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Inserting a percutaneous biliary drain and biliary stent (a tube to drain bile)

This leaflet tells you about the procedures known as percutaneous biliary drainage and biliary stent insertion. It explains what is involved and what the risks are. It is not meant to replace informed discussion between you and your doctor, but to act as a starting point for such a discussion. Whether you are having the percutaneous biliary drainage or stent insertion as a planned or an emergency procedure, you should feel you have received sufficient explanation before you sign the consent form.

What is percutaneous biliary drainage and biliary stent insertion?

One of the functions of the liver is to produce bile to digest food. The bile drains out of the liver through a series of small tubes, or ducts, into the duodenum, the first part of the bowel after the stomach. If the bile ducts becomes blocked bile cannot drain normally and jaundice (becoming yellow) and the liver function become impaired. This is potentially a serious condition, which needs to be **investigated promptly and is usually treated**.

One of the treatments involves inserting a fine plastic drainage tube through the skin, using only a small incision, into a bile duct in the liver to allow the bile to drain externally though the tube into a bag for a while. This procedure is called percutaneous (meaning through the skin) biliary drainage. Often, if a tumour is suspected, a biopsy is performed at the same time to get a sample of tissue for analysis.

Sometimes at the same time or later, the biliary drainage procedure may be extended by placing a metal stent across the blockage in the bile duct. Stents keep the narrowed bile duct open without the need for any external drainage tube.

To insert the stent, bile duct widening might be necessary. This involves stretching a segment of bile duct with a balloon to open up the narrowing before and after inserting the stent.

The procedure(s) can be painful and are often performed under general anaesthesia although sometimes under a local anaesthetic and sedation (you are awake but drowsy and the area is numb).

Why do I need a percutaneous biliary drainage?

Biliary drainage is necessary if other tests, such as an ultrasound or a CT scan, show that the bile duct has become blocked. Common causes of obstruction are gallstones or tumours in or around the bile duct, liver, gallbladder or pancreas, but sometimes the cause is unknown. The underlying cause for the obstruction may only become evident once the biliary drainage has been carried out.

Are there other options?

In some cases, as an alternative to percutaneous drainage, biliary drainage can be carried out by passing a flexible telescope, or endoscope, into the small intestine (duodenum) and inserting a drainage catheter into the bile duct that way.

The doctors in charge of your care and the radiologist doing the procedure will have discussed the situation, and will have agreed on the best approach. 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 perform the procedure and where will it take place?

The procedure will be performed by an interventional radiologist. This is a doctor specialising in minimally invasive treatments using image guidance. Interventional radiologists are trained to use diagnostic imaging equipment, such as x-ray and ultrasound, to guide various instruments during a procedure. They are assisted by radiographers (who are highly trained to carry out x-rays and other imaging procedures) and nurses.

The procedure will take place in the Interventional Radiology Suite in the Radiology Department in a room especially adapted with x-ray and ultrasound equipment.

How do I prepare for percutaneous biliary drainage?

You will be an inpatient in the hospital. You will be asked **not to eat for 6 hours beforehand**, although **you may drink water up to 2 hours before** and take your usual medications. A cannula will be inserted in a vein in your arm and intravenous antibiotics will be given. You will be asked to put on a hospital gown and will be taken to the Radiology Department.

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

What happens during the procedure?

You will lie on the x-ray table, generally flat on your back. You will have monitoring devices attached to your chest, arm and finger and will receive oxygen through small tubes in your nose.

If you are having be given a general anaesthetic you will be put to sleep and connected to a ventilator. After this you will not be aware of the procedure being performed.

If you are not having general anaesthesia, you will be given sedatives and painkillers intravenously through a cannula in your hand.

The interventional radiologist will keep everything sterile and will wear a theatre gown and operating gloves. The skin of your lower chest and abdomen will be cleaned with antiseptic and the rest of your body will be covered with a special fabric called a theatre drape.

The radiologist will use an ultrasound scanner to decide on the most suitable point for inserting the fine plastic tube (the drainage catheter). This is generally between two of your lower ribs, on the right side or in the upper part of your abdomen in the middle. Then your skin and edge of the liver will be numbed with local anaesthetic. When the local anaesthetic is injected, it will sting to start with, but this soon passes off, and the skin and deeper tissues will then be 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 standing next to you and looking after you. If the

procedure does become painful, then they will be able to give you more painkillers through the cannula in your hand or arm. Generally, placing the catheter in the liver only takes a short time, and once in place it should not hurt at all.

When the radiologist is sure that the needle is in a satisfactory position in one of the bile ducts, a guide wire will be passed 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.

What is involved in fitting a stent?

In some cases, a permanent metal tube, called a stent, may be placed across the blockage of the bile duct. A temporary external catheter may be left in place, attached to a drainage bag. This will be removed after a few days when the stent has expanded fully and the bile is draining internally through the stent into the bowel. Usually the passage that has been made through the liver will be intentionally blocked using small pellets of sponge to reduce the risk of bleeding and bile leakage around the liver.

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 during or after the procedure.

How long will the procedure take?

Every patient's situation is different, and it is not always easy to predict how complex or how straightforward the procedure will be. Usually the procedure takes between 1 and 2 hours. As a guide, expect to be in the Radiology Department for about 2-3 hours altogether.

What happens afterwards?

You will be taken to theatre recovery (if you have had a GA) or back to your ward (if you had sedation) on a trolley. Nurses in recovery 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 take care of this. You should not 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. However, you will be able to lead a normal life with the catheter in place (except submerging in water i.e. bath). The bag needs to be emptied fairly frequently, so that it does not become too heavy. The nurses on the ward will measure the amount of bile draining into the bag as part of your general fluid management.

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 generally a medium risk procedure and complications can arise.

It may not be possible to perform the procedure. Often this is because, even though the duct is blocked, the bile ducts in the liver may not become dilated and therefore it is difficult to place a needle into an undilated bile duct. If this happens, your doctors will arrange another method of overcoming the blockage.

Sometimes, there is a leak of bile from the bile duct where the tube has been inserted, resulting in a 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 an additional percutaneous drainage procedure.

Patients with jaundice are more likely to have difficulties with blood clotting and there may be bleeding from 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.

Obstructed bile ducts often contain infected bile. The drainage procedure is needed to treat the infection but can itself result in the infection worsening and going into the blood stream (sepsis). We try to prevent this by giving intravenous antibiotics.

A nationwide registry showed that the mortality (risk of dying) whilst in hospital or in the 30 days after a percutaneous biliary drainage or stent insertion was around 16%. This reflects the seriousness of the complications and the poor health of some of the patients having these procedures. Despite this, the procedure is usually safe and results in an 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.

Please call your GP if you experience any of the following:

- Recurrence of jaundice.
- Temperatures, feeling shivery or other indications of infection.

Other sources of information

British Society of Interventional Radiology www.bsir.org/patients/biliary-drainage-and-stenting/

Any other questions?

If you have any other queries please telephone the Radiology Department on 0118 322 8368 or email rbft.radiologyadmin@nhs.net.

Further information

Radiology Department (appointments) Tel 0118 322 7991.

To find out more about our Trust visit www.royalberkshire.nhs.uk

Please ask if you need this information in another language or format.

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