



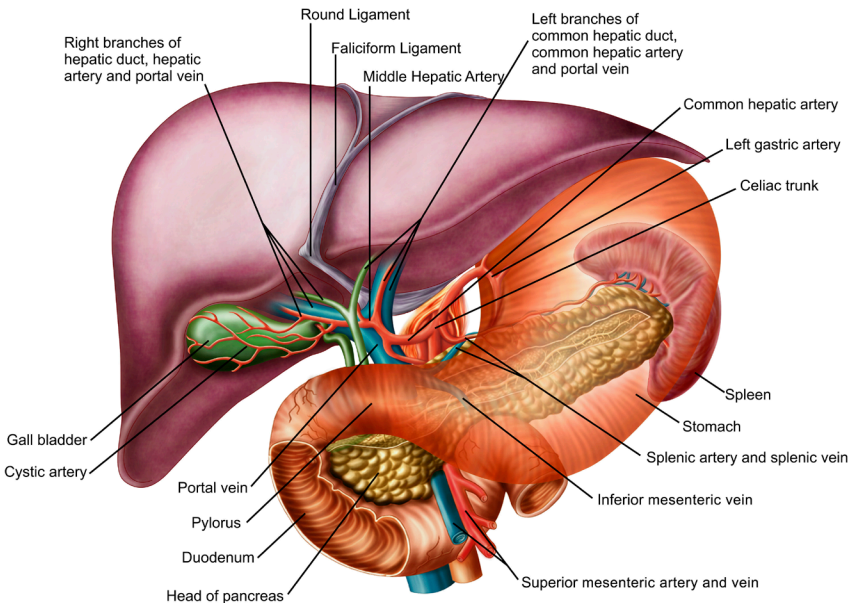
**Liver and Biliary Tract Cancers**

**SANFORD<sup>®</sup>**  
CANCER CENTER

# Liver and Biliary Tract (Hepatobiliary) Cancers Are Divided Into Hepatocellular Carcinoma (HCC), Bile Duct Cancers (Cholangiocarcinoma), and Gallbladder Cancer

The liver, gallbladder, and bile ducts are part of the hepatobiliary system. The liver is one of the largest organs in the body. It has two lobes and fills the upper right side of the abdomen inside the rib cage. Three of the many important functions of the liver are:

- To filter harmful substances from the blood so they can be passed from the body in stools and urine.
- To make bile to help digest fat that comes from food.
- To store glycogen (sugar), which the body uses for energy.



## Hepatocellular Cancer (HCC) Is Cancer Found in the Liver

This is the most common type of primary liver cancer. Primary refers to where cancer starts (from the liver cell).

### Risk Factors

Anything that increases your risk of getting a disease is called a risk factor. Having a risk factor does not mean that you will get cancer; not having risk factors does not mean that you will not get cancer.

The following are risk factors for hepatocellular carcinoma:

- Having hepatitis B or hepatitis C.
  - Having both hepatitis B and hepatitis C increases the risk even more.
- Having cirrhosis, which can be caused by hepatitis or drinking large amounts of alcohol for many years.
- Having metabolic syndrome, a set of conditions that occur together, including extra fat around the abdomen, high blood sugar, high blood pressure, high levels of triglycerides and low levels of high-density lipoproteins in the blood.

### Signs and Symptoms

The signs of hepatocellular carcinoma can include:

- Sometimes no symptoms but found on imaging
- Pain in the abdomen
- Loss of appetite, nausea, vomiting
- Weight loss for no known reason
- Fever
- Easy bruising or bleeding
- Unusual tiredness or weakness
- A swollen abdomen
- A hard lump on the right side just below the rib cage

## Tests Used to Detect (Find) and Diagnose Hepatocellular Cancer

- **Physical exam and history**
- **Lab tests including serum tumor marker tests:**

A sample of blood is examined to measure the amounts of certain substances released into the blood by organs, tissues, or tumor cells in the body. Certain substances are linked to specific types of cancer when found in increased levels in the blood. These are called tumor markers. These tests are not specific and may or may not be elevated, even with a known cancer. Tumor markers can be used to monitor treatment.

An increased level of alpha-fetoprotein (AFP) in the blood may be a sign of hepatocellular carcinoma (HCC). Other cancers and certain noncancerous conditions, including cirrhosis and hepatitis, may also increase AFP levels. Sometimes the AFP level is normal even when there is liver cancer.

- **CT scan (CAT scan):** A procedure that makes a series of detailed pictures of areas inside the body, such as the abdomen, taken from different angles. The pictures are made by a computer linked to an x-ray machine. A dye may be injected into a vein or swallowed to help the organs or tissues show up more clearly. This procedure is also called computed tomography, computerized tomography, or computerized axial tomography. Images may be taken at three different times after the dye is injected, to get the best picture of abnormal areas in the liver. This is called triple-phase CT. A spiral or helical CT scan makes a series of very detailed pictures of areas inside the body using an x-ray machine that scans the body in a spiral path.

- **MRI (magnetic resonance imaging):** A procedure that uses a magnet, radio waves, and a computer to make a series of detailed pictures of areas inside the body, such as the liver. To create detailed pictures of blood vessels in and near the liver, dye is injected into a vein. Images may be taken at three different times after the dye is injected, to get the best picture of abnormal areas in the liver.

## Treatments for Hepatocellular Cancer

Treatment given after surgery is called adjuvant therapy.

### Surgery

A partial hepatectomy (surgery to remove the part of the liver where cancer is found) may be done. A wedge of tissue, an entire lobe, or a larger part of the liver, along with some of the healthy tissue around it is removed. The remaining liver tissue takes over the functions of the liver and may regrow.

### Liver Transplant

In a liver transplant, the entire liver is removed and replaced with a healthy donated liver. A liver transplant may be done when the disease is in the liver only (such as with hepatocellular cancer that has not spread) and a donated liver can be found. If you have to wait for a donated liver, other treatment is given as needed.

### Ablation Therapy

Ablation therapy removes or destroys tissue. Different types of ablation therapy are used for hepatocellular carcinoma such as high energy radiowaves or high temperatures.

## Embolization Therapy

Embolization therapy is the use of substances to block or decrease the flow of blood through the hepatic artery to the tumor. When the tumor does not get the oxygen and nutrients it needs, it will not continue to grow. Embolization therapy is used for people who cannot have surgery to remove the tumor or ablation therapy and whose tumor has not spread outside the liver. This treatment option would be for hepatocellular carcinoma.

The following procedures may be done to relieve symptoms caused by a blocked bile duct and improve quality of life (called palliative treatment):

- **Biliary bypass:** If cancer is blocking the bile duct and bile is building up in the gallbladder, a biliary bypass may be done. The gallbladder or bile duct is cut and sewn past the blockage or to the small intestine. This creates a new pathway around the blocked area.
- **Endoscopic stent placement:** If the tumor is blocking the bile duct, surgery may be done to put in a stent (a thin tube) to drain bile that has built up in the area. The doctor may place the stent through a catheter that drains the bile into a bag on the outside of the body or the stent may go around the blocked area and drain the bile into the small intestine.
- **Percutaneous transhepatic biliary drainage:** A procedure used to x-ray the liver and bile ducts. A thin needle is inserted through the skin below the ribs and into the liver. Dye is injected into the liver or bile ducts and an x-ray is taken. If the bile duct is blocked, a thin, flexible tube called a stent may be left in the liver to drain bile into the small intestine or a collection bag outside the body.

## Chemotherapy

Chemotherapy is a cancer treatment that uses drugs to stop the growth of cancer cells, either by killing the cells or by stopping them from dividing.

## Targeted Therapy

Targeted therapy is a treatment that uses drugs or other substances to identify and attack specific cancer cells without harming normal cells. Adult liver cancer may be treated with a targeted therapy drug that stops cells from dividing and prevents the growth of new blood vessels that tumors need to grow.

## Immunotherapy

Biologic or immunotherapy is a treatment that uses your immune system to fight cancer. Substances made by the body or made in a laboratory are used to boost, direct, or restore the body's natural defenses against cancer.

## Radiation Therapy

Radiation therapy is a cancer treatment that uses high-energy x-rays or other types of radiation to kill cancer cells or keep them from growing.

## **Bile Duct and Gall Bladder Cancer**

### **Bile Duct Cancer (Cholangiocarcinoma) Is a Rare Disease in Which Malignant (Cancer) Cells Form in the Bile Ducts**

A network of tubes, called ducts, connects the liver, gallbladder, and small intestine. This network begins in the liver where many small ducts collect bile (a fluid made by the liver to break down fats during digestion). The small ducts come together to form the right and left hepatic ducts, which lead out of the liver. The two ducts join outside the liver and form the common hepatic duct. The cystic duct connects the gallbladder to the common hepatic duct. Bile from the liver passes through the hepatic ducts, common hepatic duct, and cystic duct and is stored in the gallbladder.

### **Gall Bladder Cancer Is Rare, but the Most Common of the Biliary Tract Cancers**

Risks for getting gall bladder cancer include having gallstones or other things that damage the gallbladder. Signs of liver and bile duct cancers are listed below, but gall bladder cancer can also include fever and jaundice (yellowing of the skin and whites of the eyes).



## Risk Factors

Anything that increases your risk of getting a disease is called a risk factor. Having a risk factor does not mean that you will get cancer; not having risk factors does not mean that you will not get cancer.

The following are risk factors for bile duct and gall bladder cancer:

- Having hepatitis B or hepatitis C.
  - Having both hepatitis B and hepatitis C increases the risk even more.
- Having cirrhosis, which can be caused by hepatitis or drinking large amounts of alcohol for many years.
- Having liver injury or inflammation that is long lasting, especially if it leads to cirrhosis.

## Signs and Symptoms of Bile Duct and Gallbladder Cancer

These and other signs and symptoms may be caused by bile tract and gallbladder cancers or by other conditions:

- Jaundice (yellow coloring of the eyes or skin)
- Itching
- Dark urine
- Light-colored/greasy stools
- Pain in the abdomen
- Loss of appetite, nausea, vomiting
- Weight loss for no known reason
- Unusual tiredness or weakness

## Tests Used to Detect (Find) and Diagnose Bile Duct and Gallbladder Cancer

- **Physical exam and history**
- **Lab tests including serum tumor marker tests:** A sample of blood is examined to measure the amounts of certain substances released into the blood by organs, tissues, or tumor cells in the body. Certain substances are linked to specific types of cancer when found in increased levels in the blood. These are called tumor markers. These tests are not specific and may or may not be elevated, even with a known cancer. Tumor markers can be used to monitor treatment.

An increased CA 19-9 is a tumor marker that can be high in other cancers or conditions including bile duct cancer (cholangiocarcinoma)

- **CT scan (CAT scan):** A procedure that makes a series of detailed pictures of areas inside the body, such as the abdomen, taken from different angles. The pictures are made by a computer linked to an x-ray machine. A dye may be injected into a vein or swallowed to help the organs or tissues show up more clearly. This procedure is also called computed tomography, computerized tomography, or computerized axial tomography. Images may be taken at three different times after the dye is injected, to get the best picture of abnormal areas in the liver. This is called triple-phase CT. A spiral or helical CT scan makes a series of very detailed pictures of areas inside the body using an x-ray machine that scans the body in a spiral path.

- **MRI (magnetic resonance imaging):** A procedure that uses a magnet, radio waves, and a computer to make a series of detailed pictures of areas inside the body, such as the liver. To create detailed pictures of blood vessels in and near the liver, dye is injected into a vein. This procedure is called MRA (magnetic resonance angiography). Images may be taken at three different times after the dye is injected, to get the best picture of abnormal areas in the liver. This is called triple-phase MRI.
- **ERCP (endoscopic retrograde cholangiopancreatography):** A lighted, bendable scope is inserted through the mouth into the stomach and first part of the small intestine. Brushings may be obtained to check for cancer cells. Drains called stents can sometimes be placed with this method.
- **Endoscopic Ultrasound (EUS):** A procedure in which a lighted scope is inserted into the body, usually through the mouth. A probe at the end of the scope is used to bounce sound waves (ultrasound) to see structures near the pancreas.
- **Biopsy:** The removal of cells or tissues so they can be viewed under a microscope by a pathologist to check for signs of cancer.

# Treatment for Bile Duct and Gallbladder Cancer

## Surgery

The following types of surgery are used to treat bile duct cancer:

- **Removal of the bile duct:** A surgical procedure to remove part of the bile duct if the tumor is small and in the bile duct only. Lymph nodes are removed and tissue from the lymph nodes is viewed under a microscope to see if there is cancer.
- **Partial hepatectomy:** A surgical procedure in which the part of the liver where cancer is found is removed. The part removed may be a wedge of tissue, an entire lobe, or a larger part of the liver, along with some normal tissue around it.
- **Whipple procedure:** A surgical procedure in which the head of the pancreas, the gallbladder, part of the stomach, part of the small intestine, and the bile duct are removed. Enough of the pancreas is left to make digestive juices and insulin.

After the doctor removes all the cancer that can be seen at the time of the surgery, some patients may be given chemotherapy or radiation therapy after surgery to kill any cancer cells that are left. Treatment given after the surgery, to lower the risk that the cancer will come back, is called adjuvant therapy.

## Liver Transplant

In a liver transplant, the entire liver is removed and replaced with a healthy donated liver. A liver transplant may be done when the disease is in the liver only (such as with hepatocellular cancer that has not spread) and a donated liver can be found. If you have to wait for a donated liver, other treatment is given as needed.

## Chemotherapy

Chemotherapy is a cancer treatment that uses drugs to stop the growth of cancer cells, either by killing the cells or by stopping them from dividing.

## Targeted Therapy

Targeted therapy is a treatment that uses drugs or other substances to identify and attack specific cancer cells without harming normal cells. Adult liver cancer may be treated with a targeted therapy drug that stops cells from dividing and prevents the growth of new blood vessels that tumors need to grow.

## Radiation Therapy

Radiation therapy is a cancer treatment that uses high-energy x-rays or other types of radiation to kill cancer cells or keep them from growing.

Certain factors affect prognosis (chance of recovery) and treatment options.

The prognosis (chance of recovery) and treatment options depend on the following:

- The stage of the cancer (the size of the tumor, whether it affects part or all of the liver, or has spread to other places in the body)
- How well the liver is working
- Your general health, including whether there is cirrhosis of the liver

The process used to find out if cancer has spread within the liver or to other parts of the body is called staging. It is important to know the stage in order to plan treatment. Your doctor may refer to different scoring systems based on testing results when determining your treatment plan.

## There Are Three Ways That Cancer Spreads in the Body

Cancer can spread through tissue, the lymph (filter and transport) system, and the blood:

- **Tissue.** The cancer spreads from where it began by growing into nearby areas.
- **Lymph system.** The cancer spreads from where it began by getting into the lymph system. The cancer travels through the lymph vessels to other parts of the body.
- **Blood.** The cancer spreads from where it began by getting into the blood. The cancer travels through the blood vessels to other parts of the body.

When cancer spreads to another part of the body, it is called metastasis. Cancer cells break away from where they began (the primary tumor) and travel through the lymph system or blood.

The metastatic tumor is the same type of cancer as the primary tumor. For example, if primary liver cancer spreads to the lung, the cancer cells in the lung are actually liver cancer cells. The disease is metastatic liver cancer, not lung cancer.

## Follow-Up Tests May Be Needed

Some of the tests that were done to diagnose the cancer or to find out the stage of the cancer may be repeated. Some tests will be repeated in order to see how well the treatment is working. Decisions about whether to continue, change, or stop treatment may be based on the results of these tests.

## Support

Support is available for coping with changes that may have happened as a result of cancer treatment. Your healthcare team can offer options which may include palliative care. Palliative care is a treatment approach that emphasizes comfort, control of disease symptoms, and can assist in advance care planning.

## Clinical Trials

Clinical trials are done to find out if new cancer treatments are safe and effective or better than the standard treatment.

People who take part in a clinical trial may receive:

- The standard treatment alone or
- The standard treatment plus the new treatment being studied

Many of today's standard treatments for cancer are based on earlier clinical trials.

**Ask if there is a clinical trial right for you.**

Taking part in a clinical trial helps improve the way cancer will be treated in the future. Even when clinical trials do not lead to effective new treatments, they often answer important questions and help move research forward.

Some clinical trials only include people who have not yet received treatment. Other trials test treatments for those whose cancer has not gotten better. There are also clinical trials that test new ways to stop cancer from coming back or reduce the side effects of cancer treatment.

## To Learn More About Liver or Biliary Tract Cancer

**American Cancer Society**

<https://www.cancer.org/>

**National Cancer Institute**

<https://www.cancer.gov/>

**National Comprehensive Cancer Network Guidelines for Patients**

<https://www.nccn.org/patients/guidelines/cancers.aspx>

**MedlinePlus**

<https://medlineplus.gov/>

## Common Questions

What does the pathology report say?

What is the stage of my cancer?

What are my goals for treatment?

What are my treatment choices and how do they affect my prognosis?

What kind of support services are available for me about finances, emotions, spiritual questions, etc.?



My Health Care Team	Contact Information
Surgeon:	
Medical Oncologist:	
Radiation Oncologist:	
Primary Care Doctor:	
Navigator:	
Nurse:	
Registered Dietitian Nutritionist:	
Other:	
Other:	

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PDQ Bile Duct Cancer (Cholangiocarcinoma) Treatment.





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