PROCEDURE

Liver biopsy

A liver biopsy removes a small tissue sample for examination under a microscope.

PURPOSE
Diagnose liver disease or measure damage and treatment response

PROCEDURE TYPE
Diagnostic, minimally invasive needle sampling or surgical sampling

WHERE IT IS DONE
Radiology suite, outpatient clinic, bedside, or operating theatre

ANAESTHESIA
Local anaesthesia, sometimes sedation or general anaesthesia

HOW LONG IT TAKES
Usually 15 to 30 minutes

PREPARATION
Fasting, blood tests, and medication review

RECOVERY
Usually same day; no driving after sedation

MAIN RISKS
Pain, bleeding, infection, nearby organ injury

RESULTS
Pathology results usually available within several days

Overview

A liver biopsy is a procedure that removes a very small piece of liver tissue. A specialist called a pathologist examines the sample under a microscope. The sample can show inflammation, scarring, fat, abnormal cells, or other changes that may not be clear from blood tests or scans.

The most common method is a percutaneous biopsy . A doctor passes a thin needle through the skin, usually between the ribs on the right side, and into the liver. Ultrasound or another type of imaging is often used to choose a safe path.

Other methods include:

The method offered to you will reflect why the biopsy is needed and factors such as fluid around the liver, blood clotting, body shape, and whether another operation is already planned.

- Transjugular biopsy: instruments reach the liver through a vein in the neck

- Laparoscopic or surgical biopsy: tissue is taken during keyhole or open surgery
- Targeted biopsy: imaging guides the needle into a particular lump or abnormal area

Why the procedure is performed

A liver biopsy may be recommended when blood tests, scans, and other non-invasive tests do not provide enough information.

It can help your healthcare team:

A biopsy is not always needed. Blood tests and scans that measure liver stiffness can often estimate scarring without removing tissue. A biopsy is most useful when the result is likely to answer an important question that less invasive tests cannot settle.

- Identify the type or cause of liver disease
- Measure inflammation, fat buildup, or scar tissue
- Investigate an abnormal area seen on a scan
- Check for rejection or other problems after a liver transplant
- Assess how a liver condition is changing
- Help guide treatment when the result could alter your care

Who should and should not have it

You may be offered a liver biopsy if the expected information could affect your diagnosis, treatment, or follow-up. Before you consent, your healthcare team should explain the question the biopsy is intended to answer and how the result may change your care.

A routine percutaneous biopsy may be delayed or replaced by another method if there is an unacceptable bleeding risk. This may relate to a bleeding disorder, certain blood test results, or medicines that affect clotting. The decision is individual because clotting tests do not perfectly predict bleeding.

A percutaneous biopsy may also be unsuitable when there is:

Some of these issues do not rule out biopsy altogether. A transjugular biopsy may be safer when bleeding risk or ascites makes a skin route unsuitable. A surgical biopsy may be considered if you are already having an operation.

Tell the team if you are or could be pregnant, have allergies, have previously reacted to

anaesthetic or contrast dye, or would not accept a blood transfusion in an emergency. These details can affect planning.

- A skin infection where the needle would enter
- A large amount of abdominal fluid, called ascites
- Difficulty staying still or following breathing instructions
- No safe needle path to the intended area
- A suspected blood-vessel abnormality or other lesion needing a different approach

How to prepare

Follow the treating facility's own instructions first, because its preparation and medication rules take priority.

Your team will review your medicines and may arrange blood tests to check blood cells and clotting. Give them a complete list of prescription medicines, over-the-counter products, vitamins, and herbal supplements.

Medicines that affect clotting may need to be paused or adjusted. These include some anticoagulants like warfarin or apixaban , often called blood thinners, and antiplatelet medicines. Do not stop them on your own. Stopping may create a risk of a blood clot, stroke, or heart problem, so the timing must be planned for you.

You may be asked not to eat or drink for several hours, especially if sedation is planned. Follow the specific fasting instructions you receive. Tell the facility if you have diabetes, because fasting may affect your medication plan.

Arrange for an adult to take you home if you will receive sedation. Bring any requested scan reports, medication list, and relevant medical information.

What happens during the procedure

For a percutaneous biopsy, you usually lie on your back or slightly turned to the left. Ultrasound may be used to locate the liver and mark a safe entry point. The skin is cleaned, and local anaesthetic is injected to numb the area. This can sting briefly.

The doctor makes a tiny opening in the skin and passes the biopsy needle into the liver. You may be asked to breathe out and hold your breath for a few seconds. This helps keep the liver still. The needle collects the sample quickly, and more than one sample may be taken.

You may feel pressure, a brief sharp sensation, or pain that travels to the right shoulder. The needle is then removed and a dressing applied.

For a transjugular biopsy, a thin tube is inserted into a vein in the neck and guided through the veins to the liver. The sample is taken from inside a liver vein. This approach helps contain bleeding within the bloodstream. Sedation is commonly used, but practices differ.

A surgical biopsy is done under general anaesthesia, so you are unconscious. It may be performed during another liver or abdominal operation.

Recovery and what to expect afterward

Some soreness at the biopsy site is common. Mild pain in the upper abdomen or right shoulder can also occur. Your team may recommend a pain reliever that is appropriate for you. Avoid taking an anti-inflammatory medicine unless they say it is safe, because some can affect bleeding.

Once you are fully alert, you can usually drink and eat unless another medical issue requires restrictions. Start with light food if sedation makes you feel nauseated.

You will be monitored for several hours. Staff may check your blood pressure, pulse, pain, and dressing. Most people having an uncomplicated percutaneous biopsy go home the same day. A transjugular or surgical biopsy may require longer observation or an overnight stay.

Avoid strenuous exercise and heavy lifting for the period specified by your facility. Gentle daily activity is usually possible, but follow your discharge plan.

Do not drive yourself home. If you received sedation or general anaesthesia, do not drive, use machinery, drink alcohol, or make important decisions for the time stated by the facility, commonly at least 24 hours.

Many people return to desk-based work within a few days. Physically demanding work may require more time. Your team can advise based on the biopsy method and your job.

Risks and possible complications

Pain is the most common problem after a liver biopsy. It is usually mild and short-lived, but stronger or worsening pain needs assessment.

Bleeding is the most important serious risk. Most bleeding that occurs is minor, but internal bleeding can require hospital treatment, a procedure to block the bleeding vessel, blood transfusion, or rarely surgery.

Other possible complications include:

A transjugular biopsy has additional risks related to entering a neck vein, including bleeding or bruising in the neck, abnormal heart rhythm while instruments pass near the heart, and injury to a blood vessel.

Your healthcare team should explain the risks most relevant to the method being proposed for you.

- Infection
- Injury to the gallbladder, lung, kidney, bowel, or another nearby structure
- Leakage of bile, a digestive fluid made by the liver
- A reaction to sedation, anaesthesia, antiseptic, or adhesive
- An inadequate sample that does not answer the clinical question

Results and follow up

A pathologist processes, stains, and examines the tissue. This takes time, so final results are not usually available immediately. Many reports are ready within several days, but special stains, molecular testing, or a second specialist review can take longer.

The report may describe inflammation, fat, fibrosis or scarring, abnormal deposits, infection, transplant rejection, or cancer cells. Biopsy findings must be considered alongside your symptoms, blood tests, scans, and medical history.

Ask when and how you will receive the result. Routine follow-up may be by phone, video appointment, clinic visit, or through an established patient portal. At that review, ask what the result means, whether it changes treatment, and whether further testing is needed.

Alternatives

The alternatives depend on the question the biopsy is meant to answer.

Blood tests can look for liver injury, inflammation, infection, or causes of disease. They are easy to repeat but cannot always show the exact pattern of tissue damage.

Ultrasound, CT, or MRI can show liver shape, fat, masses, bile ducts, and blood vessels. They examine a larger area than a biopsy but may not identify the microscopic cause of an abnormality.

Elastography uses ultrasound or MRI technology to estimate liver stiffness. It is painless and

useful for estimating scarring, but inflammation, congestion, body build, and technical factors can affect the measurement. It also cannot answer every diagnostic question.

Blood-based fibrosis scores combine routine test results to estimate the chance of advanced scarring. They avoid a procedure but are less precise when results fall into an uncertain range.

For some liver masses, repeat imaging or imaging with contrast may be preferred. This avoids needle-related risks but may delay certainty or fail to identify the exact cell type.

Choosing monitoring instead of immediate biopsy avoids the procedure now. The trade-off is that diagnosis or treatment decisions may remain uncertain.

When to call your healthcare team

For routine questions, contact the team during normal hours if pain is not improving, the wound remains tender or swollen, or you are unsure about activity, medicines, or follow-up.

Seek urgent medical assessment after a biopsy if you develop:

Call emergency services for collapse, severe breathing difficulty, uncontrolled bleeding, or rapidly worsening symptoms. Do not drive yourself if you feel faint or seriously unwell.

- Increasing or severe abdominal, chest, shoulder, or neck pain
- Dizziness, fainting, marked weakness, or a racing heartbeat
- Shortness of breath
- Fever or chills
- Increasing redness, warmth, swelling, pus, or bleeding at the site
- Vomiting that does not settle
- A swollen or increasingly firm abdomen

Common questions

Will I be asleep for a liver biopsy?

Usually not for a percutaneous biopsy. Local anaesthetic numbs the skin, and some facilities also offer sedation. Transjugular biopsy commonly involves sedation. Surgical biopsy uses general anaesthesia.

Can I drive home afterward?

No. Arrange transport home. Sedation, pain, and the small possibility of delayed bleeding can

make driving unsafe. Follow your facility's restriction on when you may drive again.

How painful is a liver biopsy?

The numbing injection may sting. The biopsy itself may cause brief pressure or sharp pain. Mild soreness afterward is common. Tell staff immediately if pain is severe or increasing.

When will I know the results?

The tissue usually needs several days for laboratory processing and examination. Special testing may take longer. Your team should tell you when and how the result will be discussed.

How big is the sample?

The sample is usually a narrow core of tissue only a few centimetres long. Although small, it contains many liver cells. Sometimes more than one core is needed.

What if the biopsy does not give a clear answer?

Occasionally the sample is too small or does not contain the abnormal area. Your team may recommend review of the existing sample, additional blood tests or imaging, monitoring, or another biopsy.

Sources

- National Institute of Diabetes and Digestive and Kidney Diseases: Liver Biopsy
- British Society of Gastroenterology, Royal College of Radiologists and Royal College of Pathology: Guidelines on the use of liver biopsy in clinical practice
- American Association for the Study of Liver Diseases: Liver Biopsy guidance and position paper
- NHS: Liver biopsy
- RadiologyInfo.org: Liver Biopsy