



## Progression of Liver Disease

### Why is the liver important?

The liver is the second largest organ in your body and is located under your rib cage on the right side. It weighs about three pounds and is shaped like a football that is flat on one side.

The liver performs many jobs in your body. It processes what you eat and drink into energy and nutrients your body can use. The liver also removes harmful substances from your blood.

### What are common causes of liver disease?

Common causes of liver disease include:

- Viruses
- Genetics
- Immune system disorders
- Unhealthy choices
- Reactions to medications or toxins

### What is inflammation of the liver?

Inflammation (swelling) of the liver, also known as hepatitis, is usually the first stage of liver disease. Inflammation is generally a sign that the body is trying to fight an infection or heal an injury. If inflammation continues over time, it can cause scarring in the liver. An inflamed liver often has no symptoms. Inflammation often is diagnosed by blood and imaging tests.

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

### What is the fibrosis?

Fibrosis is scarring of the liver. Fibrosis, or scar tissue, replaces healthy liver tissue. As scar tissue builds up, the liver may not work as well as it once did. Usually there are no symptoms of fibrosis. Fibrosis is diagnosed by blood and imaging tests. A liver biopsy may be needed to check how much liver scarring has developed. During a biopsy, a small piece of liver tissue is removed and studied in the lab.

If the liver disease is diagnosed and treated successfully at this stage, the liver may be able to heal itself over time.

### What is cirrhosis?

Cirrhosis is severe scarring of the liver. It can take many years for liver disease to lead to cirrhosis. As the amount of scar tissue in the liver increases, the liver may not be able to perform its jobs.

Symptoms of cirrhosis may include:

- Loss of appetite
- Tiredness
- Nausea
- Weight loss

- Abdominal pain
- Spider-like blood vessels on the skin
- Severe itching

Cirrhosis can lead to complications, which may include:

- Jaundice (yellowing of the skin and whites of the eyes)
- Gallstones
- Bruising and bleeding easily
- Fluid build up and painful swelling of the legs (edema) and abdomen (ascites)
- Mental confusion
- Infection
- Internal bleeding from enlarged veins

Cirrhosis is diagnosed by symptoms, and blood and imaging tests. A liver biopsy may be needed to check how much of the liver has been damaged. During a biopsy, a small piece of liver tissue is removed and studied in the lab.

Treatment for cirrhosis depends on the cause and the level of liver damage. The goals of treatment are to prevent further liver damage and reduce complications.

### **When can liver cancer develop?**

Liver cancer can develop during the progression of liver disease. It often occurs only if advanced scarring of the liver is present. Liver cancer is the growth and spread of unhealthy cells in the liver. Cancer that starts in the liver is called “primary” liver cancer. Cancer that spreads to the liver from another organ is “metastatic” liver cancer. Although cirrhosis is the leading risk factor for primary liver cancer, it may also occur without extensive scarring, particularly in people with chronic hepatitis B.

Often there are no symptoms of liver cancer until it is in an advanced stage. When symptoms do occur, they may include:

- Fatigue
- Bloating
- Pain on the right side of the upper abdomen, back or shoulder
- Nausea
- Loss of appetite
- Weight loss
- Weakness
- Fever
- Jaundice (yellowing of the eyes and skin)

Liver cancer is usually diagnosed by imaging tests and scans, blood tests, and angiograms. A liver biopsy may be needed to check how much of the liver has been damaged. During a biopsy, a small piece of liver tissue is removed and studied in the lab.

Liver cancer treatment depends on:

- the liver’s condition
- the size, location, and number of tumors
- if the cancer has spread outside the liver

- the person's age and overall health

### **What happens when liver failure occurs?**

Liver failure occurs if the liver is losing or has lost all of its function.

The first symptoms of liver failure are usually:

- Nausea
- Loss of appetite
- Fatigue
- Diarrhea

As liver failure progresses, symptoms may include:

- Confusion
- Extreme tiredness
- Coma

Chronic liver failure indicates the liver has been failing gradually, possibly for years. Acute liver failure occurs suddenly and is often a reaction to poisoning or medication overdose. It may also occur due to acute viral hepatitis or other causes of liver disease. If the liver is failing, a liver transplant may be needed.

### **What is a liver transplant?**

A liver transplant is the process of replacing a sick liver with a donated, healthy liver. Liver transplants require that the blood type and body size of the donor match the person receiving the transplant. Donated livers come from living and non-living donors. Liver transplant surgery usually takes between four and twelve hours. Most patients stay in the hospital for up to three weeks after surgery.

In the United States, there are more people who need a liver transplant than there are donated livers. The process to be eligible for a liver transplant is:

- Person's doctor refers him or her to be seen at a transplant center
- At the transplant center, the transplant team evaluates the person's overall physical and mental health, plan to pay for transplant related medical expenses, and emotional support family and friends will provide
- Based on the findings, the team decides if the person is eligible for a liver transplant
- If the person is eligible, the center will add him or her to the transplant waiting list

The waiting list is prioritized so the sickest people are at the top of the list. The time a person spends on the waiting list depends on:

- Blood type
- Body size
- Stage of liver disease
- Overall health
- Availability of a matching liver

Most patients return to a regular lifestyle six months to a year after a successful liver transplant. In some patients, the liver disease they had before the transplant comes back and they may need treatment or another transplant.