

## Percutaneous Biliary Drainage or Percutaneous Trans-hepatic Cholangiogram (PTC)

### Introduction

This leaflet tells you about the procedures known as percutaneous biliary drainage and percutaneous transhepatic cholangiogram (PTC). It 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 biliary drainage or a PTC as a planned or an emergency procedure, you should have sufficient explanation before you sign the consent form.

Radiologists are doctors specially trained to interpret the images and carry out more complex examinations. They are supported by radiographers who are highly trained to carry out X-rays and other imaging procedures.

### What is percutaneous biliary drainage?

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 is generally 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 days after the first part, or may follow on directly. This enables a stent (a small metal tube or spring) to be inserted so that the drainage catheter can be removed.

### What is a percutaneous transhepatic cholangiogram (PTC)?

This is often performed as the initial part of the biliary drainage procedure and uses similar techniques to provide a map of the bile ducts within the liver and identify the cause and site of an obstruction.

### Why do I need a percutaneous biliary drainage or PTC?

Other tests that you probably have had performed, such as an ultrasound, MRI or CT scan, have shown that the bile duct has become blocked. The most common causes of obstruction are gallstones and inflammation around the pancreas (which may be a tumour), 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.

## What are the options or alternatives?

A map of the biliary tree can be obtained from an MRI scan. You may have already had this, but occasionally more information is required. The alternatives for the drain/stent would include insertion via a tube placed through the mouth/stomach/duodenum (endoscopy or ERCP) and if appropriate this is the easier route for insertion. However, in a number of cases this is inappropriate and the percutaneous route is better for you. The only other alternative would require major open surgery.

## Who has made the decision?

The doctors in charge of your case, and the radiologist 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.

## Who will be performing the percutaneous biliary drainage?

A specially trained doctor called a 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.

Radiographers and radiology nurses will be present in the room to assist during the procedure, they will introduce themselves at the start of the procedure.

Occasionally student radiographers or medical students will be present to observe the procedure.

## Where will the procedure take place?

Generally in the Medical Imaging Department.

## How do I prepare for percutaneous biliary drainage?

- You need to be an inpatient in the hospital. You may receive a sedative to relieve anxiety, as well as an antibiotic. You will be asked to put on a hospital gown.
- You will have had some blood tests performed before the procedure to check that you do not have an increased risk of bleeding.
- You are asked not to eat for 4 hours prior to the procedure. You may drink a little water.
- If you have any allergies or you have previously reacted to intravenous contrast medium, you must let the doctor know. Intravenous contrast medium is the injection we give you during some scans.
- If you are diabetic, please contact the Medical Imaging Department on **01392 402336 selecting option 2, in-patient enquiries, option 6** X-ray Special Procedures.
- If you normally take any medication to thin your blood (anticoagulation or antiplatelet drugs) such as: **warfarin / clopidogrel / aspirin / non-steroidal anti-inflammatory drugs (NSAIDS / brufen / ibrufen / nurofen) / dabigatran (Pradaxa) / rivaroxiban (Xarelto) / Apixaban (Eliquis) / phendione / acenocoumarol – then these may need to be stopped or altered. Please contact the Medical Imaging Department on 01392 402336 selecting option 2, in-patient enquiries and then option 6 for X-ray Special Procedures.**
- Other medication should be taken as normal.
- A pregnancy test may be performed on arrival.

## 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 you may 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 may hurt a little, for a very short period of time, but any pain you have should be controlled with painkillers.

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.

Generally, placing the catheter in the liver only takes a short time, and once in place it should not hurt at all.

## 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 45 minutes, or occasionally it may take longer than 90 minutes. As a guide, expect to be in the Medical Imaging 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.

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. Taking an external catheter out is quick and relatively painless.

## What will happen to the results?

A report of the procedure will be recorded in your notes immediately and also sent to your specialist within 48 hours.

## 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.

You may require further X-rays or scans to check that the obstruction has been relieved, and to try and determine the cause of the obstruction.

## Are there any risks or complications?

Percutaneous biliary drainage is a very 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.

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 (embolisation) to stop it. Very occasionally, an operation is required, but if the percutaneous biliary drainage had not been attempted, then this operation would have been necessary anyway.

In patients with jaundice and obstructed bile ducts there is a small risk of infection (cholangitis). The treatment of this is drainage of the bile ducts and antibiotics. In a small number of cases if infected bile leaks into the blood stream this can cause bacteria in the blood

and a condition called septic shock. This would require intensive medical treatment and support. Fortunately it is a rare occurrence.

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

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

## Contact us

If you found reading your leaflet difficult, you do not understand what it means for you, if you have any queries or concerns you can contact us on: 01392 402336 and we can talk it through.

## How to get to the Royal Devon & Exeter Hospital at Wonford

**Please refer to the enclosed "Welcome to the Medical Imaging Department" leaflet or use the Trusts website for the latest information:**

**[www.rdehospital.nhs.uk/our-sites](http://www.rdehospital.nhs.uk/our-sites)**

For more information on the Medical Imaging Department, please visit our website:

**[www.rdehospital.nhs.uk/services/medical-imaging-radiology-x-ray/](http://www.rdehospital.nhs.uk/services/medical-imaging-radiology-x-ray/)**

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