

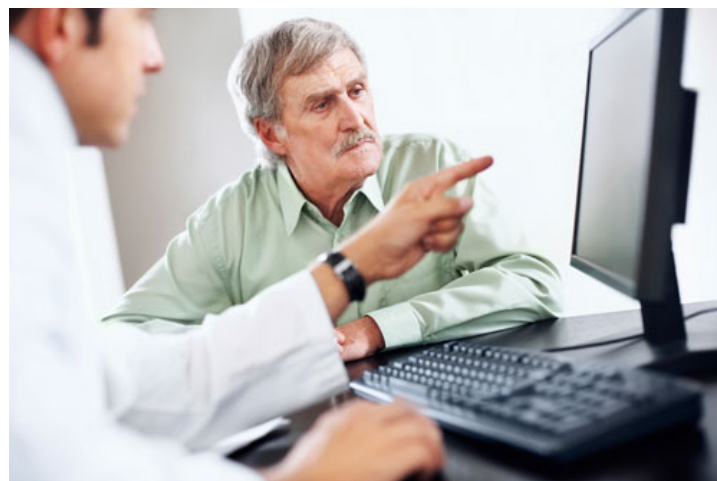


## Cirrhosis of the Liver

Cirrhosis of the liver is caused by progressive scarring as a result of liver disease or other conditions such as chronic hepatitis or alcohol abuse.

Your doctor may perform MRCP or other abdominal imaging exams using CT, ultrasound or MRI to help diagnose your condition. To confirm the diagnosis, biopsy, liver function tests or surgery may be performed.

While there is no cure for cirrhosis, your doctor may treat your symptoms by recommending lifestyle changes, medication, transjugular intrahepatic portosystemic shunt (TIPS) or transplant surgery.



- What is cirrhosis of the liver?
- How is cirrhosis of the liver diagnosed and evaluated?
- How is cirrhosis of the liver treated?

## What is cirrhosis of the liver?

Cirrhosis of the liver is a disease due to progressive scarring of the liver caused by various liver diseases and other conditions such as chronic hepatitis, biliary disease, cystic fibrosis and alcohol abuse. The scarring from these diseases diminishes blood flow in the liver and reduces the liver's capacity to produce essential proteins, nutrients and hormones and process toxins. Cirrhosis causes changes with obstruction to the blood flow to the liver, called portal hypertension, which can result in an enlarged spleen, ascites and varices and can cause gastrointestinal (GI) bleeding. Damage done to the liver by cirrhosis is irreversible, and advanced stages can be fatal.

Symptoms of cirrhosis are often not detectable until damage to the liver is in an advanced stage. Symptoms can include:

- Nausea
- Loss of appetite
- Weight loss

- Fever
- Bloody stool
- Jaundice
- Itchy skin
- Fatigue
- Bruising easily
- Bloating

## How is cirrhosis of the liver diagnosed and evaluated?

If your doctor suspects you have cirrhosis, one or more of the following imaging tests may be performed:

- **Abdominal computed tomography (CT) scan:** This procedure combines special x-ray equipment with sophisticated computers to produce multiple, digital images or pictures of the liver. It can help determine the severity of cirrhosis as well as other liver diseases. See the Safety page for more information about CT.
- **Abdominal ultrasound:** Ultrasound is a type of imaging exam that uses sound waves to create pictures of the inside of the abdomen and/or pelvis, including images of the liver. Doppler ultrasound allows for evaluation of blood flow to and from the liver.
- **Body magnetic resonance imaging (MRI):** This imaging exam uses a powerful magnetic field, radio frequency pulses and a computer to produce detailed pictures of the liver allowing for assessment of damage caused by various liver diseases. See the Safety page for more information about MRI.
- **Magnetic resonance cholangiopancreatography (MRCP):** MRCP is special type of MRI exam that can assess abnormalities by creating detailed images of the ducts that involve the liver and gallbladder, commonly referred to as the biliary system that resides within the liver.

Other tests include:

- **Biopsy:** Part of the liver tissue may be sampled and examined in the laboratory to analyze the damage.
- **Liver function test:** This test involves analyzing the blood for particular enzymes that signal that liver damage is present.
- **Surgery:** Cirrhosis can be diagnosed during open surgery when the entire liver is visible to the doctor. This is not typically needed to make the diagnosis of cirrhosis.

## How is cirrhosis of the liver treated?

While there is no cure for cirrhosis, your doctor may recommend various treatments to help slow the scarring and relieve symptoms. First, your doctor may try to treat the underlying disease that is the cause of cirrhosis through medication, weight loss or alcohol treatment programs. To treat the symptoms of cirrhosis itself, your doctor may recommend:

- **Lifestyle changes:** Diet changes such as a low-sodium or plant-based diet and discontinuing the use

of alcohol.

- Medications, such as antibiotics, may be prescribed in order to avoid infections as well as vaccinations for viral hepatitis, pneumonia and influenza to help you avoid possible illnesses that can cause infections. Your doctor may also prescribe medication to help reduce toxins in the blood.
- Transjugular intrahepatic portosystemic shunt (TIPS): TIPS is a procedure to treat the portal hypertension caused by cirrhosis. An interventional radiologist uses an imaging technique called fluoroscopy to place a small tube (stent) to provide an open channel for blood to freely flow back and forth through the liver.
- Surgery: In severe cases, a liver transplant may be needed. A liver transplant replaces the damaged liver with a healthy one from a donor.

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