Plymouth Hospitals NHS
NHS Trust

Liver Surgery for Primary Liver Cancer (Hepatocellular Carcinoma)

Information for you and your family

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Introduction

On the advice of your surgeon, you are coming into hospital for an operation on your liver. Specifically this booklet is about surgical removal of primary liver tumours.

We appreciate that life may feel like an emotional roller coaster at the moment. You may have many questions and anxieties regarding the operation, your hospital stay, and financial concerns.

This booklet has been prepared to address many of these questions and more. It will hopefully supplement the information given to you by your doctors, ward nurses and specialist nurses. It may not cover all your concerns so if you have any other questions or worries after reading this booklet, please don’t hesitate to contact one of the staff listed on the last page.

This booklet is also meant for your relatives and close friends, to answer their questions and concerns, and to help them understand the treatment you will be undergoing.

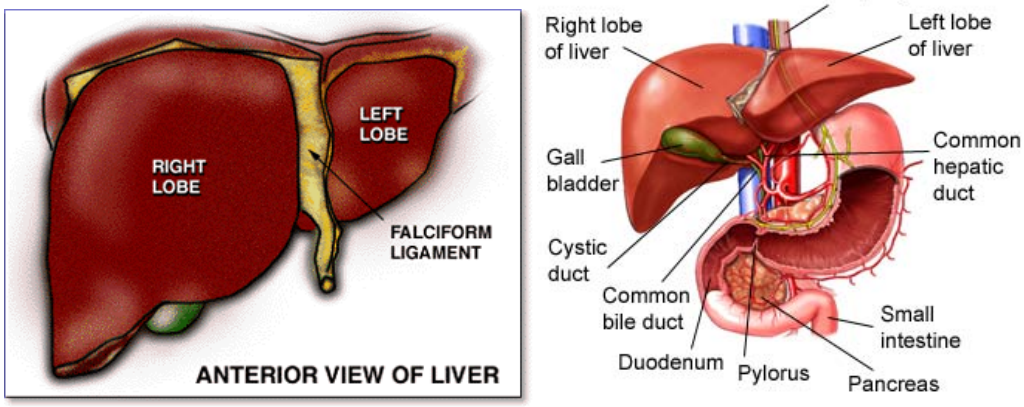
What is the liver?

The liver is the largest organ in the body. It is surrounded by a fibrous capsule and is divided into sections called lobes. It is situated in the upper part of the abdomen on the right-hand side of the body and is surrounded and protected from injury by the lower ribs.

The liver is an extremely important organ that has many functions. This includes producing proteins that circulate in the blood. Some of these help the blood to clot and prevent excessive bleeding, while others are essential for maintaining the balance of fluid in the body. The liver also destroys harmful substances such as alcohol, and gets rid of waste products. It does this by breaking down substances not used by the body so that they can be passed out in the urine or stools.

The liver is also responsible for breaking down food containing carbohydrates and fats, so that they can be used by the body for energy. It stores substances such as glucose and vitamins so that they can be used by the body when needed. The liver also produces bile, a substance which breaks down the fats in food so that they can be absorbed from the bowel.

The liver is connected to the small intestine by a tube called the bile duct. This duct takes the bile produced by the liver to the intestine.



Primary Liver Cancer

Primary liver cancer is quite rare in the UK and the rest of the western world, but the number of people developing it is increasing.

The most common kind of primary liver cancer is called **hepatoma** or **hepatocellular carcinoma (HCC)**, and arises from the main cells of the liver (the *hepatocytes*). This type is usually confined to the liver, although occasionally it spreads to other organs. There is also a rarer sub-type of hepatoma called **Fibrolamellar hepatoma,** which may occur in younger people and is not related to previous liver disease.

Causes of Primary Liver Cancer

In the western world, most people who develop hepatoma usually also have a condition called cirrhosis of the liver. This is a fine scarring throughout the liver which is due to a variety of causes including infection and heavy alcohol drinking over a long period of time. However, only a small proportion of people who have cirrhosis of the liver develop primary liver cancer.

Infection with either *hepatitis* B or *hepatitis* C virus can lead to liver cancer, and can also be the cause of cirrhosis, which increases the risk of developing hepatoma.

People who have a rare condition called *haemochromatosis*, which causes excess deposits of iron in the body, have a higher chance of developing hepatoma.

Signs and symptoms

In the early stages of primary liver cancer there are often no symptoms.

People sometimes notice a vague discomfort in the upper abdomen that may become painful. This is due to enlargement of the liver. Pain can sometimes also be felt in the right shoulder. This is known as referred pain and is due to an enlarged liver stimulating the nerves beneath the diaphragm which are connected to nerves in the right shoulder.

Loss of appetite, weight loss, feeling sick and weakness and tiredness are common symptoms. Some people may also develop a high temperature and feel shivery.

Jaundice If the bile duct becomes blocked, bile produced by the liver will flow back into the bloodstream, causing jaundiced. This will cause the skin and whites of the eyes to go yellow and may make the skin very itchy. The itching may sometimes be relieved by antihistamine tablets or other drugs, which your doctor can prescribe. Sometimes the jaundiced itself can be relieved. This is done by inserting a narrow tube called a stent into the bile duct to keep it open and to allow the bile to flow normally into the intestine.

Other signs of jaundice are dark-coloured urine and pale stools (bowel motions).

Treatment

Your plan of treatment will take into account a number of factors:

- If the cancer is a primary or secondary liver cancer
- Your general health
- The type and size of the cancer
- If it has spread beyond the liver
- If the liver is affected by any other disease, such as cirrhosis

The available treatment options for primary liver cancer are: **Liver surgery, chemoembolisation, Radio Frequency Ablation and chemotherapy.**

Liver surgery

Surgery is the most effective treatment for primary liver cancer, but this is not always possible due to the size or position of the tumour. It is also not possible to operate if the cancer has spread beyond the liver.

If only certain areas of the liver are affected by the cancer and the rest of the liver is healthy, it may be possible to have an operation to remove the affected part: this is called a **liver resection**. If the liver is severely damaged by cirrhosis it may not be safe to have surgery.

The liver has a unique ability to repair itself. Even if up to three-quarters of the liver is removed it will start to re-grow

very quickly, and may be back to normal size within a few weeks.

Removing the whole liver and replacing it with a liver from another person (liver transplant) is another possible form of treatment for primary liver cancer, but can only be done in a very few cases when the tumour is small.

Chemoembolisation

Chemoembolisation is a specialised procedure in which powerful anti-tumour drugs are delivered directly to the growth by means of the blood vessels (arteries) supplying it. The aim of the procedure is to reduce the size and symptoms from growths within liver. This treatment can be repeated several times. It is carried out in the x-ray department and usually needs a stay in hospital of 24-48 hours. This is a relatively safe procedure but does have risks associated with it.

Radio Frequency Ablation (RFA)

Local ablation of liver tumours involves placing a probe into the tumour and applying an electric current to kill the tumour using heat energy (radio frequency ablation). This usually requires an operation to place the probe. This is the safest treatment option for liver tumours but unfortunately the recurrence rate at the site of the tumour is high (up to 10%) and the technique is not suitable for large tumours.

Chemotherapy

Chemotherapy is the use of anti-cancer (cytotoxic) drugs to destroy cancer cells. It is sometimes used to treat primary liver cancers that cannot be removed. It can prolong survival in most patients. This option is evolving rapidly as

new drugs are developed. Chemotherapy alone however very rarely leads to a complete cure, and most patients will develop recurrent disease. Chemotherapy also has side effects including nausea, diarrhoea and weight loss, although these symptoms can often be controlled with drugs.

When is surgery an option?

Liver surgery is a major undertaking and for some patients with other health problems the risks may be too high, so that one of the other options may be more suitable. It is important that you discuss any questions you may have with your doctor either in the outpatient clinic prior to admission or when the doctors see you on the ward before surgery.

People who you will meet

A Doctor (Surgeon) - Will examine you and ask questions about your illness. He/she will explain the operation to you and ask you to sign a consent form. This indicates that you agree to the operation so make sure you have discussed it fully with the doctor and understand what is involved.

An Anaesthetist- is the doctor responsible for your anaesthetic. He/she will ask you questions about your medical history, what drugs you are on and if you have any allergies. They will also discuss the types of pain control available.

A Liver Nurse Practitioner- She will assess your fitness for surgery and arrange all the relevant tests and paperwork a week or so prior to your surgery date. She will answer any questions you have and provide information on your surgery.

An Upper Gastrointestinal Cancer Nurse Specialist- She will be your key worker throughout your surgical experience and during your follow- up. She is available for advice and information about any queries you have about your surgical journey. She is the main means of communication between all parties involved.

Ward Nurses - Will show you around the ward on arrival, help you settle in, and will discuss factors regarding preparation for your operation. They will provide expert surgical nursing care during your hospital stay and will also facilitate your discharge home.

A Physiotherapist-Will teach you important deep breathing and coughing exercises, which you will be encouraged to do after your operation. These exercises will help your lungs re-expand and help prevent chest infections from occurring. Following the operation the physiotherapist will also help you mobilise out of bed and assist you with your walking, posture, and climbing stairs. He/she will help you to become as fit as possible before going home.

A Dietitian – can advise you on how to maintain a good dietary intake before and after your surgery. If you would like to see a dietician before your operation let the clinic or nursing staff know.

Risks associated with your surgery

Giving your consent

Before you have any treatment your doctor will explain the aims of the treatment to you and you will be asked to sign a form saying you give permission for the hospital staff to give you the treatment. No treatment can be given to you without your consent and before you are asked to sign you should have been given full information regarding the risks

and benefits of the proposed treatment, plus possible alternatives.

Liver resection is a major undertaking and it is important that you understand the risks before undergoing this operation. It is also important that family members are aware of the risks.

Serious complications can occur due to the injury to the liver. These include leakage of bile (a yellow liquid produced by the liver) into the abdomen and post-operative bleeding. Bile leaks can usually be controlled by a drainage tube but a technique called ERCP may be necessary to encourage internal drainage of bile.

Bleeding after a liver resection is a rare problem which may require a second operation and the administration of blood products to promote blood clotting.

Occasionally after removal of more than half of the liver a period of liver failure may occur. This sometimes causes a temporary period of jaundice (yellow discolouration of your skin, eyes and urine).

Minor complications are common and readily treated. These include wound infections and infections in the chest and bladder which usually respond to antibiotics.

These complications are rarely serious or fatal. However, like all major operations liver resection has a risk of death. This risk of death is approximately 2% in the Derriford Hospital series. In other words one in fifty people undergoing liver resection will not survive the operation or the post-operative period.

What will happen if I don't have the surgery?

Left untreated the cancer cells will continue to grow, and could possibly spread to other organs. It is therefore a potentially fatal disease. If you decide not to have the operation, it maybe possible to shrink the tumour by use of chemotherapy or radio frequency ablation.

How can I prepare for the surgery?

Having a liver operation should be viewed as a major physical challenge, perhaps a little like running a long race. Like all physical stresses this is better tolerated if you prepare for the event. The better physical condition you are in at the time of surgery the more quickly you will recover. Some simple steps can help with this:

- Avoid alcohol
- Stop smoking
- Take regular exercise e.g. swimming or walking up to 3 miles a day, gardening is excellent exercise
- Take a healthy diet which should include a balance of red meats, fish, chicken and vegetables. Avoid sweets and minimise consumption of fatty foods such as pies, pasties and puddings.

Your Operation

Your operation will normally happen first thing in the morning. You will not be given anything to eat from 12 o'clock the previous night, but you may be allowed some fluid to drink the morning of the operation. You will have a gown to wear for theatre and if you wear a wedding ring it will be covered with tape. If you have dentures they will be

left on the ward. Relatives may go with you when you are taken on your bed to the operating suite.

The general anaesthetic

Initially you will be taken into an anaesthetic room in preparation for surgery. Your anaesthetist will discuss with you details of the anaesthetic which will usually includes insertion of an epidural catheter. This involves insertion of a small tube into the spine to reduce the feeling of pain.

What does liver surgery involve?

When you are asleep, a horizontal cut is made in the upper abdomen beneath the ribs. The part of the liver containing the tumours is removed. This usually means removing the right or left half of the liver. The operation takes on average 4-6 hours and often requires a blood transfusion.

After the anaesthetic

When the operation is over you will usually be taken to the High Dependency Unit (HDU). If the operation has been complicated or prolonged you may go to the Intensive Care Unit.

Infusions and Catheters

Whilst you are asleep under anaesthetic, drips will be placed in your veins situated in your neck and arms. These will allow you to have any fluids and any drugs required. You will also have a catheter (fine tube) placed into your bladder; this allows urine to drain freely and will be removed as soon as you are mobile.

Drains

You may need one or two drains in your abdomen following surgery. These tubes lead from your abdomen to bottles which drain fluid from around your wound site. These are put in place whilst you are asleep under anaesthetic, and will be removed after several days.

Nasal Tube

Following this type of surgery, the normal movement within the digestive tract stops. For a brief period you may require a naso-gastric tube. This is a fine bore tube inserted via your nose into your stomach, and is put in at the time of your surgery whilst you are asleep. It will help prevent nausea and vomiting.

Prevention of blood clots

Blood thinning injections (Clexane) may be given to prevent clots forming in your legs. During this period lots of blood samples will be taken to monitor the function of your liver and other organs.

Back to the ward

After a brief period in HDU you should return to the general ward to recover. During this time you will gradually begin to eat and drink again (usually within 48 hours). It is normal for your bowels not to work for a while after the operation but bowel function should return after four or five days. The tube draining the bladder will be removed during this period. If you have any difficulty passing urine following this please tell the nurses so that help can be obtained.

Will it hurt?

You will be given a strong painkiller through a fine tube in your back; this is known as an epidural and will help to keep you comfortable. Suppositories may also used as a method of pain control, as this has been found to be very effective. It is very important that you let the nursing staff know if you are in any pain. Once you are able to drink, your painkillers will be gradually changed to soluble tablets. It is advisable to take these regularly to prevent the pain coming back. You will also be shown how to support your wound when you cough.

Personal Hygiene

Initially you will require help with your personal hygiene, however in a few days you will regain your independence. Once your drains have been removed and you are feeling well enough, a nurse will help you have a shower.

Mobilisation

Initially you will be encouraged to get out of bed and sit in the chair, with short walks at frequent intervals. This will help prevent stiffness, bed sores and constipation and help keep your chest clear. You will be given a pair of elastic stockings to wear, to help the blood flow in your legs. You will also be given a small injection of Clexane (anti-coagulant). This will help the blood flow freely around your body and help prevent clots forming.

Wound

Your stitches resemble ‘staples’ and are called clips. They will be removed (around day 10) after your surgery. Dressings around your drains will be renewed daily or when

required. It is important to report if there is any discharge from your wounds so that it may be treated appropriately.

How long will I be in hospital?

Normally you will be in hospital approximately seven days following a liver resection. This period may be longer if there have been complications.

At home

The following information has been designed to assist you following discharge from hospital after liver resection. It covers the main areas commonly asked by patients, but please ask a member of staff if there is any information you require has not been included.

Rest and Activity

It is quite normal to feel very tired after discharge from the hospital, and you will require more sleep than usual. Most people benefit from having a planned “rest time” during the day and actually resting on your bed is more relaxing than using a chair. It is important however to have periods of activity between rests.

Moving and Exercise

Gradually increase the amount of exercise you take. Short walks everyday, gradually increasing in distance over a period of weeks is very beneficial. Movement such as gentle bending and stretching are good but pushing or pulling can cause discomfort, as does standing for long periods of time. Try to avoid these for the first few weeks.

Housework

Light work (e.g. dusting or drying up) can be introduced into your routine when you feel fit and able. It is an excellent form of light exercise, usually possible within the first 1-2 weeks after discharge from hospital. Avoid too much heavy lifting for the first 6-8 weeks after surgery.
Light gardening such as weeding may be done 2 weeks after discharge. Mowing the lawn and heavy digging should not be done for 6-8 weeks.

Alcohol

Avoid alcohol in the early period after surgery as the liver recovers from the operation and begins to regenerate. After your first return visit to the hospital if all is going well it should be possible to return to moderate alcohol consumption. This should be kept within sensible limits however and you should drink less alcohol than before your operation. Remember that certain medications can react with alcohol - always read the label.

Driving

As a general rule, if you feel safe to do an emergency stop you should be able to drive. Also check that you can turn to look behind you without pain from the wound. Begin to drive slowly on quiet roads before tackling a motorway.

Eating and Drinking

Slight loss of appetite following an operation is not uncommon and this usually corrects itself as you progress back to full fitness. Small but appetising meals are recommended and a well balanced diet of high protein and high calorie foods aids recovery. Eat small meals more

frequently if you can't tolerate big meals and snack at bedtime is helpful. Please ask staff for advice if you need it.

Sleeping

Sleep patterns are often disturbed after operation. Changes in routine and restricted movements can disturb sleep. This will gradually improve over the weeks.

Bowel Action

You may experience some changes in bowel habit. Diarrhoea or constipation is not uncommon following surgery and are usually due to changes in diet, activity and the use of some drugs.

If you have severe diarrhoea or constipation, it can be treated so be sure to tell your nurse or GP. Constipation is best treated by taking high fibre foods such as prunes rather than by medication.

Showering and Bathing

It is sensible to have someone else in the house when you take your first shower/bath, even if no help is required. Bathing is not harmful to your wound.

Wound Healing

Healing of your wound will take place over a period of time as all wounds progress through stages of natural healing.

- **do not** pull off scabs as these protect new tissue underneath.
- **seek advice** if the wound becomes very painful, if it starts to discharge or becomes red or inflamed.

- **it is normal** for the wound to tingle, itch or feel slight numb.
- **it is normal** for the wound to feel slightly hard and lumpy.
- **it is normal** to experience a slight pulling around the wound.

Sexual Activity

Resume sexual intercourse once you feel confident. When your health has recovered completely you should be able to return to your normal routine.

Back to Work

This depends on your job and on your recovery. Returning to work can be discussed at your clinic appointment. A time frame of 3 to 4 months after you have returned home is reasonable, but remember this is variable. If you have a physically demanding job this will take longer. If you require advice regarding work and benefits whilst in hospital, ask your nurse who can arrange for you to see a social worker.

Follow-up after your operation

You will be phoned by a nurse specialist soon after discharge who will be able to give some help and advice, and you should raise any problems you have at this time. You will be seen in the outpatient clinic approximately 6 weeks after your operation. At this appointment you will meet both medical and nursing staff and results of laboratory tests will be discussed with you. In the longer term you will be seen approximately every six months. If you don’t normally attend Derriford Hospital these appointments are usually shared with your local hospital.

You will be invited to have periodic scans performed to check for signs of the tumour returning.

Will I need any further treatment?

The surgeon will be able to tell you immediately after the operation some details about what was found and what he did, but it can take two weeks for the laboratories to study the samples sent to them and to interpret the findings. This will give a clearer picture and may enable the surgeon to tell you more clearly about the stage and success of the operation. A few patients may need further treatments such as chemotherapy. More information about this is available from your Upper Gastrointestinal Cancer Nurse Specialist, Claire Downing.

Who can I contact if I have any questions

It is common to have feelings of insecurity after leaving the hospital environment. The whole team are always willing to answer any questions you have, in an open and honest manner. The team includes your Surgeon, junior doctors, Liver Nurse Practitioner, Upper Gastrointestinal Cancer Nurse Specialist, Stonehouse ward nursing staff and physiotherapist.

This whole team can be contacted via either your **Liver Nurse Practitioner Girlie Garcia** or your key worker **Upper Gastrointestinal Cancer Nurse Specialist Claire Downing.** Claire Downing is available to you, your relatives and close friends for any questions, concerns or worries throughout the whole of your treatment and after your treatment has ended. Contact details are listed below and an answer phone is available for messages. Urgent matters should be dealt with by your GP, or by contacting Stonehouse ward directly.

The Mustard Tree - Cancer Support Centre

If you would value the opportunity to talk to someone about how you feel or just want need a break from the usual routine we invite you to visit the mustard tree. The centre is available to anyone affected by cancer at any stage of the illness and offers a comfortable space where you can share your concerns, ask questions and receive support. It is staffed by professionals and trained volunteers many of whom have a personal experience of cancer.

The centre is open Monday - Friday 09.30 – 4.30pm

Mustard Tree:
Cancer Support centre (01752) 763672

Web pages/telephone numbers

Cancerbacup
www.cancerbacup.org.uk (0808 800 1234)

Cancer care society
www.cancercaresoc.demon.co.uk (01794 830300)

Cancerlink
www.cancerlink.org (0808 808 0000)

Macmillan Cancer Relief
www.Macmillan.org.uk (0845601 6161)

This booklet and other local information can be found on www.plymouthhospitals.nhs.uk

Contact details

Stonehouse Ward	**01752 431488**
Mr Stell's secretary	**01752 439288**
Girlie Garcia **Liver Nurse Practitioner**	**01752 517886**
Claire Downing **UGI Cancer Nurse Specialist**	**01752 517905**
Marilyn Bolter **UGI cancer Nurse Specialist**	**01752 517905**
Derriford Switchboard	**0845 155 8155**
Katie Ramos	**01752 431320**

This leaflet is available in large print and other formats and languages.
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