Information for patients undergoing a PTC (Percutaneous Transhepatic Cholangiogram) Radiology Department Interventional Suite, Wellington Regional Hospital

What is a percutaneous biliary drainage (PTC)?

One of the normal functions of the liver is to produce bile. This drains through a series of small tubes, or ducts, into one larger tube, the common bile duct, which then empties into the duodenum, the first part of the bowel after the stomach. If the bile duct becomes blocked, then bile cannot drain normally, and jaundice develops. This is potentially a very serious condition, which needs to be treated. In the past, it was necessary to have an open operation to relieve the blockage. Today, it is possible to insert a fine plastic drainage tube, called a catheter, through the skin using only a tiny incision, into the obstructed bile duct to allow the bile to drain externally for a while. This procedure is called percutaneous (meaning through the skin), biliary drainage.

Once a drainage catheter is in the bile duct, it may be possible to pass it through the obstruction, and into the duodenum, allowing the bile to drain internally in the normal way. This may be done as a separate procedure, one or two weeks after the first part, or may follow on directly.

Why do I need a percutaneous biliary drainage?

Other tests that you probably have had performed, such as an ultrasound or a CT scan, have shown that the bile duct has become blocked. The most common causes of obstruction are gallstones, inflammation around the pancreas, or cancer; but these other tests may not have shown the actual cause in your case. Indeed, the underlying cause for the obstruction may only become evident once the biliary drainage has been carried out.

It may be possible to relieve the blockage by passing a flexible telescope, or endoscope, into the duodenum, and inserting a drainage catheter into the bile duct that way. A metal stent may be inserted at this time to permanently relieve the obstruction and remove the need for an external drain. An open operation may still be necessary in some cases. However, in your case it is felt that a percutaneous biliary drainage is the most appropriate treatment option.

Who has made the decision?

The doctors in charge of your case, and the radiologist doing the percutaneous biliary drainage will have discussed the situation, and feel that this is the best option. However, you will also have the opportunity for your opinion to be taken into account, and if, after discussion with your doctors, you do not want the procedure carried out, you can decide against it.

Where will the procedure take place?

Generally in the x-ray department's Interventional Suite.

Who will be doing the percutaneous biliary drainage?

A specially trained doctor called an interventional radiologist. 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 procedure.

How do I prepare for percutaneous biliary drainage?

You need to be an inpatient in the hospital. You will probably be asked not to eat for six hours beforehand, though you may be told that it is alright to drink some water. You may receive a sedative to relieve anxiety, as well as an antibiotic. 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), then you must also tell your doctor about this.

What actually happens during a percutaneous biliary drainage?

You will lie on the x-ray table, generally flat on your back. You need to have a needle put into a vein in your arm, so that the radiologist can give you a sedative or painkillers. Once in place, this needle will not cause any pain. You will also have a monitoring device attached to your chest and finger, and will probably receive oxygen through small tubes in your nose.

The radiologist will keep everything as sterile as possible, and may wear a theatre gown and operating gloves. Your skin will be cleaned with antiseptic, and then the rest of your body will be covered with a theatre towel. The radiologist will use the x-ray equipment or ultrasound machine to decide on the most suitable point for inserting the fine plastic tube called a drainage catheter. This is generally between two of your lower ribs, on the right side. Then your skin will be anaesthetised with local anaesthetic, and a fine needle inserted into the liver.

When the radiologist is sure that the needle is in a satisfactory position, in one of the bile ducts, a guide wire will be placed through the needle, into the bile duct, which then enables the plastic drainage catheter to be positioned correctly. The procedure may finish at this stage, with the catheter being fixed to the skin surface, and attached to a drainage bag. Alternatively, it may be possible to advance the wire and catheter through the obstruction, so that the catheter drains the bile internally into the bowel in the normal way.

In some cases, a permanent metal tube, called a stent, may be placed across the obstruction, to relieve the blockage. Even if this is done, a temporary external catheter may be left in place, attached to a drainage bag.

Will it hurt?

Unfortunately it will hurt.

Usually the procedure is performed with you awake, but with strong painkillers and sedation to keep you comfortable. Local anaesthetic is used to numb the skin and deeper tissues. When the local anaesthetic is injected, it will sting to start with, but this soon passes off, and the skin and deeper tissues should then feel numb. Later, you may be aware of the needle and then the wire and catheter passing into the liver, and sometimes this is painful. There will be a nurse, or another member of clinical staff, standing next to you and looking after you. If the procedure does become painful for you, then they will be able to arrange for you to have more painkillers through the needle in your arm.

Occasionally the procedure is performed under a general anaesthetic, when this is felt to be more appropriate by the referring doctor and radiologist.

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. It may be over in 60 minutes, or occasionally it may take longer. As a guide, expect to be in the x-ray room 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.

If you have an external drainage catheter, attached to a bag, it is important that you try and take care of this. You should try not to make any sudden movements (for example, getting up out of a chair) without remembering about the bag, and making sure that it can move freely with you. However, you will be able to lead a normal life with the catheter in place. The bag 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.

How long will the catheter stay in, and what happens next?

These are questions which only the doctors looking after you can answer. It depends, for example, on whether you have a temporary external drainage catheter in place, or whether a metal stent has been placed across the blockage. If a stent has been placed, someone from the Radiology Department will usually contact you with an appointment in 2-3 weeks to check that this is working as it should. You will be admitted to the Radiology Day ward (the IRW) for this follow up appointment. This procedure should not take as long as the initial visit, however sometimes additional treatment will be required. As the external drain is already in place this is not usually as painful as the first visit.

Are there any risks or complications?

Percutaneous biliary drainage is generally a safe procedure, but there are some risks and complications that can arise, as with any medical treatment.

Perhaps the biggest problem is being unable to place the drainage tube satisfactorily in the bile duct. This is because, even though the duct is blocked, it may not become abnormally wide, and it is difficult to place a needle into a normal sized bile duct. If this happens, your doctors will arrange another method of overcoming the blockage, which may involve an operation.

Sometimes there is a leak of bile from the bile duct where the tube has been inserted, resulting in a small collection of bile inside the abdomen. This can be painful. Generally, once the catheter is draining bile satisfactorily, the leak should stop. However, if this becomes a large collection, it may require draining.

In addition, there is also a small chance of bile leakage causing peritonitis.

As patients with jaundice are more likely to have difficulties with blood clotting, there may be slight bleeding from the surface of the liver where the catheter is inserted. Rarely, this may require a blood transfusion. On very rare occasions, this may become severe, and require an operation or another radiological procedure to stop it. Very occasionally, an operation is required.

Despite these possible complications, the procedure is normally safe, and will almost certainly result in a great improvement in your medical condition.

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 you are satisfied that you have received enough information about the procedure, before you sign the consent form.

General

There are no lockable facilities in Radiology. We strongly recommend that any valuables are left at home.

Please be aware that CCDHB does not take responsibility for any loss or damage of personal property belonging to patients whilst on CCDHB premises