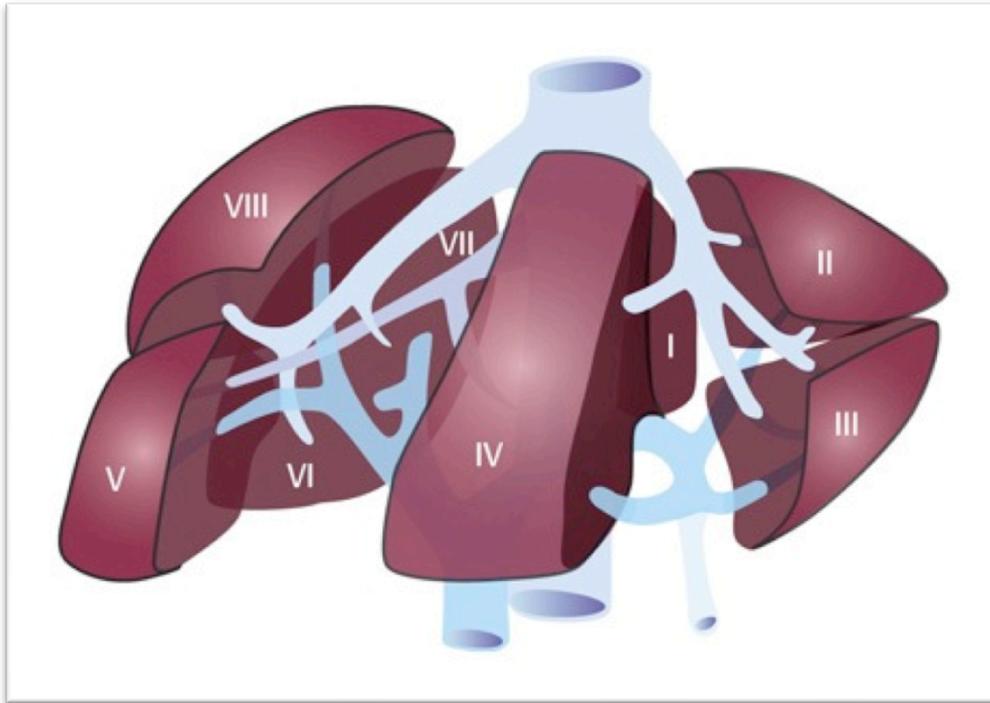


Operations on the liver



The liver is made up of 8 segments. Segments I-IV make up the left lobe and V-VIII make up the right lobe

Having a liver resection

Let us assume you (the reader) are going to have a liver resection. The following section attempts to answer some of the questions you may have in mind, and the answers are addressed to you.

What is going to be done at the operation?

The most common operation we perform on the liver is to remove a part of it that has developed a tumour. This is called a liver resection (or a hepatectomy). The liver is made up of two halves called the right lobe and the left lobe. If the entire right lobe is to be removed, that is called a right hepatectomy, and if the left lobe is to be removed that is a left hepatectomy. Or the surgeon may just cut away the tumour, taking with it some surrounding normal liver tissue. If the tumour is near the gall bladder, or if the gall bladder is in the way, then the gall bladder is likely to be removed as well.

How does my body cope if I lose a part of my liver?

There is a lot of spare capacity in the liver. The liver can regenerate itself, and grows back to near-normal size within six to eight weeks. If your liver is healthy, you will be able to cope with removal of up to two-thirds of your liver. If there is cirrhosis or chronic liver disease, surgeons tend not to remove large portions of the liver.

What does having this operation involve?

Let us break that up into what happens before during and after the operation.

- **Before the operation**

You will already have had different tests and scans. Once you are admitted for surgery, some more tests may be done, usually to confirm that you are well enough for the anaesthetic. These include blood tests, an ECG, sometimes a chest x-ray and tests of lung function. A member of the surgical team will have a discussion with you about the operation, after which you will be required to provide written consent for the operation to go ahead.

The day before your operation (or on the morning of your operation), the anaesthetist will come and see you. It is important that you ask the nurses and the doctors any questions that you may have. The doctors will have to decide whether you will need a bed on the intensive care unit (or the high dependency unit) for your recovery immediately after the operation. Be warned that the availability of such a bed can only be confirmed on the morning of the operation, and very rarely, if there is no intensive care bed on the day, your operation may get postponed.

You can usually have a normal supper the night before your operation. The last time you may eat is six hours before your operation, and you may drink water up to two hours before the operation. If you are diabetic, you will be put on a regularly monitored and adjusted dose of insulin (called a "sliding scale"). When it is time for your operation you will have to put on some stockings (which reduce the risk of blood clots forming in your leg veins), change into a theatre gown, remove any jewellery, dentures and glasses, and go to the operating theatre with a nurse or an attendant.

- **The anaesthetic**

In the anaesthetic room, you may first receive an epidural. This involves placing a very thin plastic tube into your back, near the spinal cord, and then inserting a drip with medication that will reduce your pain after the operation. You will have an opportunity to discuss the pro's and con's of this with the anaesthetist beforehand. If you do not have an epidural, there are other good ways of controlling pain as well. The most common is called PCA or patient-controlled analgesia where you can give yourself a dose of pain-relief through a tube in your arm when you feel pain. After the epidural, you will be given an injection that will make you go off to sleep. The anaesthetist will then place a breathing tube in your airway, place drips into your arm veins, and into a large vein in the neck, and also place a very fine needle into one of your arteries. You will have a catheter to drain your urine, and a tube into your nose draining your stomach. Then the actual operation will start.

- **The operation itself**

A fairly large cut (or incision) will be made in your upper abdomen. The surgeon will expose the liver, assess that it is safe to remove the tumour, temporarily block the inflow of blood into your liver to reduce bleeding, and then cut away the part that is to be removed, using a special ultrasonic scalpel. Once the procedure is finished and all bleeding has been controlled, blood flow to the liver will be restored and the wound stitched up.

- **After the operation**

When you wake up, you may find yourself in the intensive care or high dependency unit, or you may be back in the ward. There will be an oxygen mask on your face. In addition to the drips going into your forearms and your neck, the tube in your nose and the urinary catheter, there will be one or two plastic tubes (drains) emerging from your tummy, which will remove any unwanted ooze. You will probably feel some pain and sickness, but we will give you medicine for this.

- **Can something go wrong?**

Every operation carries some risks, and so will yours. A general anaesthetic carries some risk, and there is a small chance that you may develop problems relating to your heart or your breathing. If you already have heart disease or lung disease, this risk is increased. The various lines (needles) and catheters that are put in may cause some bleeding or local injury or may introduce infection. They are, however, put in with great care and with sterile precautions. If you wish to receive more information on this, do ask your anaesthetist.

Bleeding during or after the operation may happen after any surgery. Blood will be cross-matched and kept available should you need a transfusion. Transfusion itself carries some risks (reactions from a mismatch, transmission of viruses) and is not given except when absolutely necessary. Most operations on the liver do not require a blood transfusion.

Infection is another possible complication, and can involve the wound, or the inner organs. You will receive antibiotics around the time of surgery to try and prevent this from happening. The risk is increased if any bile leaks from the cut surface and collects deep to the wound.

If you have a large portion of your liver removed, sometimes you may develop a degree of liver failure in the immediate aftermath of the operation. This may make you jaundiced for a time, and interfere with your blood clotting. Such liver failure is usually short-lived and the liver makes up for the loss in a matter of days or weeks.

The pain from your wound will make coughing difficult. Patients sometimes develop chest infection from retained phlegm. Deep breathing, clearing out the phlegm in your throat and chest and working with the physiotherapist is very important after your operation. Lying still in bed can lead to the formation of clots in the legs (called deep vein thrombosis or DVT) and these can sometimes float off in the circulation and reach the lungs (called pulmonary embolism or PE). These are serious complications, and we try hard to prevent them. You will be asked to wear elastic stockings, and will receive a mild dose of an anti-coagulant to reduce the risk of clot formation. You can help by moving your legs in bed, and getting out of bed as soon as your condition will allow after the operation.

This is NOT a complete list of everything that can possibly go wrong, but a general discussion of the more common problems associated with liver surgery. If you have specific concerns or wish to receive more information about possible complications, do ask.

What are my chances of surviving the operation?

Information collected from hospitals all over the world indicates a mortality rate of less than 5% from major liver surgery. In other words, you have at least a 95% chance of surviving your operation.

Will I be cured?

If the operation is to remove a cancer, that question is difficult to answer immediately. After the operation we would have to wait and see. Liver resections for cancer are usually carried out with the intent to cure. But there will undoubtedly be a significant risk of the tumour coming back, and only time will tell if you have been cured. The pathologist's report on the pieces of tissue that are removed will give us some clues. This report usually takes seven-10 days to come through, and if it is not ready by the time you leave hospital, your surgeon will discuss it with you at your first visit to the outpatient clinic a few weeks after your surgery. He/she will also, at this time, discuss if any further treatment is required. If you wish to receive more information on this, please ask your surgeon.

Sometimes, the surgeon may find that the cancer cannot be safely removed. For example, the growth may be larger than the scans suggest, or there may be some other obstacle in the way. In such situations, the aim will be to do everything possible to relieve your current symptoms and prevent future problems. This may involve the creation of a join between the bile duct and the bowel to relieve or prevent jaundice (and this goes with an additional join between bowel and bowel). This is often referred to as a biliary bypass procedure.

Your operation may be carried out not for cancer but to relieve symptoms caused by a benign tumour. Jaundice is usually relieved quite successfully. In the case of chronic pain, it is difficult to predict how successful the operation will be in relieving pain. You would have to wait and see.