

# **About liver resection**

*Surgical removal of  
part of the liver*

*A guide for patients and relatives*



**Removal of a part of the liver is a major operation. If you or someone close to you has been advised to undergo this procedure, this booklet is for you. This booklet has been prepared to tell you about the operation. Information about the benefits and risks involved will help you make an informed decision.**

**It is important to remember that each person is different. This booklet cannot replace the professional advice and expertise of a doctor who is familiar with your condition. You may have questions that this booklet does not cover; you should discuss these issues with your surgeon.**

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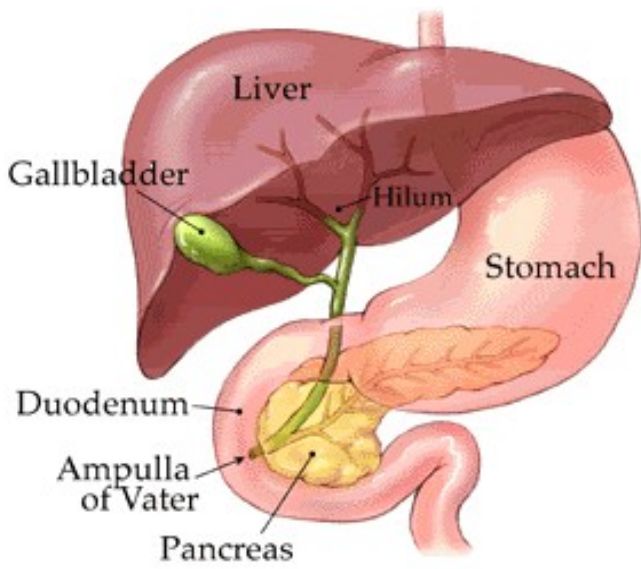
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## ***What is the liver?***

The liver is a large organ that lies on the right side of the upper abdomen, under the rib cage. It has many functions related to body metabolism and is very important to health. One of its functions is to produce a yellow-green fluid called bile. Bile flows down a tube called the bile duct to the intestine, where it mixes with food and helps digestion. The gall bladder is a small sac attached to the side of the bile duct. The gall bladder stores bile and pushes it down the bile duct.

The liver has right and left lobes. An artery (hepatic artery) and a vein (portal vein) carry blood to the liver. Blood from the liver flows through veins (hepatic veins) back to the heart.



## ***What is liver resection?***

Liver resection is the surgical removal of part of the liver. The commonest reason for removing part of the liver is to take away a cancer. **Your specialists, including your liver surgeon, the radiologist (X-ray doctor) and oncologist (chemotherapy specialist), have reviewed the results of your tests and believe that it may be possible to remove the cancer completely.**

The body can cope with removal of up to two-thirds of the liver. The liver has the capacity to grow back. Within 3 months of your operation, the remainder of your liver will have grown in size to near normal. The operation is named according to the portion of liver that is excised. For example, removal of the right side of the liver is called right hemihepatectomy. The gall bladder is often removed at the same time.

## ***When is liver resection recommended?***

The commonest reason for performing a liver resection is to treat cancer that has spread to the liver (a secondary) from a primary cancer in another part of the body. **The operation is also used to treat cancers that arise in the liver, the bile duct or the gall bladder. It may occasionally be needed for benign (not cancerous) liver**

**problems, such as liver cysts. Occasionally, it is not possible to be absolutely sure about the nature of the problem. You may be advised to have the operation so that the abnormality is removed, as this may be the best way to make a definite diagnosis.**

## ***What alternative treatments are available?***

- **Chemotherapy**

Chemotherapy can shrink the cancer or delay its growth.

Chemotherapy involves regular injections of one or more drugs given into your vein, over a period of 3-6 months. The oncologist (cancer chemotherapy and radiotherapy specialist) will answer any questions that you have about this.

- **Radiofrequency ablation (RFA)**

Heating can destroy tumour cells. The radiologist performs this procedure, which takes 15-45 minutes, and is carried out under either general anaesthesia or a combination of local anaesthesia and sedation. RFA involves putting a needle into the liver through the skin. The position of the tip of the needle is confirmed to be in the tumour by a scan. The tip of the needle is then heated with an electric current. This destroys an area of tissue, including most of the cancer. Your recovery is quick and it avoids a major operation. However, it cannot reliably destroy all the cancer. Therefore, it is usually used for tumours that are not suitable for surgery. Only tumours of a certain size and in a certain location are suitable for RFA.

- **High intensity focussed ultrasound ablation (HIFU)**

A powerful ultrasound machine can focus shock waves on the tumour. This destroys cancer cells and has the potential to destroy cancer deposits in the liver. This treatment is still experimental, and we are not certain of its long-term ability to cure cancers. You may be offered HIFU, but only as part of a trial, along with other options.

Many patients benefit from a combination of the above treatments. Your specialists will jointly consider all options and advise what would be best for you. The liver outpatient clinic at the Churchill Hospital is a multidisciplinary team that includes liver surgeons, oncologists and radiologists. You will benefit from having a joint opinion from this team of experts. Our aim is to use one or more of these treatments, often combining them, to provide you with the best chance of survival.

Chemotherapy can be given at all the NHS hospitals in the Thames Valley Cancer Network, so you do not need to travel to Oxford for treatments. Liver surgery, radiofrequency ablation and HIFU are only available at Oxford.

## ***What are the benefits of surgery?***

The operation aims to completely remove the cancer, and give you the best chance of cure. The other non-surgical treatments help to delay the progress of the cancer, but are unlikely to cure it.

### ***Will surgery improve my survival?***

Without surgery, very few patients with cancer involving the liver survive for more than 5 years. A successful operation can improve your chance of long-term survival to 25%-45%. Despite a successful operation, there is a risk of the cancer recurring. The cancer recurs in at least two-thirds of patients. The chance of the cancer recurring depends on the type of tumour that you have. If you wish, your surgeon can discuss the likely outcomes in your case.

### ***What are the risks and possible complications?***

The operation is a major procedure, with associated risks. Nowadays the operation has become much safer. At specialised centres like Oxford where a large number of these procedures are performed by selected surgeons, over 97 out of 100 patients will survive the operation.

Possible complications include:

- Those related to general anaesthesia
- Chest infection and possibly needing support on a breathing machine (ventilator) in the intensive care unit
- Bleeding during or after the operation, which may require blood transfusions or a further operation
- Wound infection
- Blood clots forming in the legs
- **Bile leak** (1 in 10-15 patients)

After your operation, bile may leak from the cut surface of the liver. Your surgeon may leave a drain tube in the area of the operation, in order to drain out any fluid that collects inside. In most patients who develop leakage of bile, this heals on its own. Some patients need further intervention to stop the leakage.

- **Jaundice** (1 in 5 patients)

Some patients will develop yellowing of the eyes and skin after the operation. This is due to excess bile that the remaining liver is unable to cope with. It is often associated with accumulation of excess fluid in the abdomen and legs. This problem is temporary, until the liver grows and recovers normal function. The risk of your developing jaundice depends on the amount of your liver that is left behind, and how well it functions.

## ***What anaesthetic will I have?***

Our normal anaesthetic technique for this procedure is a combination of general and epidural anaesthesia. During general anaesthesia, a tube is put into your windpipe, so it is not uncommon to get a sore throat after the operation.

**The epidural is a way of blocking the nerves that supply the area of the operation. It is a fine tube that is the anaesthetist will place in your back, next to the spinal cord nerves, before you go to sleep with the general anaesthetic. It remains in place for 3-5 days after the operation. The tube is very fine, so that you can lie on your back. The epidural helps you to breathe deeply, which would be difficult to do if you were in a lot of pain. You will be able to sit and walk with the epidural. The epidural is very safe. The chance of any permanent nerve damage from an epidural is very rare, less than 1 in 10,000.**

**We will give you a PCEA (patient-controlled epidural analgesia) button to control the amount of painkiller that you get. You can press the button whenever you need more pain relief, and a computerised pump will deliver it from a syringe into the epidural. The pump is designed to prevent an overdose, so for a few minutes after one dose, it will not deliver another dose.**

**Your anaesthetist is also responsible for replacing fluids and blood during the operation. About one in ten patients will need blood transfusions during or after the operation.**

**You will have a chance to meet the anaesthetist and ask any questions on the day of the operation.**

## ***When is surgical removal of the cancer not possible?***

Sometimes, problems are discovered during the operation that could not be identified before surgery. This includes spread of the cancer to other areas of the liver, or to other sites outside the liver. Such findings occur in 1 or 2 out of 10 patients. If confined to the liver, it may still be possible to remove all the cancer by removing more of your liver than was planned. Surgery is not helpful if all the cancer cannot be removed. In that case, your surgeon will not remove any of the cancer.

## ***How do I prepare for surgery?***

Try to stop smoking as soon as you know that you need an operation. You will also need to plan for any additional help you may need at home while convalescing, particularly if you live alone. You will be called to the preassessment clinic before the operation. Please bring a list of your medication with you to the hospital. The preassessment clinic will give you further instructions regarding your admission.

## ***What happens after the operation?***

You may need to go to the Intensive Care Unit (ICU) after the operation. Therefore, the operation will only proceed if there is a bed available for you in the ICU. You will return to the ward once your condition is stable, usually the day after surgery. You will be able to start eating within 2-3 days. It is important that you get out of bed and move about as soon as possible. The physiotherapist will assist you with breathing exercises. Deep breathing and coughing are important in order to prevent a chest infection.

## ***How long will I be in hospital?***

Most patients are able to go home 5-10 days after the operation. The ward nursing staff will give you painkiller medication to take at home as needed, and arrange a follow up visit at the surgical out-patient clinic.

## ***When can I return to normal activities?***

On your return home, you will find movements and activity difficult for the first few weeks, and you are likely to require help. You may also feel low in mood, but this will resolve shortly. It is important to keep as active

as possible, but also to rest. You may return to normal activities after 2-3 months. There are usually no restrictions on activities after that time.

### *Will I require any other treatment for my cancer?*

In some cases, the survival rate can be improved by combining other treatments, such as chemotherapy. We will discuss the option of having chemotherapy with you. You may need to see an oncologist, a specialist at medical treatment of cancers with chemotherapy. You will be regularly followed up, either at the liver clinic at Churchill Hospital, or at your local hospital, or both.

### *What are long-term consequences of the operation?*

There are few long-term consequences of liver resection. You may feel some numbness around the surgical scar. This is a natural consequence of having to divide small nerves when cutting muscles. There are no permanent effects on your lifestyle or diet after surgery.

### *When should I call my doctor?*

Call your doctor if you:

- develop a fever
- get an unusual degree of pain

- vomit or cannot eat properly
- become jaundiced
- your scar becomes red and painful, or has a smelly discharge

*For further information:*

- [www.cancerbacup.org.uk](http://www.cancerbacup.org.uk), tel: 0800 181199
- [www.cancerhelp.org.uk](http://www.cancerhelp.org.uk)
- [www.pancreaticcancer.org.uk](http://www.pancreaticcancer.org.uk)
- [www.macmillan.org.uk](http://www.macmillan.org.uk), tel: 0845 6016161
- National Cancer Information Service, tel: 0207 6132121
- Cancer Information Centre (Churchill Hospital), tel: 01865 225688

*Useful contact numbers:*

John Radcliffe Hospital: 01865 741166

Churchill Hospital: 01865 741841

Secretaries to Mr Soonawalla/Prof Friend: 01865 220929

Liver surgery nurse specialists: 01865 857948

or call 01865741166 and ask for bleep 1891/1977

Preassessment clinic appointments: 01865 857635

Ward 6F (Level 6): 01865 221840

Intensive care unit (Level 1):

01865 220626



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