

# Causes of Liver Pain and What to Do About It

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Liver pain is typically felt in the upper right abdomen just below your rib cage. Your liver might hurt for many reasons, including [acute](#) (sudden) conditions like a liver abscess or liver injury, or [chronic](#) (persistent) conditions like cirrhosis, fatty liver disease, or liver cancer. Some conditions, like viral hepatitis and Fitz-Hugh-Curtis syndrome, can cause acute and chronic pain.

This article describes the symptoms and causes of liver pain, including the tests and procedures used to diagnose the cause. It also explains when liver pain may be a sign of a medical emergency.

## Where on the Body Is Liver Pain Felt?

The [liver](#) is an organ about the size of a football located in the upper right portion of your abdomen, just beneath the rib cage and [diaphragm](#) (the thin muscle separating your chest and abdominal cavities).<sup>1</sup>

The [liver serves over a hundred vital functions](#) in the body, including:<sup>1</sup>

- Filtering toxins and waste from the bloodstream
- Breaking down and eliminating old [red blood cells](#)
- Producing a digestive enzyme called [bile](#)
- Making clotting factors to help [blood clot](#)
- Storing and releasing [glucose](#) (blood sugar) as needed

Pain arising from the liver may be related to the liver itself, to blood vessels and arteries that service the liver, or to nearby organs that help regulate the flow of bile from the liver (called the [biliary tract](#)).

## What Does Liver Pain Feel Like?

Although the liver is the largest internal organ in the body, liver pain is often hard to pinpoint and easy to confuse with other types of upper abdominal pain, including stomach or gallbladder pain.<sup>2</sup>

Because the liver doesn't have any pain receptors ([nociceptors](#)), any pain felt is usually the result of pressure placed on the membrane surrounding the liver—called the Glisson's capsule—which is rich with nociceptors.<sup>3</sup>

If the liver is injured or infected in any way, the swelling of the organ will activate these receptors, causing a dull, aching, generalized pain that is difficult to locate.<sup>3</sup> This is especially true with chronic conditions like cirrhosis.<sup>4</sup>

Even so, the pain can vary significantly based on the underlying cause. With certain acute conditions, the pain can be sharp and stabbing or cause throbbing waves of pain that come and go. The pain may also sometimes be felt in the center of the abdomen, the lower back, or the right shoulder.<sup>5</sup>

If the pain is due to liver disease, you may also experience signs of [hepatitis](#) (liver inflammation), including:<sup>6</sup>

- Severe fatigue
- Weakness
- [Jaundice](#) (yellowing of the eyes and skin)
- [Pruritus](#) (itchiness)
- Dark urine
- Clay-colored stools
- Nausea or vomiting
- Loss of appetite
- [Hepatomegaly](#) (enlarged liver)
- [Ascites](#) (accumulation of fluid in the abdomen)

## Chronic Conditions Associated With Liver Pain

Chronic liver conditions tend to cause dull, generalized upper abdominal pain. The pain is often the result of [cirrhosis](#), a condition in which the buildup of scar tissue reduces the overall function of the liver.<sup>7</sup>

Although cirrhosis is usually [asymptomatic](#) (without symptoms), it can cause pain as the condition progresses and the liver starts to fail. This is the end stage of liver disease, known as decompensated cirrhosis.<sup>7</sup>

Among the chronic conditions associated with liver pain are viral hepatitis, alcoholic hepatitis, fatty liver disease, portal hypertension, Budd-Chiari syndrome, and liver cancer.

### **Viral Hepatitis**

Viral hepatitis is the most common cause of hepatitis. In the United States, the [hepatitis A](#), [hepatitis B](#), and [hepatitis C](#) viruses are the primary sources of infection.<sup>8</sup>

In the acute stages of infection, hepatitis A, B, and C can cause pain in the upper right abdomen along with jaundice and other classic signs of hepatitis.<sup>8</sup>

In the majority of cases, the body's [immune system](#) is able to clear the virus, often in the absence of any symptoms. But with hepatitis B and C, the infection can sometimes become chronic, causing low-level inflammation and pain that can contribute to the onset of cirrhosis if left untreated.<sup>8</sup>

### **Alcoholic Hepatitis**

Alcoholic hepatitis is liver inflammation caused by heavy alcohol use. It is a later-stage manifestation of [alcoholic liver disease \(ALD\)](#), a condition that is largely asymptomatic in the early stages.<sup>9</sup>

Alcoholic hepatitis is the point at which ALD becomes symptomatic due to the progression of cirrhosis. People who develop alcoholic hepatitis typically drink heavily and have been consuming large amounts of alcohol daily for at least 20 years.<sup>9</sup>

### **Fatty Liver Disease**

[Fatty liver disease](#), also known as hepatic steatosis, is a type of liver disease that is not caused by alcohol or a virus. It is most commonly associated with [obesity](#) and [diabetes](#), both of which can cause fat to accumulate in the liver. The buildup of fat, in turn, causes progressive scarring due to persistent, low-level [inflammation](#).<sup>10</sup>

Fatty liver disease develops over many years, generally affecting adults over 50. Between 20% and 30% of these adults will experience [metabolic dysfunction-associated steatohepatitis \(MASH\)](#). The stage at which fatty liver disease turns symptomatic due to the onset of cirrhosis.<sup>10</sup>

### **Portal Hypertension**

[Portal hypertension](#) is elevated pressure in the [portal vein](#), which carries blood from the heart to the liver. Cirrhosis can cause this by obstructing blood flow to the smaller vessels of the liver. This, in turn, causes blood to back up into the portal vein.<sup>11</sup>

Portal hypertension does not cause pain but can lead to pain as increased pressure causes [lymph fluid](#) to leak into the abdomen. As the abdomen starts to swell due to the onset of ascites, there will often be pain and discomfort radiating to the back.<sup>12</sup>

The change in blood pressure can also affect the [spleen](#) (an organ near the liver that filters blood), causing a vague but noticeable pain in the upper left abdomen.<sup>13</sup>

Other non-cirrhotic causes of portal hypertension include blood clots, a parasitic infection called [schistosomiasis](#), and a benign tumor called [focal nodular hyperplasia](#).<sup>12</sup>

### **Budd-Chiari Syndrome**

Budd-Chiari syndrome (BCS) is a rare disorder in which the [hepatic veins](#) that carry blood from the liver become narrowed and/or blocked by [blood clots](#). This causes blood to flow back into the liver, increasing the risk of ascites and portal hypertension.<sup>14</sup>

Symptoms of BCS include upper right abdomen pain accompanied by hepatomegaly. There may also be upper left abdominal pain caused by an enlarged spleen ([splenomegaly](#)).<sup>14</sup>

The risk of BCS is highest in people at risk of abnormal blood clotting, including those with pregnancy, [myeloproliferative disorders](#), and clotting disorders like [antiphospholipid syndrome \(APS\)](#). In around a third of cases, the cause is unknown.

The severity of symptoms is largely based on the location and number of hepatic veins affected.

### **Liver Cancer**

Liver cancer affects around 40,000 people in the United States each year.<sup>15</sup> The most common form, [hepatocellular carcinoma \(HCC\)](#), originates in liver cells called hepatocytes. As the tumor grows, pain may be felt in the upper right abdomen and/or radiate to the right shoulder or shoulder blade.

Another type of liver cancer, called [intrahepatic cholangiocarcinoma \(ICC\)](#), starts in the cells that line the small ducts (tubes) that carry bile from the liver to the [gallbladder](#). This obstruction of the ducts can cause sharp, shooting pains not only in the upper right abdomen but also occasionally in the lower right abdomen.<sup>16</sup>

### **Acute Causes of Liver Pain**

Acute liver pain is characterized by the sudden, severe onset of pain that may clear on its own or with medical treatment. Most cases are the result of a disease, infection, or injury that affects either the liver itself or the flow of bile from the liver to the gallbladder.

Acute causes of liver pain include:

## Liver Abscess

A [liver abscess](#) is a pocket of pus that can form in the liver due to bacterial, fungal, or parasitic infection. Liver abscesses are more commonly seen in older adults, people with diabetes, and others with [suppressed immune systems](#).<sup>17</sup>

When a liver abscess first develops, the pain will generally be dull and aching and may be accompanied by symptoms like high fever, chills, diarrhea, and hepatomegaly.<sup>17</sup>

If the infection persists, it can lead to the accumulation of pus in the gallbladder, known as [acute suppurative cholangitis \(ASG\)](#). This is an urgent medical condition characterized by sharp, stabbing pains in the upper right abdomen.<sup>18</sup>

## Liver Cysts

[Liver cysts](#) are fluid-filled pockets most often caused by the malformation of the bile ducts. Although the cause of liver cysts is unknown, they may be present at birth or develop later in life in people with certain genetic disorders or parasitic infections.<sup>19</sup>

Liver cysts can occur in isolation or cause multiple cysts to form (known as [polycystic liver disease](#)). Although the [cysts are usually harmless](#) and asymptomatic, large ones can cause discomfort and a feeling of fullness in the abdomen.<sup>19</sup>

However, if a large cyst ruptures, you may experience sudden, severe pain in your upper right abdomen radiating to the right shoulder and chest.<sup>20</sup>

## Fitz-Hugh-Curtis Syndrome

Fitz-Hugh-Curtis syndrome (FHCS), also known as perihepatitis, is a rare condition associated with [pelvic inflammatory disease \(PID\)](#). FHCS is characterized by the inflammation of the Glisson's capsule without involvement of the liver itself.<sup>21</sup>

Most cases of PID are caused by a bacterial infection that has spread from the vagina or cervix to the uterus, fallopian tubes, and/or ovaries. With FHCS, the inflammation spreads beyond the reproductive organs to the liver and lining of the abdomen (called the [peritoneum](#)), often causing them to stick together and form adhesions.<sup>21</sup>

People with FHCS experience upper right abdominal pain, often with pain that radiates to the right shoulder. Fever, chills, headache, and malaise are also common.<sup>21</sup>

Most cases of PID are caused by the bacterial sexually transmitted infections (STIs) [gonorrhea](#) and [chlamydia](#). Although most cases are acute, some can persist and cause chronic pelvic pain.<sup>22</sup>

## Liver Injury

Liver injuries make up approximately 5% of all emergency room admissions. Because the liver is large and positioned to the front of the abdomen, it is the organ most often affected by blunt force injuries, such as motor vehicle accidents or a fall.<sup>23</sup>

Depending on the severity of the injury, the pain can range from dull to severe, often with pain that radiates to the right shoulder and shoulder blade.<sup>23</sup>

If the liver is lacerated, the loss of blood can lead to [hypovolemic shock](#) in which blood pressure drops to dangerous levels. Symptoms include rapid breathing, rapid heartbeat, clammy skin, confusion, and unconsciousness.<sup>24</sup> The risk of death is high.<sup>23</sup>

### **Bile Duct Obstruction**

Bile duct obstruction occurs when the ducts that carry bile from the liver to the gallbladder and [small intestine](#) become blocked. This can lead to deep, aching pain in the upper right abdomen.<sup>25</sup>

If the blockage occurs downstream in the gallbladder, the pain can be sharp and stabbing, coming and going in waves that last anywhere from 30 minutes to several hours.<sup>26</sup>

Possible causes of a blocked bile duct include:<sup>25</sup>

- Cysts or tumors of the intrahepatic bile ducts inside the liver
- Cysts or tumors in the common bile duct leading from the liver to the gallbladder
- Enlarged lymph nodes in the [porta hepatis](#) (a section of the liver where major vessels enter and exit)
- Injury from [gallbladder surgery](#)
- Liver and bile duct worms ([flukes](#))
- [Gallstones](#)

### **Who Is More Likely to Experience Liver Pain?**

Liver pain is often a sign of an underlying liver disease. Certain lifestyle, environmental, and genetic factors can predispose you to liver disease and increase your risk of not only cirrhosis but also liver cancer and [liver failure](#).

These risk factors include:<sup>27</sup>

- A history of heavy alcohol use
- Obesity and a high dietary fat intake

- [Type 2 diabetes](#)
- Family history of liver disease
- Injected drug use (a risk factor for hepatitis B and C)
- Untreated hepatitis C infection
- [Cigarette smoking](#) (which accelerates liver scarring and the narrowing of blood vessels)
- [Exposure to substances toxic to the liver](#) (including vinyl chloride, carbon tetrachloride, acetaminophen, and herbal substances like black cohosh, ephedra, or kava)

## Diagnosing Liver Pain

Liver pain diagnosis starts with a review of your medical history, including the list of any drugs you take, how much alcohol you drink, your family history of liver disease, and other symptoms you may have.

A physical exam will involve [palpation](#) (light touching) of the upper abdomen to check the size of your liver and for any tenderness or pain. Your healthcare provider may also look for signs of hepatitis, including jaundice, abdominal swelling, and easy bruising.

Based on the initial findings, the following tests and procedures may be ordered to help pinpoint the cause of the pain:<sup>28</sup>

- **[Liver function tests \(LFTs\)](#)**: This is a battery of blood tests that detects high liver enzymes, a sign of liver disease.
- **[Stool microscopy](#)**: This involves the microscopic examination of a sample of stool to look for signs of a parasitic infection, such as liver flukes.
- **[Viral hepatitis serology](#)**: This is a comprehensive panel of blood tests that screen for hepatitis A, hepatitis B, and hepatitis C.
- **[Abdominal ultrasound](#)**: This noninvasive imaging test uses high-frequency sound waves to check for signs of fatty liver disease, cirrhosis, or gallstones.
- **[Computed tomography \(CT\)](#)**: This imaging technology composites multiple X-ray images to better detect liver tumors, lesions, cysts, injuries, bleeding, infections, or abscesses.

- [Percutaneous transhepatic cholangiogram \(PTC\)](#): This involves the injection of a contrast dye into the intrahepatic bile duct to check for obstructions when viewed on an X-ray or ultrasound.
- [Magnetic resonance imaging \(MRI\)](#): This imaging technology generates highly detailed images of soft tissues and can help characterize diseases like hepatitis, portal hypertension, or MASH.
- [Liver biopsy](#): This involves the extraction of liver tissue (usually with a hollow-tipped needle inserted through the abdomen) to check for signs of liver cancer.

## When to Seek Emergency Care

Liver pain can sometimes be a sign of a medical emergency. Call 911 if you or someone you know experiences:

- Sudden, severe pain in the upper right abdomen<sup>23</sup>
- Difficulty breathing<sup>24</sup>
- [Decreased or no urine output](#)<sup>24</sup>
- High fever with rigors (uncontrollable shaking)<sup>29</sup>
- [Vomiting blood](#)<sup>29</sup>
- [Passing bloody or tarry stools](#)<sup>29</sup>
- Confusion or disorientation<sup>29</sup>
- Fainting<sup>24</sup>

## Summary

If you have pain in the upper right abdomen just below the rib cage, it may be a result of liver disease or a liver injury. Common causes include viral hepatitis, cirrhosis, fatty liver disease, bile duct obstruction, liver abscesses or cysts, and liver cancer.

Contact a healthcare provider if you have persistent pain and other liver-related symptoms like jaundice, dark urine, or a swollen abdomen. Your provider can diagnose the underlying cause and prescribe treatments specific to your condition.

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