I'm not a robot

How to test for liver cancer

Cancer Research UK: liver cancer stages, types and gradesLiver Cancer UK: just diagnosed with liver cancer?Macmillan Cancer Support: information and support if you've just been diagnosed with cancer Some liver cancers can be found by testing people at high risk who don't have symptoms (known as screening), but most are found because they are causing symptoms. If you have signs or symptoms that might be from liver cancer, exams and tests will be done to find out for sure. Medical history and physical exam Your doctor will ask about your medical history to learn more about your symptoms and possible risk factors. Your doctor will also examine you to look for signs of liver cancer and other health problems, probably paying special attention to your belly and checking your skin and the whites of your eyes to look for jaundice (a yellowish color). If symptoms and/or the results of your physical exam suggest liver cancer, you will probably need to have more tests . These might include imaging tests, lab tests, and/or biopsies of liver tissue. If liver cancer is found, tests might also be done to help learn more about the cancer, such as how far it has spread. Imaging tests Imaging tests use x-rays, magnetic fields, or sound waves to create pictures of the inside of your body. Imaging tests maybe done for a number of reasons both before and after a diagnosis of liver cancer, including: To help find areas that might be liver cancer To determine if an abnormal area is liver cancer To help a doctor guide a biopsy needle into an area that might be cancer and take a sample To learn how far cancer might have spread To help guide certain treatments in the liver To help determine if treatment is working To look for possible signs of cancer coming back after treatment Ultrasound Ultrasound is often the first test used to look at the liver. It uses sound waves and their echoes to create an image on a computer screen. This test can show tumors growing in the liver, which then can be tested for cancer, if needed. In some medical centers, a special type of ultrasound known as contrast-enhanced ultrasound (CEUS) might be used to get a better look at a liver tumor. For this test, a type of contrast that contains very tiny bubbles (microbubbles) is given through an IV line just before the ultrasound exam is done. Sometimes a diagnosis of liver cancer can be made based on the way a liver tumor looks on CEUS, without the need for a biopsy. Computed tomography (CT) The CT scan uses x-rays to make detailed images of your body. A CT scan of the abdomen can help find many types of liver tumors. It can show the size, shape, and location of any tumors in the liver or elsewhere in the abdomen, as well as nearby blood vessels (known as CT angiography or CTA). Sometimes a diagnosis of liver cancer can be made based on the way a liver tumor looks on a CT scan, without the need for a biopsy. CT scans can also be used to guide a biopsy needle into a tumor (called a CT-guided needle biopsy). If you have liver cancer, you might also have a chest CT done to look for possible cancer spread to the lungs. Magnetic resonance imaging (MRI) Like CT scans, MRI scans provide detailed images of soft tissues in the body. But MRI scans use radio waves and strong magnets instead of x-rays. MRI scans can be very helpful in looking at liver tumors. Sometimes a diagnosis of liver cancer can be made based on the way a liver tumor looks on an MRI, without a biopsy. MRI can also be used to look at blood vessels in and around the liver to see any blockages (known as MR angiography or MRA). It can also show if liver cancer has spread to other parts of the body. Bone scan A bone scan can help look for cancer that has spread (metastasized) to bones. Doctors don't usually order this test for people with liver cancer unless they have symptoms such as bone pain, or if there's a chance they may qualify for a liver transplant to treat their cancer. A biopsy is the removal of a sample of tissue to see if it is cancer. Sometimes, the only way to be sure of a liver cancer diagnosis is to take a biopsy sample and look at it in the pathology lab. But in some cases, doctors can be quite certain that a person has liver cancer based on the results of imaging tests such as CT and MRI scans (see above). In these cases, a biopsy may not be needed. Doctors are often concerned that sticking a needle into the tumor to get a biopsy or otherwise disturbing it without completely removing it might help cancer cells spread along the needle's path. This is a major concern if surgery or a liver transplant might be an option to try to cure the cancer, as any spread of the cancer might make the person ineligible for a transplant. This is why some experts recommend that people who could be transplant candidates only have biopsies done at the center where the transplant will be done. If a biopsy is needed, it can be done in several ways. Needle biopsy: A hollow needle is put through the skin in the abdomen and into the liver. Local anesthesia (numbing medicine) is usually injected into the skin before the needle is placed. This type of biopsy is typically done with the help of an ultrasound or CT scan to guide the needle. Laparoscopic biopsy: Biopsy samples can also be taken during a laparoscopy. This lets the doctor see the surface of the liver and take samples of abnormal-looking areas. Surgical biopsy: An incisional biopsy (removing a piece of the tumor) or an excisional biopsy (removing the entire tumor and some surrounding normal liver tissue) can be done during surgery. Lab tests of biopsy samples If a biopsy is done, the samples will be sent to a lab, where they will be looked at with a microscope to see if they contain cancer cells. Other lab tests might be done on the samples as well. For more information about biopsies and how they are tested, see Testing Biopsy and Cytology Specimens for Cancer. Blood tests Your doctor could order blood tests for a number of reasons: To help diagnose liver cancer (although the diagnosis can’t be made on a blood test alone) To help determine what might have caused your liver cancer To learn how well your liver is working, which can affect what treatments you can have To see how well your other organs are working and general health, which also could affect what treatments you can have To see how well treatment is working To look for signs that the cancer has come back after treatment Alpha-fetoprotein blood (AFP) test AFP is a protein that can sometimes be found at high levels in the blood of people with liver disease, liver cancer (or some other cancers), and some other conditions. If AFP levels are very high in someone with a liver tumor, it can be a sign that liver cancer is present. But many people with early liver cancer have normal levels of AFP, so high AFP levels aren’t very helpful in determining if a liver mass might be cancer. This test, however, is sometimes useful in people already diagnosed with liver cancer: The AFP level can help when determining treatment options. During treatment, the test can be used to give an idea of how well it is working, as the AFP level should go down if treatment is effective. After treatment, the test can be used to look for possible signs that the cancer has come back (recurred). Other blood tests Tests for viral hepatitis: Your doctor might order blood tests to check for hepatitis B and C. Liver function tests (LFTs): Because liver cancer often develops in livers already damaged by hepatitis and/or cirrhosis, doctors need to know the condition of your liver before starting your treatment. If the part of your liver not affected by cancer isn’t working well, you might not be able to have surgery to try to cure the cancer, as the surgery might require removal of a large part of your liver. Other treatment options such as certain targeted therapy or chemotherapy may also not be good choices if your liver is not working well. Blood clotting tests: The liver makes proteins that help blood clot when you bleed. A damaged liver might not make enough of these clotting factors, which could increase your risk of bleeding. Your doctor may order blood tests to help measure this risk. Kidney function tests: Tests of blood urea nitrogen (BUN) and creatinine levels are often done to assess how well your kidneys are working. Complete blood count (CBC): This test measures levels of red blood cells (which carry oxygen throughout your body), white blood cells (which fight infections), and platelets (which help the blood clot). It gives an idea of how well the bone marrow (where new blood cells are made) is functioning. Blood chemistry tests and other tests: Blood chemistry tests check the levels of a number of substances in the blood, some of which might be affected by liver cancer. For example, liver cancer can raise blood levels of calcium, while blood glucose levels may fall. Liver cancer can also sometimes raise cholesterol levels, so this may be checked as well. For more detailed information, see Exams and Tests for Cancer. If you would like to reproduce some or all of this content, see Reuse of NCI Information for guidance about copyright and permissions. In the case of permitted digital reproduction, please credit the National Cancer Institute as the source and link to the original NCI product using the original product's title; e.g., “Liver Cancer Diagnosis was originally published by the National Cancer Institute.” Some liver cancers can be found by testing people at high risk who don't have symptoms (known as screening), but most are found because they are causing symptoms. If you have signs or symptoms that might be from liver cancer, exams and tests will be done to find out for sure. Medical history and physical exam Your doctor will ask about your medical history to learn more about your symptoms and possible risk factors. Your doctor will also examine you to look for signs of liver cancer and other health problems, probably paying special attention to your belly and checking your skin and the whites of your eyes to look for jaundice (a yellowish color). If symptoms and/or the results of your physical exam suggest liver cancer, you will probably need to have more tests . These might include imaging tests, lab tests, and/or biopsies of liver tissue. If liver cancer is found, tests might also be done to help learn more about the cancer, such as how far it has spread. Imaging tests Imaging tests use x-rays, magnetic fields, or sound waves to create pictures of the inside of your body. Imaging tests maybe done for a number of reasons both before and after a diagnosis of liver cancer, including: To help find areas that might be liver cancer To determine if an abnormal area is liver cancer To help a doctor guide a biopsy needle into an area that might be cancer and take a sample To learn how far cancer might have spread To help guide certain treatments in the liver To help determine if treatment is working To look for possible signs of cancer coming back after treatment Ultrasound Ultrasound is often the first test used to look at the liver. It uses sound waves and their echoes to create an image on a computer screen. This test can show tumors growing in the liver, which then can be tested for cancer, if needed. In some medical centers, a special type of ultrasound known as contrast-enhanced ultrasound (CEUS) might be used to get a better look at a liver tumor. For this test, a type of contrast that contains very tiny bubbles (microbubbles) is given through an IV line just before the ultrasound exam is done. Sometimes a diagnosis of liver cancer can be made based on the way a liver tumor looks on CEUS, without the need for a biopsy. Computed tomography (CT) The CT scan uses x-rays to make detailed images of your body. A CT scan of the abdomen can help find many types of liver tumors. It can show the size, shape, and location of any tumors in the liver or elsewhere in the abdomen, as well as nearby blood vessels (known as CT angiography or CTA). Sometimes a diagnosis of liver cancer can be made based on the way a liver tumor looks on a CT scan, without the need for a biopsy. CT scans can also be used to guide a biopsy needle into a tumor (called a CT-guided needle biopsy). If you have liver cancer, you might also have a chest CT done to look for possible cancer spread to the lungs. Magnetic resonance imaging (MRI) Like CT scans, MRI scans provide detailed images of soft tissues in the body. But MRI scans use radio waves and strong magnets instead of x-rays. MRI scans can be very helpful in looking at liver tumors. Sometimes a diagnosis of liver cancer can be made based on the way a liver tumor looks on an MRI, without a biopsy. MRI can also be used to look at blood vessels in and around the liver to see any blockages (known as MR angiography or MRA). It can also show if liver cancer has spread to other parts of the body. Bone scan A bone scan can help look for cancer that has spread (metastasized) to bones. Doctors don't usually order this test for people with liver cancer unless they have symptoms such as bone pain, or if there's a chance they may qualify for a liver transplant to treat their cancer. A biopsy is the removal of a sample of tissue to see if it is cancer. Sometimes, the only way to be sure of a liver cancer diagnosis is to take a biopsy sample and look at it in the pathology lab. But in some cases, doctors can be quite certain that a person has liver cancer based on the results of imaging tests such as CT and MRI scans (see above). In these cases, a biopsy may not be needed. Doctors are often concerned that sticking a needle into the tumor to get a biopsy or otherwise disturbing it without completely removing it might help cancer cells spread along the needle's path. This is a major concern if surgery or a liver transplant might be an option to try to cure the cancer, as any spread of the cancer might make the person ineligible for a transplant. This is why some experts recommend that people who could be transplant candidates only have biopsies done at the center where the transplant will be done. If a biopsy is needed, it can be done in several ways. Needle biopsy: A hollow needle is put through the skin in the abdomen and into the liver. Local anesthesia (numbing medicine) is usually injected into the skin before the needle is placed. This type of biopsy is typically done with the help of an ultrasound or CT scan to guide the needle. Laparoscopic biopsy: Biopsy samples can also be taken during a laparoscopy. This lets the doctor see the surface of the liver and take samples of abnormal-looking areas. Surgical biopsy: An incisional biopsy (removing a piece of the tumor) or an excisional biopsy (removing the entire tumor and some surrounding normal liver tissue) can be done during surgery. Lab tests of biopsy samples If a biopsy is done, the samples will be sent to a lab, where they will be looked at with a microscope to see if they contain cancer cells. Other lab tests might be done on the samples as well. For more information about biopsies and how they are tested, see Testing Biopsy and Cytology Specimens for Cancer. Blood tests Your doctor could order blood tests for a number of reasons: To help diagnose liver cancer (although the diagnosis can’t be made on a blood test alone) To help determine what might have caused your liver cancer To learn how well your liver is working, which can affect what treatments you can have To see how well your other organs are working and general health, which also could affect what treatments you can have To see how well treatment is working To look for signs that the cancer has come back after treatment Alpha-fetoprotein blood (AFP) test AFP is a protein that can sometimes be found at high levels in the blood of people with liver disease, liver cancer (or some other cancers), and some other conditions. If AFP levels are very high in someone with a liver tumor, it can be a sign that liver cancer is present. But many people with early liver cancer have normal levels of AFP, so high AFP levels aren’t very helpful in determining if a liver mass might be cancer. This test, however, is sometimes useful in people already diagnosed with liver cancer: The AFP level can help when determining treatment options. During treatment, the test can be used to give an idea of how well it is working, as the AFP level should go down if treatment is effective. After treatment, the test can be used to look for possible signs that the cancer has come back (recurred). Other blood tests Tests for viral hepatitis: Your doctor might order blood tests to check for hepatitis B and C. Liver function tests (LFTs): Because liver cancer often develops in livers already damaged by hepatitis and/or cirrhosis, doctors need to know the condition of your liver before starting your treatment. If the part of your liver not affected by cancer isn’t working well, you might not be able to have surgery to try to cure the cancer, as the surgery might require removal of a large part of your liver. Other treatment options such as certain targeted therapy or chemotherapy may also not be good choices if your liver is not working well. Blood clotting tests: The liver makes proteins that help blood clot when you bleed. A damaged liver might not make enough of these clotting factors, which could increase your risk of bleeding. Your doctor may order blood tests to help measure this risk. Kidney function tests: Tests of blood urea nitrogen (BUN) and creatinine levels are often done to assess how well your kidneys are working. Complete blood count (CBC): This test measures levels of red blood cells (which carry oxygen throughout your body), white blood cells (which fight infections), and platelets (which help the blood clot). It gives an idea of how well the bone marrow (where new blood cells are made) is functioning. Blood chemistry tests and other tests: Blood chemistry tests check the levels of a number of substances in the blood, some of which might be affected by liver cancer. For example, liver cancer can raise blood levels of calcium, while blood glucose levels may fall. Liver cancer can also sometimes raise cholesterol levels, so this may be checked as well. For more detailed information, see Exams and Tests for Cancer. No single blood test can diagnose liver cancer, but liver cancer blood tests can detect signs of liver dysfunction. Depending on a person’s signs and symptoms, a doctor may recommend further testing, such as a liver biopsy. Although blood tests cannot diagnose liver cancer, they can screen for signs of cancer. Blood tests can also check for other causes of a person’s symptoms — these causes can include viral hepatitis. Some liver diseases, including viral hepatitis, are risk factors for liver cancer. So, the presence of one diagnosis does not necessarily mean a person does not have cancer. In this article, we examine the blood tests doctors use to detect liver cancer. We look at the types of blood tests, what they measure, and other tests healthcare professionals use for liver cancer.Share on PinterestAngela Lumsden/StocksyA doctor may order blood tests to screen for liver cancer if a person has a high risk of liver cancer. This includes people with a history of:cirrhosishereditary hemochromatosis, where the body absorbs excess iron from the dietchronic hepatitis BA doctor may also order liver cancer blood tests if someone has symptoms of liver cancer, such as:an enlarged liverweight losschronic abdominal painswelling in the bellyjaundiceAdditionally, a doctor may order liver cancer blood tests if routine bloodwork returns an atypical result. Liver cancer blood tests can test for several symptoms of liver cancer, including: Liver dysfunction: Liver function tests can show signs of liver damage. This may mean a person has liver disease, including cancer or nonalcoholic fatty liver disease. Alpha-fetoprotein (AFP): AFP is present in high levels in people with cancer or liver disease or who are pregnant. Blood clotting issues: The liver helps make proteins that support blood clotting. A blood clotting test that shows slow clotting could be a sign of liver damage from cancer or another disease. Organ damage: Blood urea nitrogen (BUN) and creatinine levels can help assess how well the kidneys work. Kidney disease can be a risk factor for and sometimes a byproduct of liver disease. Other diseases: Blood tests for other diseases, such as hepatitis, may help explain symptoms of liver damage. Other signs of disease: Changes in blood chemistry or the balance of red and white blood cells may signal severe disease, including liver cancer.The following various blood tests can screen for symptoms of liver cancer: A complete blood count can show signs of illness. For example, white blood cells may be higher than expected in a person with cancer or an infection. A doctor may recommend additional tests according to the results of a complete blood count.Blood chemistry testing looks for changes in the balance of various chemicals in the blood. For instance, an increase in calcium and a drop in glucose could indicate liver cancer. When the liver is damaged, it releases enzymes into the bloodstream. These enzymes include alanine transaminase (ALT), aspartate transaminase (AST), and alkaline phosphatase (ALP).Certain liver diseases that decrease bile flow can also elevate bilirubin levels in the blood. High liver enzymes or bilirubin suggest that a person has liver disease, such as liver cancer, but a doctor will need to carry out more tests.The proportion of liver enzyme elevations may help indicate cancer. For example, elevations in ALT and AST without significant elevations in bilirubin or ALP may suggest a problem in the cells of the liver, including potential cancer. Viral hepatitis is a contagious and relatively common condition that can damage the liver, which could explain symptoms of liver disease. A person can receive a diagnosis of hepatitis using a blood test, and the condition is treatable.However, chronic hepatitis is a risk factor for liver cancer. So, a doctor may still recommend other tests to rule out liver cancer.The liver helps manufacture proteins that allow blood to clot and stop bleeding. Slower clotting times may signal damage to the liver. A prothrombin time test measures how long it takes the blood to clot. AFP is a protein that may rise to higher than usual levels in the blood of people with cancer, including liver cancer. It also tends to increase in those with liver disease and during pregnancy. So, while it may help point to a liver issue, it cannot diagnose liver cancer without additional tests. A doctor will need to carry out additional testing to diagnose liver cancer. Some tests a doctor might recommend may include: liver biopsy to check for signs of cancer in the liver MRI scans to view a suspected tumor and assess how large it is CT scans to look for signs of cancerother cancer tests to look for cancer that has spread from the liver or to the liver from other locations Typical blood tests should show: no signs of hepatitis or other infectionsno elevations in liver enzymesno changes in blood chemistryno signs of kidney failure, such as elevated BUN levels typical blood clotting rate Blood tests alone cannot conclusively diagnose cancer. But in combination with other tests, such as a liver ultrasound, they may strongly indicate the disease. If a doctor suspects liver cancer, they may order a biopsy or MRI scan of the liver. If a person already has another type of cancer, atypical test results could mean either that cancer has spread to the liver or is damaging organs. Atypical test results may also signal another type of liver disease, such as: No single blood test can diagnose liver cancer, but blood tests can help indicate liver problems that doctors can confirm through further testing.Many different medical conditions can cause elevated liver enzymes and other signs of liver damage. Some conditions, such as nonalcoholic fatty liver disease, are common and manageable, while others, such as viral hepatitis, require rapid treatment. Early stage liver cancers with a liver transplant have 5-year survival rates of 60–70%. This means it is vital to get an early diagnosis to have the best possible outcome. Doctors perform further investigations following atypical liver function tests to rule out cancer and other severe medical conditions. Blood tests and other testing methods can also help people access treatment before their condition worsens.Blood / HematologyCancer / OncologyMedical News Today has strict sourcing guidelines and relies on peer-reviewed studies, academic research institutions, and medical journals and associations. We only use quality, credible sources to ensure content accuracy and integrity. You can learn more about how we ensure our content is accurate and current by reading our editorial policy.Appenrodt, B., et al. (2018). Renal failure in patients with liver cirrhosis: Novel classifications, biomarkers, treatment. V., et al. (2022). Liver function tests. cancer. (2022). A., et al. (2021). Liver cancer. A., et al. (2022). Viral hepatitis.