy means taking stones out of the kidney. It is designed to remove kidney stones with fewer disturbances than an open operation, and allow you to recover more quickly.

Why do I need a percutaneous nephrolithotomy?
Previous tests performed show that you have a stone (or stones) in your kidney and these are likely to be causing you significant problems, perhaps pain or infection.

Many stones can be removed by using external shock waves, which avoids any operation at all. However, not all stones are suitable for this technique, and they need to be removed surgically. It has been decided that a percutaneous nephrolithotomy is the best way of dealing with your stone(s).

Who has made this decision?
The consultant in charge of your case, and the radiologist doing the percutaneous nephrolithotomy will have discussed the situation, and feel that this is the best treatment option. However, you will also have the opportunity for your opinion to be considered, and if, after discussion with your doctors, you do not want the procedure carried out, you can decide against it.

Who will be doing the percutaneous nephrolithotomy?
A specially trained doctor called a radiologist, and an urologist, working together. Radiologists have special expertise in using x-ray and scanning equipment, and also in interpreting the images produced. They need to look at these images while carrying out the first part of the procedure. Urologists are surgeons who are trained specifically to deal with disorders and diseases of the kidneys and bladder, and they are the
best trained people to carry out the second part of the procedure.

**Where will the procedure take place?**
Possibly in the x-ray department, in a special ‘screening’ room which is adapted for specialised procedures. It may be done in an operating theatre, using mobile x-ray equipment or a portable ultrasound scanner.

**How do I prepare for percutaneous nephrolithotomy?**
You need to be an inpatient in the hospital. The procedure is carried out under a general anaesthetic, and so you will be asked not to eat or drink for at least four hours beforehand. You will probably receive a sedative to relieve anxiety, as well as some antibiotics. You will be asked to put on a hospital gown.

If you have any allergies, you must let your doctor know. If you have previously reacted to intravenous contrast medium (the dye used for kidney x-rays and CT scans), you must also tell your doctor about this.

You are likely to have an ordinary x-ray of your abdomen done just before your percutaneous nephrolithotomy, to show the exact position of the stone, or stones.

**What actually happens during a percutaneous nephrolithotomy?**
You will be taken to the operating theatre or x-ray department, where the anaesthetist will give you a general anaesthetic. The radiologist will use the x-ray equipment to guide a small needle into your kidney. Once the radiologist is sure that the needle is in a satisfactory position, a guide wire can be placed in the kidney, through the needle. This then enables larger tubes to be placed correctly, over the wire, so that a suitable passageway, or track, is created between the skin and the part of the kidney next to the stone. The urologist is then able to pass a telescope, called an endoscope, down the track and actually see the stone and remove it using a small wire basket.

At the end of the procedure it is possible that a fine plastic tube, called a stent, will be placed in the ureter, the narrow muscular tube inside your body which normally drains urine from the kidney to the bladder. This helps drainage of urine from the kidney temporarily. A plastic drainage tube, called a catheter, may also be left in the kidney through the original track, to allow urine to drain into a bag on the skin’s surface, again as a temporary measure.

**Will it hurt?**
As the procedure is carried out under a general anaesthetic, you will not feel any pain at all. Afterwards, you may experience some tenderness around the small incision and in the kidney. This should not be too uncomfortable, and the ward staff will be able to give you appropriate painkillers if necessary.

**How long will it take?**
Every patient’s situation is different, and it is not always easy to predict how complex or how straightforward the procedure will be. As a guide, expect to be in the operating theatre or x-ray department for about an hour and a half altogether.
What happens afterwards?
You will be taken back to your ward on a trolley. Nurses on the ward will carry out routine observations, such as taking your pulse and blood pressure, to make sure that there are no problems. You will generally stay in bed for a few hours, until you have recovered. The doctors looking after you will advise on how quickly you can become mobile again, and how long you are likely to be in hospital.

If you have a drainage catheter from your kidney to the skin, this stays in place in your body for the time being, and will be attached to a collection bag. You will be able to lead a normal life with this catheter in place. However, you should try not to make any sudden movements (for example, getting up out of a chair), without remembering the bag, and making sure that it can move freely with you. It needs to be emptied fairly frequently, so that it does not become too heavy, but the nurses will want to measure the amount in it each time.

You are likely to need further visits to the x-ray department to check the position of the stent, or the catheter, if these are still in place inside your kidney, and also to check that all the stone fragments have been removed. If the doctors are happy with your progress, then the drainage catheter will be removed before you go home. If a stent was placed between your kidney and bladder at the time of the procedure, then this will stay inside you for a few weeks, and will need to be removed later.

Are there any risks or complications?
Percutaneous nephrolithotomy is a very safe procedure, but there are some risks and complications that can arise, as with any surgical treatment.

Perhaps the biggest problem is being unable to place the endoscope, a small telescope, satisfactorily in the kidney. If this happens, the consultant surgeon will arrange another method of removing the stone, or stones, which may involve surgery.

Sometimes there is a leak of urine from the kidney, resulting in a small collection of fluid inside the abdomen. If this becomes a large collection, it may require draining.

There may be slight bleeding from the kidney. On very rare occasions, this may become severe, and require an operation or another radiological procedure to stop it.

Occasionally there may be infection in the kidney, or in the space around it. This can generally be treated satisfactorily with antibiotics.

Despite these possible complications, the procedure is normally very safe, and will deal with the problem of your kidney stones satisfactorily. Occasionally, an open operation is required, but if the percutaneous nephrolithotomy had not been attempted, then this operation would have been necessary anyway.

Finally...
Some of your questions should have been answered by this leaflet, but remember that this is only a starting point for discussion about your treatment with the doctors looking after you. Make sure that you are satisfied that you have received enough information about the procedure, before you sign the consent form.