

# The Progression of Liver Disease

There are many different types of liver disease. But no matter what type you have, the damage to your liver is likely to progress in a similar way.

Whether your liver is infected with a virus, injured by chemicals, or under attack from your own immune system, the basic danger is the same – that your liver will become so damaged that it can no longer work to keep you alive.

**Anything that keeps your liver from doing its job may put your life in danger.**

## **The Healthy Liver**

Your liver helps fight infections and cleans your blood. It also helps digest food and stores energy for when you need it. A healthy liver has the amazing ability to grow back, or regenerate, when it is damaged. Anything that keeps your liver from doing its job – or from growing back after injury – may put your life in danger.

## **Inflammation**

In the early stage of any liver disease, your liver may become inflamed. It may become tender and enlarged. Inflammation shows that your body is trying to fight an infection or heal an injury. But if the inflammation continues over time, it can start to hurt your liver permanently.

When most other parts of your body become inflamed, you can feel it – the area becomes hot and painful. But an inflamed liver may cause you no discomfort at all.

If your liver disease is diagnosed and treated successfully at this stage, the inflammation may go away.

## **Fibrosis**

If left untreated, the inflamed liver will start to scar. As excess scar tissue grows, it replaces healthy liver tissue. This process is called fibrosis. (Scar tissue is a kind of fibrous tissue.)

Scar tissue cannot do the work that healthy liver tissue can. Moreover, scar tissue can keep blood from flowing through your liver. As more scar tissue builds up, your liver may not work as well as it once did. Or, the healthy part of your liver has to work harder to make up for the scarred part.

If your liver disease is diagnosed and treated successfully at this stage, there's still a chance that your liver can heal itself over time.

## **Cirrhosis**

But if left untreated, your liver may become so seriously scarred that it can no longer heal itself. This stage – when the damage cannot be reversed – is called cirrhosis.

Cirrhosis can lead to a number of complications, including liver cancer. In some people, the symptoms of cirrhosis may be the first signs of liver disease.

## **Liver Cancer**

Cancer that starts in the liver is called primary liver cancer. Cirrhosis and hepatitis B are leading risk factors for primary liver cancer. But cancer can develop in the liver at any stage in the progression of liver disease. Read more.

- You may bleed or bruise easily.
- Water may build up in your legs and/or abdomen.
- Your skin and eyes may take on a yellow color, a condition called jaundice.
- Your skin may itch intensely.
- In blood vessels leading to your liver, the blood may back up because of blockage. These blood vessels may burst.
- You may become more sensitive to medications and their side effects.
- You may develop insulin resistance and type-2 diabetes.
- Toxins may build up in your brain, causing problems with concentration, memory, sleeping, or other mental functions.

Once you've been diagnosed with cirrhosis, treatment will focus on keeping your condition from getting worse. It may be possible to stop or slow the liver damage. It is important to protect the healthy liver tissue you have left.

### **Liver failure**

Liver failure means that your liver is losing or has lost all of its function. It is a life-threatening condition that demands urgent medical care.

The first symptoms of liver failure are often nausea, loss of appetite, fatigue, and diarrhea. Because these symptoms can have any number of causes, it may be hard to tell that the liver is failing.

### **Liver failure is a life-threatening condition that demands urgent medical care.**

But as liver failure progresses, the symptoms become more serious. The patient may become confused and disoriented, and extremely sleepy. There is a risk of coma and death. Immediate treatment is needed. The medical team will try to save whatever part of the liver that still works. If this is not possible, the only option may be a liver transplant.

When liver failure occurs as a result of cirrhosis, it usually means that the liver has been failing gradually for some time, possibly for years. This is called chronic liver failure.

Chronic liver failure can also be caused by malnutrition. More rarely, liver failure can occur suddenly, in as little as 48 hours. This is called acute liver failure and is usually a reaction to poisoning or a medication overdose.

**Cirrhosis, liver cancer, and liver failure are serious conditions that can threaten your life.** Once you have reached these stages of liver disease, your treatment options may be very limited.

That's why it's important to catch liver disease early, in the inflammation and fibrosis stages. If you are treated successfully at these stages, your liver may have a chance to heal itself and recover.

**Talk to your doctor about liver disease.** Find out if you are at risk or if you should undergo any tests or vaccinations.

# Liver Cancer

Explore this section to learn more about liver cancer, including a description of the disease and how it's diagnosed.

## What is liver cancer?

Liver cancer refers to the growth of malignant tumors in liver tissue. Cancer that starts in the liver is called primary liver cancer. Cancer that spreads to the liver from another organ is called metastatic liver cancer.

## What are the symptoms of liver cancer?

Often there are no symptoms of liver cancer until the later stages. This is why early detection is difficult. When symptoms do occur, they may include fatigue, pain on the right side of the upper abdomen or around the right shoulder blade, nausea, loss of appetite, feeling full after a small meal, unexplained weight loss and jaundice (yellowing of the eyes and the skin). If you have one or more risk factors for liver cancer and any of these symptoms, you should see your doctor immediately.

## What causes liver cancer?

There are several risk factors that increase the likelihood someone will get liver cancer.

- Cirrhosis, or scarring, can lead to liver cancer. Over 80 percent of liver cancer cases are linked to cirrhosis. In the United States, hepatitis C and alcohol abuse are the leading causes of cirrhosis.
- Long-term infection with hepatitis B and C are linked to liver cancer because they often lead to cirrhosis. Hepatitis B can lead to liver cancer without cirrhosis.
- Smoking is another probable risk factor, especially among people who abuse alcohol and have cirrhosis.
- Obesity also appears to be linked to primary liver cancer. Less common risk factors include abuse of anabolic steroids, or male hormones, for strength conditioning; exposure to arsenic in drinking water; and exposure to certain chemicals in the plastics industry.

## How is liver cancer diagnosed?

Liver cancer may be discovered in a routine checkup if the doctor feels hard lumps in the abdomen, or incidentally by imaging studies. To confirm a diagnosis of liver cancer, doctors would use blood tests; ultrasound; computer tomography (CT) scans; and magnetic resonance imaging, or MRI. Doctors may find it necessary to do a biopsy, where a small sample of liver tissue is removed with a needle and then examined for cancer cells.

## How is liver cancer treated?

*Transplant:* For some patients a liver transplant may be an option, but only if the cancer has not spread to other organs and a suitable liver can be found.

*Surgery:* In cases where the cancer has been found early and the liver is otherwise healthy, or has only early-stage cirrhosis, doctors will remove the portion of the liver where the tumor is located, a process called surgical resection.

*Cryosurgery (also called cryotherapy):* This is the use of extreme cold produced by liquid nitrogen (or argon gas) to destroy abnormal tissue.

*Ablation:* Some liver tumors can be destroyed by processes called ablation. Radio frequency ablation kills liver tumors by heating them to high temperatures with microwave probes. Another ablation technique destroys tumors by injecting them with ethanol, a form of alcohol.

*Chemotherapy:* Although chemotherapy cannot cure liver cancer, a new technique called transarterial chemoembolization may help prolong life for liver cancer patients. In this procedure, chemotherapy drugs are injected into the blood vessels that feed the tumors. This delivers a high dose of chemotherapy to the tumor while decreasing the flow of blood that feeds the tumor.

*Radiation therapy:* In some cases, doctors may try to reduce the size or slow the growth of liver cancer with radiation, or high-energy x-rays. Traditional radiation therapy also destroys healthy liver tissue, so doctors are experimenting with new techniques that deliver the radiation with higher precision.

### **What is the outlook for patients with liver cancer?**

A successful liver transplant will effectively cure liver cancer, but it is an option for a small percentage of patients. Surgical resections are successful in only about one out of three cases. However, scientists are experimenting with several promising new drugs and therapies that could help prolong the lives of people with liver cancer.

### **What is the best way to prevent liver cancer?**

There are steps that you can take to reduce the risk of getting liver cancer or to discover it at an early stage, through screening. These steps are especially important if you already have liver disease.

If you have been diagnosed with cirrhosis or chronic liver disease, you should be under the care of a doctor who specializes in liver disease. See your doctor regularly and follow all recommendations for treatment, vaccinations and cancer screenings.

If someone close to you has hepatitis, talk to your doctor about prevention, including vaccination options. Take steps to prevent exposure to hepatitis B and C.

Talk to your doctor about liver health, hepatitis vaccinations and liver cancer screening. This is especially important if you are also a former or current drinker or smoker, or if you are significantly overweight.

### **What should you do if you have liver cancer?**

Scientists are conducting clinical trials, or treatment studies, to determine the effectiveness of new therapies for liver cancer. Ask your doctor if participating in a clinical trial is an option for you.

Support organizations, both in your community and online, can be a valuable resource for patients and their families:

The American Liver Foundation's local chapters may be able to direct you to a support group in your area. Find the ALF chapter in your area.

CancerCare is a national nonprofit organization that provides free professional support services to anyone affected by cancer. More information can be found at [www.cancer.org](http://www.cancer.org). An online liver cancer support group can be found at <http://listserv.acor.org/archives/liver-onc.html>.

***The Official Patient's Sourcebook on Adult Primary Liver Cancer***, by Icon Health Publications, is a comprehensive reference book that includes information on support organizations.