

## Cirrhosis of the Liver

Cirrhosis (si-roh-sis) of the liver is caused by progressive scarring from liver inflammation. This can be caused by conditions such as chronic hepatitis, alcohol abuse or fatty liver disease.

Cirrhosis can be diagnosed by radiology testing such as computed tomography (CT), ultrasound or magnetic resonance imaging (MRI) or via a needle biopsy of the liver. A new imaging technique called elastography, which can be performed with ultrasound or MRI, can also diagnosis cirrhosis. There is currently no cure for cirrhosis. Your doctor may treat your symptoms caused by cirrhosis by recommending lifestyle changes, medication, or transjugular intrahepatic portosystemic shunt (TIPS). Liver transplantation is also an option for some patients.



### What is cirrhosis of the liver?

Cirrhosis of the liver is a disease due to progressive scarring of the liver (<http://www.radiologyinfo.org>) caused by various conditions such as chronic hepatitis, biliary disease, fatty liver and alcohol abuse. The scarring reduces the ability of your liver to function normally.

Cirrhosis also results in a liver that is "stiff" which reduces blood flow into the liver, a condition called portal hypertension. This can result in an enlarged spleen (<http://www.radiologyinfo.org>), ascites (<http://www.radiologyinfo.org>) and severe gastrointestinal (GI) bleeding from dilated blood vessels (called varices) that can rupture. Once a liver reaches a stage of cirrhosis, the damage 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 gain/ascites formation
- Jaundice (<http://www.radiologyinfo.org>)
- 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 (<https://www.radiologyinfo.org/en/info/abdominct>): 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 "Radiation Dose in X-Ray and CT Exams" (<https://www.radiologyinfo.org/en/info/safety-xray>) for more information.

- Abdominal ultrasound (<https://www.radiologyinfo.org/en/info/abdominus>) : 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.
- Elastography: This exam assesses the stiffness of your liver and can help diagnose how severe the scarring is in your liver (known as liver fibrosis). Left untreated, liver fibrosis can eventually lead to cirrhosis of the liver which is not reversible. Elastography can detect stiffness of the liver caused by liver fibrosis earlier than other imaging tests. The test can be performed by ultrasound or MRI.
- *Body magnetic resonance imaging (MRI)* (<https://www.radiologyinfo.org/en/info/bodymr>) : 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 MRI Safety* (<https://www.radiologyinfo.org/en/info/safety-mr>) *page for more information.*
- Magnetic resonance cholangiopancreatography (MRCP) (<https://www.radiologyinfo.org/en/info/mrcp>) : MRCP is special type of MRI protocol that is designed to evaluate a part of the liver and gallbladder, known as the biliary system (<http://www.radiologyinfo.org>) that is part of your liver.

Other tests include:

- Biopsy (<http://www.radiologyinfo.org>) : Part of the liver tissue is sampled and examined by a pathology doctor to analyze the extent of liver damage. The biopsy is often done by a radiologist using ultrasound guidance and is minimally invasive.
- Liver function test: This test involves analyzing the blood for particular enzymes (<http://www.radiologyinfo.org>) that signal that liver damage is present.

## 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 including, 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 (<http://www.radiologyinfo.org>) 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) (<https://www.radiologyinfo.org/en/info/tips>) , a procedure to treat the portal hypertension caused by cirrhosis. An interventional radiologist places a small tube (stent) into the liver to help bypass blood flow into the liver by directing it back towards the heart.
- Surgery—In severe cases, a liver transplant may be needed. A liver transplant replaces the damaged liver with a healthy one from a donor.

## Which test, procedure or treatment is best for me?

- *Abnormal Liver Function Tests* (<https://www.radiologyinfo.org/en/info/acs-abnorm-liver-tests>)
- *Chronic Liver Disease* (<https://www.radiologyinfo.org/en/info/acs-chronic-liver-disease>)
- *Jaundice* (<https://www.radiologyinfo.org/en/info/acs-jaundice>)

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