

Percutaneous transhepatic cholangiogram (PTC) drainage and stent

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Aim of the patient information

This patient information tells you about having a percutaneous transhepatic cholangiogram (PTC) drainage and stenting. It explains what is involved and what the possible risks are. It is not meant to replace discussions between you and your doctor, but can act as a starting point. If you have any questions about the procedure please ask the doctor who has referred you or the Interventional Radiology department.

What is a Percutaneous transhepatic cholangiogram (PTC) and drainage?

A percutaneous transhepatic drainage is a procedure in which a small plastic tube (drain) is inserted into the liver through the skin to drain the bile. This procedure is usually combined with taking pictures of the bile ducts to see where the blockage might be, which is known as a cholangiogram. This procedure is performed under ultrasound and X-ray guidance using a dye (contrast agent), which usually contains iodine.

What is a stent?

It is not always possible to insert a stent. A stent is a special device made of metal mesh that is inserted through the PTC drain and placed across the narrowing or blockage and remains in the bile duct to keep it open. Stents can be inserted under image guidance through the PTC drain (as described here) or in endoscopy via the gut. A stent insertion tends to be a separate procedure to the PTC drain insertion. Usually the bile needs to be given time to drain, to reduce inflammation and improve the chances of stent insertion being successful.

Why do you need a PTC and drain?

Biliary drainages are typically performed because you have become jaundiced (yellow) and extremely itchy. This is because the bile cannot flow normally into the gut and the condition makes you susceptible to infection.

Other imaging that you probably have had performed, such as an ultrasound scan or a computed tomography (CT) scan, will have shown that there is a blockage or leak within the bile ducts. The doctors looking after you have decided that you need a PTC and drainage to obtain more information about your problem. The information gained will help the doctors plan the treatment of your condition.

Why do you need a stent?

Imaging tests have shown that you have a blockage in your bile duct. You will have already had a PTC drain inserted to relieve the blockage. While a PTC drain can be a permanent solution, a stent offers an internal solution without the need for a drain and drainage bag on the outside.

Who has made the decision?

The consultant in charge of your care and an interventional radiologist feel that this is the best option. However, you will also have the opportunity for your opinion to be considered and if, after discussion with your doctors, you no longer want the procedure, you can decide against it.

Are there any risks?

PTC drainage and stents are safe procedures, but as with any medical procedure there are some risks and complications that can arise.

If the bile is infected, although you may be on antibiotics, there is a small risk that infection might be released into your bloodstream (sepsis), making you unwell. There can be a small skin infection at the drain site which can usually be treated with antibiotics.

There is a risk of bleeding, though this is generally very slight. If the bleeding were to continue, then it is possible that you might need a blood transfusion. Very rarely, an operation or another radiological procedure is required to stop the bleeding. A small bruise (haematoma) around the site of the drain can occur, but this is quite normal. The bruise might be sore for a few days but will disappear in a few weeks.

Rarely there is a bile leak, resulting in a small collection inside the abdomen. If this becomes a large collection, it may require draining.

There are important structures near the liver e.g. bowel, lung, kidney. This is why this procedure is performed using image guidance so these can be avoided. It is very important that you try to remain as still as possible, otherwise there can be a risk that these structures could be injured.

Very rarely, the interventional radiologist will be unable to place the drain or stent satisfactorily. If this happens, you may require an alternative procedure to overcome the blockage or a repeat procedure.

During the procedure you will receive a dose of radiation as a result of the X-rays used. There is a possible risk of cancer induction from exposure to X-rays. However, we are constantly exposed to radiation from the air we breathe, the food we eat, the ground and from space. This is known as background radiation and has a cancer risk of around 1 in 10,000 per year. Having the procedure could result in you receiving an additional dose of radiation equivalent to a few years of background radiation. The associated risk of possible cancer induction from receiving a dose of radiation equivalent to a few years of background radiation is considered to be low. Your doctor has agreed that this procedure is the best examination for you compared with others and that the benefit of having it outweighs the risks from radiation.

In extremely rare cases, usually in those patients who are very unwell, a severe complication such as a significant bleed or sepsis can lead to death.

Despite these possible complications, the procedure is normally very safe and will almost certainly result in an improvement in your medical condition. Leaving a bile blocked can be detrimental to your health.

Are you required to make any special preparations?

A PTC and drainage is usually carried out as a day case procedure. Sometimes you may be required to stay overnight. The procedure is performed under local anaesthetic. If you are not already an inpatient you will be asked to attend the ward early in the morning so all required paperwork can be completed. You will also be asked not to eat for four hours before the procedure, although you may take small sips of water up to an hour prior to the procedure. You may receive an antibiotic prior to the procedure.

You may be sent a blood form and asked to arrange a blood test prior to the procedure to check your bloods are within safe limits to have the procedure.

If you are taking anti coagulation or anti platelet medication, such as warfarin, you will be given instructions detailing if this medication needs to be stopped and for how long. If you have not been given this information please contact the Interventional Radiology department.

If your blood clotting is abnormal, you may be given special blood transfusions to try and correct this. If you have any concerns about having blood transfusions, you should discuss these with your doctor.

If you have previously had a reaction to the dye (contrast agent) or a local anaesthesia please contact the Interventional Radiology department.

If you are not staying overnight you should have someone to drive you home following the procedure. Someone should be at home with you for 24 hours following the procedure. If you do not please let the Interventional Radiology department know.

Who will you see?

A specially trained team led by an interventional radiologist who has special expertise in reading the images and using imaging to guide catheters and wires to aid diagnosis and treatment.

Where will the procedure take place?

In the Interventional suite, which is located within the X-ray department and is similar to an operating theatre.

What happens during the procedure?

Before the procedure, a member of the interventional team will explain the procedure and ask you to sign a consent form. Please feel free to ask any questions that you may have and remember that even at this stage, you can decide against going ahead with the procedure if you so wish.

On the ward you will be asked to get undressed and put on a hospital gown. A small cannula (thin tube) may be placed into a vein in your arm in case you need any medication.

You will lie on the X-ray table, generally flat on your back. The X-ray machine will be positioned above you. You may have monitoring devices attached to your arm, chest and finger.

Your skin at the region of interest, usually upper abdomen, will be cleaned with a cold antiseptic and you will be covered with sterile drapes.

The skin and deeper tissues will be numbed with local anaesthetic. A small incision will be made. Using ultrasound guide a needle will be placed inside the liver/biliary system. A dye (contrast agent), which usually contains iodine, is injected to identify the correct location on X-ray. A guide wire will be inserted to allow the small plastic

tube (drain) to be placed. This drain will then be fixed to the skin surface with a dressing and attached to a drainage bag.

During stent insertion local anaesthesia is not usually required as no new incision is needed. A dye (contrast agent) is injected through the PTC drain to identify the correct location on X-ray. If possible a wire will be passed across the blockage, followed by the stent. Sometimes it is not possible for the blockage to be passed. Depending on the final images sometimes the PTC drain may be left in the liver and clamped (not drainage). This will be removed at a later date if everything is working normally. An appointment for this will be arranged.

Once the procedure is finished you will then be assisted back on to your hospital bed.

Will it hurt?

When the local anaesthetic is injected, it will sting for a short while, but this soon wears off. Unfortunately, it may hurt a little for a very short period of time while the needle is placed into the liver during the PTC drain. If required the pain can be controlled with painkillers. When the drain or stent is placed, you may get a dull ache in the right shoulder.

How long will it take?

Every patient is different. Expect to be in the radiology department for about 1 to 2 hours.

What happens afterwards?

You will be taken back to your ward. Nursing staff will carry out routine observations. You will generally be required to stay in bed, initially lying flat. If you have an issue lying flat please contact the Interventional Radiology department. After which you will be allowed to sit up, then to walk around the ward, until you have recovered. If you are going home you are usually ready to go home 6 hours post procedure. You will be informed following the procedure about dressing/drain care and when normal daily activities should recommence.

The PTC drain remains in place in your body for the time being and will be attached to a drainage bag. You will be able to carry on a normal life with the catheter in place. Once the bile is being drained, your jaundice (yellow colour) and itching will improve and you will feel much better.

What happens next after a PTC drain?

This depends on what the cause of the blockage is but it is likely that you will have more pictures taken of the bile ducts. This will be to check whether after draining all the bile the narrowing or blockage can be opened. This may be with a small plastic tube or metal tube (stent). These can be inserted under X-ray guide as described in this patient information or with endoscopy. The doctors looking after you will be able to discuss your options with you.

If you have any concerns after discharge; for non-urgent issues please contact your GP or 111, for urgent issues please come to A&E.

Finally, some of your questions should have been answered by this patient information, 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.

Interventional Radiology

Pilgrim Hospital: 01205 445486

Lincoln County Hospital: 01522 573266

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