

Liver surgery for cancer



Information for patients

This leaflet aims to provide information for patients undergoing liver surgery for cancer, including the different types of surgery, how to prepare for surgery, the risks of surgery and post-operative advice. If you have any questions or concerns, please speak to a doctor or nurse caring for you.

Confirming your identity

Before you have a treatment or procedure, our staff will ask you your **name** and **date of birth** and check your **ID band**. If you don't have an ID band we will also ask you to confirm your address.

If we don't ask these questions, then please ask us to check.

Ensuring your safety is our primary concern.

Contacts

If you have cancer, you will have met your clinical nurse specialist (CNS), who will be your main contact for medical questions. For appointment or admission queries, please contact the Macmillan support team, liver secretaries, or the outpatient department.

Hepatobiliary and pancreatic (HPB) Cancer CNS:

kch-tr.kch.hpbcns@nhs.net

Hepatocellular carcinoma (HCC) Cancer CNS:

kch-tr.HCC-CNS@nhs.net

Neuroendocrine tumour (NET) Cancer CNS:

kch-tr.NETCNS@nhs.net

Macmillan Cancer Support Workers: 020 3299 5959

kch-tr.kingscancersupport@nhs.net

Liver Secretaries (for benign patients): 020 3299 4979 – option 2

kch-tr.liverppc@nhs.net

Liver Outpatients Department: 020 3299 4979

kch-tr.liver.outpatients@nhs.net

Liver Admissions: 020 3299 3066 or 020 3299 7304

Dawson Ward: 020 3299 3877

High Dependency Unit (HDU) or Surgical Step-Down Unit (SSDU): 020 3299 1314

Your CNS name:



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What is liver surgery?

Liver surgery (also called liver resection) is an operation to remove one or more tumours from the liver. This is a complex procedure done at specialist hospitals like King's.

Liver surgery is mainly done to remove cancer but can also be used for non-cancerous conditions.

A healthy liver can regrow after surgery, with most regrowth happening in the first few weeks. However, if the liver is damaged (for example, due to cirrhosis), removing too much may not be safe, and other treatment options may be considered.

Why do I need liver surgery?

Surgery is the most effective way to remove tumours from the liver. Your case has been carefully reviewed by a team of specialists, including surgeons, oncologists, radiologists, and nurses, who have determined that surgery is the best option for you.

Before the operation, you will also have tests to check that you are fit for major surgery under general anaesthetic.

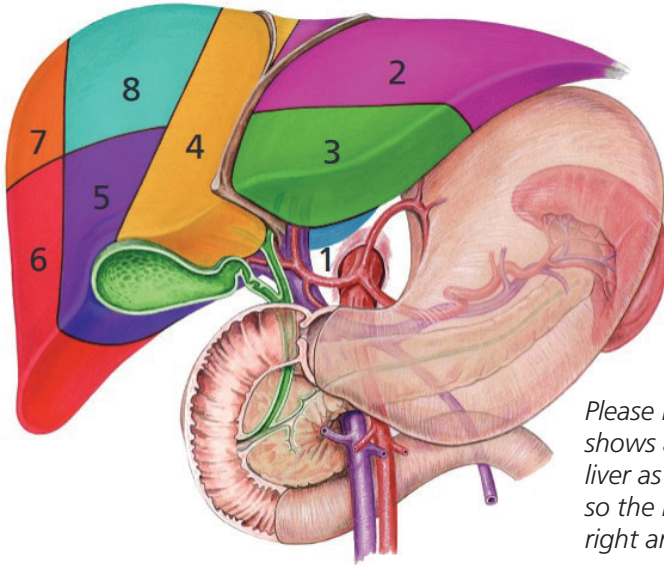
Surgery can increase life expectancy. Patients who have surgery to remove liver cancer tend to live longer than those who do not. However, cancer may return after surgery, so you will have follow-up scans for 5 to 10 years to monitor your health.

Alternatives to liver surgery

Alternative treatments will all depend on the nature of your tumour (primary and secondary cancer), the location and number of tumour(s), and the stage of your disease, but also your age and your physical fitness. All those alternatives will be discussed by our team in the multidisciplinary meeting.



Types of liver surgery



Please note, this diagram shows a mirror image of the liver as if facing the patient, so the left side appears on the right and vice versa.

The liver is made up of 8 sections (segments). The right side is larger, making up about 60 to 70% of the liver, while the left side makes up about 30 to 40%.

Left hepatectomy (segments 1, 2, 3 and 4)

Removes the left lobe of the liver. It is usually well tolerated and simpler than removing the right lobe.

Left lateral segmentectomy (segments 2 and 3)

Removes only two segments and can sometimes be done using keyhole (laparoscopic) surgery.

Right hepatectomy (segments 5, 6, 7 and 8)

Removes the right lobe of the liver. The gallbladder is also removed because it sits near segments 4 and 5.

Extended right hepatectomy (segments 4, 5, 6, 7 and 8)

Removes the right lobe plus segment 4, making up about 70% of



the liver. Some patients may need a preliminary procedure to help the left lobe of the liver get bigger, see below.

Portal vein embolisation (PVE) or extended liver venous deprivation (eLVD)

In certain cases, a 'volume manipulation' may be needed before surgery. A procedure called PVE or eLVD is done in the Radiology Department to shrink the right lobe of the liver and allow the left lobe of the liver to grow.

It will involve a liver radiologist blocking (embolising) one or several blood vessels that feed the right lobe of the liver. By cutting off the blood supply, the right lobe will shrink (atrophy) while the left lobe will naturally grow to make up for the loss of liver function in the right side.

After about 4 weeks, you will have a new CT scan to confirm your left lobe has grown enough and it is now safe to do the surgery.

Staged liver resection (ALPPS)

In rare occasions, your surgeon can decide to proceed to a 'staged resection' ('associating liver partition and portal vein ligation for staged hepatectomy' or ALPPS). A two-step procedure where the right lobe's blood supply is blocked first to help the left lobe grow before full removal of the right lobe a few weeks after the first surgery. You may need to stay in the hospital between the two operations.

Other liver resections (wedge, non-anatomical, segment, radical)

Depending on the tumour location, different types of resections may be done:



- wedge resection: removes a small part of the liver
- non-anatomical resection: removes liver tissue not based on segment structure
- segmentectomy: removes a single liver segment
- radical cholecystectomy: removes the gallbladder and part of the liver if gallbladder cancer is present

Laparoscopic versus open surgery

Some liver surgeries can be done with keyhole (laparoscopic) or robotic surgery, which involves small cuts in the abdomen and leads to a faster recovery. Your surgeon will discuss if this option is suitable for you.

Preparing for surgery

Getting ready

- **Stay active:** walk daily or exercise to strengthen muscles and lung capacity
- **Eat well:** high-protein diet with vegetables; avoid fast food and sugars
- **Stop smoking:** helps your lungs recover from anaesthesia and prevents chest infections
- **Stop drinking alcohol:** reduces liver fat and improves surgery outcomes
- **If you have had chemotherapy:** surgery can only be done 4 to 6 weeks after your last dose

Enhanced recovery after surgery (ERAS)

King's liver patients follow an ERAS programme to help you recover quicker from your surgery by supporting you at every step of the pathway. If you are eligible for it, our ERAS nurse will get in contact with you before the surgery and discuss with you in more detail what to expect.



HPB ERAS nurse: 020 3299 8646

Read King's **HPB ERAS Leaflet** for more information

Main risks of liver surgery

Liver failure

This risk is higher if a large portion of the liver is removed, or your liver has some damage after your operation. Your team will monitor your liver function bloods closely on the first few days until your discharge.

Some specific symptoms of liver failure include jaundice (skin and eyes turning yellow), drowsiness and fluid build-up in the abdomen (ascites). You may need admission to Intensive Care (ITU) for a few days until your liver recovers (usually resolving after 1 or 2 weeks).

Bleeding

Any surgery carries a bleeding risk, but it is significantly increased in case of liver surgery due to its function in blood clotting and dual blood supply. You may need a blood products transfusion during and after the procedure. In the rarest cases, you may need a radiological procedure to stop the bleeding. In exceptional cases, you may need another surgery.

Bile leak

Bile could leak into your abdomen from the surface where your liver was cut. This could cause an infection and delay your discharge. In most cases, this will be only monitored without intervention except for some antibiotics. In rare cases, you may need another drain insertion or a stent via endoscopy.

Fluid collection

Pockets of fluid may form in the abdomen. They often reabsorb naturally but sometimes need draining and antibiotics.

Infection

Infection could develop in the chest, the wound, the drains, and inside the abdomen. You will receive intravenous antibiotic cover (prophylaxis) before, during and after the surgery to prevent infections. Early movement and breathing exercises will help prevent chest infections. Your physiotherapists will visit you and explain how to do the exercises.

Blood clots

A clot could form in your legs (deep venous thromboembolism) and may migrate to your lungs (pulmonary embolism). You will need to wear anti-thrombotic socks (TED stockings) throughout your stay and receive blood thinning injections for 4 weeks.

Death

All cancer surgeries are considered major surgeries, and liver surgeries are also complex procedures. The risk of dying because of such major surgeries is between 2 and 4%. Your consultant will discuss your individual risk, depending on your clinical condition and past medical history. This risk is mostly due to general anaesthetic rather than the liver surgery.

Everything will be done to try to reduce the risks described above.

What to expect in hospital

Liver Admissions: 020 3299 3066 or 020 3299 7304

Only call for queries related to your planned admission

Pre-assessment

- The NHS aims to schedule your surgery within 31 days (unless your tumour is benign).



- You will have a pre-assessment with a nurse or anaesthetist if needed. This includes basic tests (vitals, ECG, blood tests) and possibly further specialist tests.
- A repeat CT scan may be needed to check if the cancer remains operable.

Nurse Pre-assessment: 020 3299 3025

Camberwell Hub, Unit F–H & Unit J–K, Gatekeeper Buildings, 5
Scena Way, SE5 0BJ

Consultant Anaesthetist Pre-assessment: 020 3299 4979

Liver Outpatients, Suite 9, 3rd floor, Golden Jubilee Wing

Consent

We must by law obtain your written consent to any operation, and some other procedures, beforehand. Staff will explain all the risks, benefits and alternatives before they ask you to sign a consent form. If you are unsure about any aspect of the treatment proposed, please do not hesitate to speak with a senior member of staff again.

Admission

- You will be admitted the evening before surgery.
- On arrival, nurses will provide instructions and perform necessary tests.
- Avoid bringing valuables. If necessary, hand them to staff for safekeeping.

Day of surgery

Depending on the type of resection, liver surgery can take from 2 to 6 hours (including anaesthetic time). The surgical team may need to give you blood transfusions during and after the surgery in case of bleeding. The liver is particularly prone to bleed, due to its role in coagulation and its important blood supply.



In some rare cases, despite having repeated a CT scan before the surgery, your surgeon may find at the beginning of the surgery that your cancer has spread outside the liver. In this case, it will not be appropriate to proceed to the planned surgery. Your consultant may proceed to a biopsy and/or a palliative procedure that will prevent future problems due to the progression of your disease.

After any surgery, you will wake up in the recovery room and be transferred to the High Dependency Unit (HDU) where you will be closely monitored. You will spend at least the first night here.

Your surgical team will inform your next of kin about the procedure's outcome.

HDU / SSDU: 020 3299 1314

Your family can call after 5pm on the day of surgery

Hospital stay

Once you are stable you will be transferred to the ward where you will spend the remaining days before your discharge.

The HPB doctors and nurses will review you every day, including your bloods, drains, surgical wound, pain, movement, bowel movements and diet. They will decide to remove one or several lines or drains during the next few days. They will encourage and help you to move out of bed and advise when you can eat.

Dawson ward: 020 3299 3877

1st floor Cheyne Wing. Visiting times: 12pm to 9pm

Discharge

Depending on your procedure and how you are recovering, the surgical doctors will plan your discharge according to your needs. If

necessary, the nursing team will organise a district nurse referral.

Expected lengths of stay (can be longer in case of complex surgery or complications):

- laparoscopic liver resection: 3 to 5 days
- open left hepatectomy: 5 to 7 days
- open right hepatectomy: 7 to 10 days or more

What to expect after hospital

Final staging

After your surgery, a pathologist will examine the removed tissue and create a report to help decide if additional treatments (like chemotherapy) are needed. The report will be reviewed in a team meeting, and the final stage of your cancer will be given using a TNM classification, which includes:

- T: tumour size (1 to 4)
- N: lymph node involvement (0 to 2)
- M: metastasis (0 to 1)
- LVI: lymphovascular invasion (0 to 2)
- PNI: perineural invasion (0 to 2)
- R: resection margin (0 to 2)

You will be referred to an oncologist for follow-up and possible chemotherapy or radiotherapy. You will also be monitored for 5 to 10 years, sometimes longer.

Follow-up

You'll have an appointment for follow-up with your surgeon a few weeks after surgery. Your clinical nurse specialist (CNS) will call you to check on your recovery. **If you need urgent help, go to your local A&E and bring your discharge documents.**



GP and local team

Contact your GP after surgery to update them, even though they will get your discharge information. Your GP can help with non-urgent issues and repeat prescriptions. If complications arise, you might need readmission to hospital, but the doctors will stay in contact to help manage your care.

Driving and working

You should only drive when the wound is not painful, and you can move freely. This is usually from 6 weeks after your discharge from hospital. Practice doing an emergency stop in a stationary car and confirm with your insurance provider that you are covered.

If you are planning to return to work, try to pace yourself and take regular breaks if you are feeling tired. Depending on the type of work you do, you may want or need to make arrangements with your employer (for example, to work from home). The hospital or your GP can provide a sick note if needed. In general, it is unlikely you will feel ready to return to work until two months after liver surgery, but everyone is different.

Post-operative advice

Movement, diet and wound care

- **Movement:** Start moving soon after surgery (ideally the next day) to avoid complications like blood clots. Aim for two short walks a day and gradually increase activity.
- **Diet:** Start eating and drinking as soon as you can. Eating will help your recovery. Eat smaller amounts more often if you feel full very quickly. Drink lots of water (3 litres a day).
- **Wound care:** The wound will heal with dissolvable stitches. Keep it clean and dry and allow it to air out. Don't lift heavy objects for 3 months to prevent hernias.



Pain

Your pain will be managed through a combination of a continuous wound infusion of local anaesthetic, patient-controlled analgesia (PCA) and oral analgesia (painkillers). At home, you can reduce and stop the painkillers as needed, starting with opiates (for example, codeine).

Drain care

The drain(s) are inserted at the end of the surgery. The nurses and doctors will monitor the amount and colour of the liquid. They are usually removed between day 3 and 5 after the operation, but they can sometimes be left in place longer if it is to monitor a leak.

On rare occasions, your consultant can decide to send you home with the drain, which will be removed a couple of weeks after discharge. The nurses will teach you how to care for it. If needed, a district nurse can visit you to change the dressing. If you have a drain, you'll be taught how to care for it. Keep track of the amount and colour of liquid coming out and bring the record to follow-up appointments.

Further information

- King's Hepatobiliary and pancreatic (HPB) webpage: www.kch.nhs.uk/service/a-z/hepatobiliary-pancreatic
- Macmillan Cancer Support Liver Cancer webpage: www.macmillan.org.uk/cancer-information-and-support/liver-cancer
- Cancer Research UK Liver Cancer webpage: www.cancerresearchuk.org/about-cancer/liver-cancer
- Cholangiocarcinoma Charity (cholangiocarcinoma is also known as bile duct cancer, it is a primary liver cancer): www.ammf.org.uk
- British Liver Trust: www.britishlivertrust.org.uk



MyChart

Our MyChart app and website lets you securely access parts of your health record with us, giving you more control over your care. To sign up or for help, call us on **020 3299 4618** or email kings.mychart@nhs.net. Visit **www.kch.nhs.uk/mychart** to find out more.

Sharing your information

King's College Hospital NHS Foundation Trust has partnered with Guy's and St Thomas' NHS Foundation Trust through the King's Health Partners Academic Health Sciences Centre. We are working together to give our patients the best possible care, so you might find we invite you for appointments at Guy's or St Thomas' hospitals. King's College Hospital and Guy's and St Thomas' NHS Foundation Trusts share an electronic patient record system, which means information about your health record can be accessed safely and securely by health and care staff at both Trusts. For more information visit **www.kch.nhs.uk**.

Care provided by students

We provide clinical training where our nursing students get practical experience by treating patients. Please tell your doctor or nurse if you do not want students to be involved in your care. Your treatment will not be affected by your decision.



PALS

The Patient Advice and Liaison Service (PALS) is a service that offers support, information and assistance to patients, relatives and visitors. They can also provide help and advice if you have a concern or complaint that staff have not been able to resolve for you. They can also pass on praise or thanks to our teams.

Tel: **020 3299 4618**

Email: **kings.pals@nhs.net**

If you would like the information in this leaflet in a different language or format, please contact our Interpreting and Accessible Communication Support on 020 3299 4618 or email kings.access@nhs.net