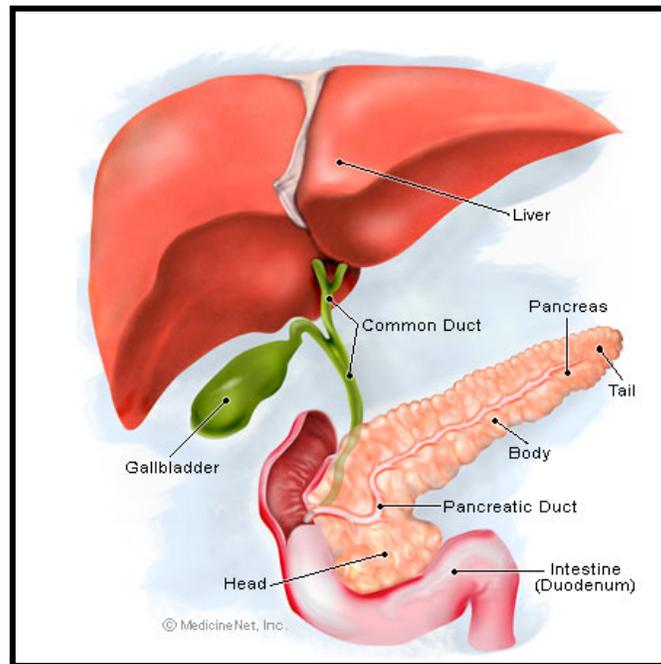


PANCREATITIS

Pancreatitis is a condition of inflammation and irritation of the pancreas, which leads to severe belly pain.

The pancreas is an organ that makes hormones and juices that help break down food. Pancreatitis is the term doctors and nurses use when this organ gets irritated or swollen. Most people get over pancreatitis without any long-lasting effects. But a few people get very sick.



There are two types of pancreatitis: **Acute** and **Chronic**

ACUTE PANCREATITIS

This condition results in inflammation of the pancreas, causing sudden and severe abdominal pain. Pancreatitis usually develops as a result of gallstones or moderate to heavy alcohol consumption over a period of years. Most attacks of acute pancreatitis do not lead to complications, and most people recover uneventfully with medical care. However, a small proportion of people have a more serious illness that requires intensive medical care. In all cases, it is essential to determine the underlying cause of acute pancreatitis and, if possible, to treat this condition to prevent a recurrence.

PANCREATITIS CAUSES

There are many possible underlying causes of acute pancreatitis, but 60 to 75 percent of all cases are caused by gallstones or alcohol abuse.

- Gallstone pancreatitis — Because the gallbladder and pancreas share a drainage duct, gallstones that lodge in this duct can prevent the normal flow of pancreatic enzymes and trigger acute pancreatitis.
- Alcoholic pancreatitis — Alcohol is a common cause of acute pancreatitis. Alcoholic pancreatitis is more common in individuals who have a long history of alcohol abuse.
- Drug-induced pancreatitis — A number of drugs used to treat medical conditions can trigger acute pancreatitis.
- Post-ERCP — Endoscopic retrograde cholangiopancreatography (ERCP) is a procedure that is done to evaluate the gallbladder or pancreas. Acute pancreatitis develops in about 3 to 5 percent of people who undergo ERCP. Most cases of ERCP-induced pancreatitis are mild, but severe, life-threatening cases have occurred in rare situations.
- Hereditary conditions — Acute pancreatitis can be caused by hereditary conditions, such as familial hypertriglyceridemia (high blood triglyceride levels) and hereditary pancreatitis. These conditions usually occur in children and young adults.
- Unexplained — No underlying cause can be identified in about **20 percent** of people with acute pancreatitis. This condition is called idiopathic pancreatitis. Only about 3 percent of this group will experience additional attacks over time.

PANCREATITIS SYMPTOMS — Acute pancreatitis frequently presents with sudden, constant pain in the upper part of the abdomen, although other medical conditions can also cause this type of pain. The pain may wrap around your upper body and involve the back in a band-like pattern. The pain typically lasts days and is often relieved by leaning forward. Some people have only slight abdominal tenderness and in 5 to 10 percent of people, there is no pain at all.

In people with gallstone pancreatitis, gallbladder pain may occur before pancreatic pain. Gallbladder pain (referred to as biliary colic) occurs in the right upper abdomen, extending to the back and right shoulder. The pain gradually increases in intensity, is constant, and may be accompanied by nausea and vomiting. Gallbladder pain often follows a meal. (See "Patient information: Gallstones".)

In people with alcoholic pancreatitis, the symptoms of acute pancreatitis often occur one to three days after an alcohol binge or after stopping drinking. Pain is accompanied by nausea and vomiting in most people. In severe cases, the initial symptom may be shock or coma.

PANCREATITIS DIAGNOSIS — Diagnosing acute pancreatitis can be difficult because the signs and symptoms of pancreatitis are similar to other medical conditions. The diagnosis is usually based upon a medical history, physical examination, and the results of diagnostic tests. The number and type of tests is tailored to the severity of acute pancreatitis and the most likely underlying causes.

Once a diagnosis of acute pancreatitis is made, additional tests are needed to determine the underlying cause. This ensures that the correct treatment is given to prevent pancreatitis from recurring.

- **Imaging tests** — Imaging tests provide information about the structure of the pancreas, the ducts that drain the pancreas and gallbladder, and the tissues surrounding the pancreas. Imaging tests may include an x-ray of the abdomen, chest, CT scan or MRI of the abdomen
- **Endoscopy: Endoscopic ultrasound (EUS) and/or Endoscopic retrograde cholangiopancreatography (ERCP)** — Endoscopic procedures such as EUS and/or ERCP may be indicated in order to look for suspected bile duct stones with EUS, and, if found, to remove them by ERCP. In addition, ERCP can be used to treat some causes of pancreatitis.

PANCREATITIS TREATMENT

The goals of treatment of acute pancreatitis are to alleviate pancreatic inflammation and to correct the underlying cause. Treatment usually requires hospitalization for at least a few days.

- **Mild pancreatitis** — Mild pancreatitis usually resolves with simple supportive care, which entails monitoring, drugs to control pain, and intravenous fluids. You may not be allowed to eat anything during the first few days, but most people can gradually resume eating within three to seven days.
- **Moderate to severe pancreatitis** — Moderate to severe pancreatitis requires more extensive monitoring and supportive care. This is because severe pancreatitis can lead to potentially life-threatening complications, including damage of the heart, lung, and kidneys. People with pancreatitis of this severity may be closely monitored in an intensive care unit.

During this time you may be given Intravenous fluids to help prevent dehydration. Most people with moderate to severe pancreatitis will not be able to eat in the early course of their illness. Instead, you may be fed through a tube placed through the nose or mouth into the small intestine.

If you cannot tolerate tube feeding or cannot get enough nutrients with tube feeding, you may be given nutrition through an intravenous line placed in the upper chest.

You can resume eating gradually once your pain resolves and bowel function returns to normal.

About 30 percent of people with severe acute pancreatitis develop an infection in the damaged pancreatic tissue. Antibiotics can prevent infections and control infections that are already present.

Acute pancreatitis is sometimes complicated by extensive damage and/or infection to the pancreatic tissue. In these cases, the damaged and/or infected tissue may be removed in a procedure referred to as a necrosectomy. Necrosectomy can be done as a minimally invasive procedure.

Gallstone pancreatitis treatment — In people who have gallstone pancreatitis, the treatment of pancreatitis is usually coupled with the treatment of gallstones. This may include a procedure to relieve the blockage caused by the gallstone(s).

Gallstone pancreatitis recurs in 30 to 50 percent of people after an initial attack of pancreatitis. Surgical removal of the gallbladder (cholecystectomy) is often recommended to prevent a recurrence.

In people who are elderly and who have serious medical problems, it may not be safe to remove the gallbladder. In this case, ERCP can be done to enlarge the bile duct opening. This would allow stones from the gallbladder to pass, helping to prevent a recurrence of acute pancreatitis.

CHRONIC PANCREATITIS

Chronic pancreatitis occurs when the pancreas becomes damaged by long-standing inflammation. Inflammation changes the pancreas' ability to function normally. People with chronic pancreatitis require ongoing medical care to minimize their symptoms, slow the damage to the pancreas, and address any complications that arise. In most cases, treatment controls but does not cure the underlying problem.

PANCREATITIS CAUSES — Some of the most common causes of chronic pancreatitis include:

- Alcohol abuse (the most common cause)
- Hereditary pancreatitis
- Blockage of the pancreatic duct (eg, from trauma, stones, tumors)
- Other diseases, such as lupus
- Cystic fibrosis or mutations of the cystic fibrosis gene

PANCREATITIS SYMPTOMS — The most common symptom of chronic pancreatitis is long-standing pain in the middle of the abdomen. You may also have episodes when

the pancreas suddenly becomes inflamed and your pain suddenly worsens (acute pancreatitis).

People with chronic pancreatitis can have difficulty digesting fats in foods; this can lead to weight loss and occasionally diarrhea. In severe cases, the pancreas loses its ability to produce enough insulin, leading to diabetes.

Abdominal pain — Abdominal pain usually occurs in the upper abdomen, often spreads to the back, may be relieved by sitting up or leaning forward, and may be associated with nausea and vomiting. The pain is often worse 15 to 30 minutes after a meal. However, about 20 percent of people with chronic pancreatitis do not have any pain at all.

Poor pancreatic function — The pancreas normally helps to digest foods and control blood sugar levels. In people with chronic pancreatitis, the pancreas may not function normally, leading to difficulty processing fat in the diet. This can cause loose, greasy, foul-smelling stools that are difficult to flush. This can lead to vitamin and nutrient deficiencies, including weight loss. These symptoms do not usually develop until the pancreas loses about 90 percent of its function.

PANCREATITIS COMPLICATIONS — Chronic pancreatitis can lead to a variety of complications, including the following:

- Blockage of the ducts that drain the pancreas and gallbladder, which can lead to jaundice (yellowing of the skin) and bouts of worsening pancreatitis.
- Blockage of the upper intestine.
- An increased risk of pancreatic cancer.

PANCREATITIS DIAGNOSIS — It can be difficult to diagnose chronic pancreatitis; the signs and symptoms can be similar to those caused by other health problems, such as an ulcer, gallstones, irritable bowel syndrome, or even pancreatic cancer.

Tests may be normal, especially during the first two to three years of the condition. It can also be difficult to distinguish chronic pancreatitis from acute pancreatitis.

Blood tests — Blood tests can detect digestive enzymes that leak out of the pancreas into the bloodstream when the pancreas is inflamed. (See "Clinical manifestations and diagnosis of chronic pancreatitis in adults".)

Stool tests — Stool tests can detect abnormal levels of fat in a stool sample.

Imaging tests — Imaging tests such as X-ray, ultrasound, CT scan, or MRI provide information about the structure of the pancreas, the ducts that drain the pancreas and gallbladder, and the tissues surrounding the pancreas.

Other tests, such as endoscopic retrograde cholangiopancreatography (ERCP) or endoscopic ultrasound, are tests that can outline the areas that drain the pancreas and gallbladder. These tests are performed by passing a tube through the mouth into the digestive tract.

Tests for pancreatic cancer — Some of the tests for chronic pancreatitis can help to determine the likelihood of having pancreatic cancer. These tests may be done because the signs of chronic pancreatitis and pancreatic cancer are similar.

Blood levels of two tumor markers, carcinoembryonic antigen (CEA) and CA 19-9, are the most commonly used blood tests.

PANCREATITIS TREATMENT — Treatment of chronic pancreatitis can help to relieve pain, improve pancreatic function, and manage complications.

Pain relief — A variety of measures can help relieve the pain of chronic pancreatitis. Simple measures may be sufficient early in the course of the condition, whereas more extensive measures may be needed after several years.

Avoiding alcohol — Avoiding alcohol is the single MOST important treatment for people with pancreatitis related to alcohol abuse. Avoiding alcohol can improve pain and reduce the risk of acute pancreatitis as well as the risk of dying.

Low-fat meals — The pain of chronic pancreatitis may be reduced by eating small, low-fat meals and drinking enough fluids. Fasting (not eating) for several days may alleviate the pain of chronic pancreatitis; this is usually done in the hospital so that you can be given nutrients in IV fluids.

Pain medication — Early in the course of chronic pancreatitis, nonprescription pain medications usually control pain. These drugs include nonsteroidal antiinflammatory drugs (NSAIDs), such as ibuprofen.

Pancreatic enzyme supplements — Pancreatic enzyme supplements are often recommended to relieve pain caused by pancreatitis. These enzymes replace the enzymes normally produced by the pancreas, allowing the pancreas to "rest." However, these enzymes do not relieve pain in all people.

Narcotic pain medicines — Narcotic pain medicines are powerful pain-relieving drugs that require a prescription. These drugs are often recommended if pancreatic enzymes do not relieve pain. However, a major problem with narcotic medicines is that some people become addicted to them and thus crave them even when they do not have pain. Thus, most clinicians use them sparingly.

Nerve block — During a nerve block, an injection is given directly into the nerves that carry pain messages from the pancreas. Nerve blocks relieve pain in about 50 percent of people who undergo the procedure. Many people require additional

treatments two to six months after the first treatment. The procedure also carries risks that should be discussed with a clinician. For this reason, nerve blocks are usually reserved for people with severe pancreatic pain that does not respond to other types of treatment.

Treatments that widen the pancreatic ducts — Chronic pancreatitis can cause pain if there is narrowing of the pancreatic ducts and the muscle that closes the duct shared by the pancreas and gallbladder. This narrowing can block secretions from the pancreas. The back-up of fluid in the pancreatic ducts leads to pain and inflammation of the pancreas. One way to treat this is to place a tube into the narrowed area (called stenting). During stenting, a stiff plastic tube (called a stent) is placed inside the pancreatic duct to hold it open. Stents can relieve pain in people who have narrowing of the pancreatic duct or pancreatic stones lodged in the duct. However, stenting has risks. Thus, it is probably only useful for a small percentage of people with chronic pancreatitis.

Pancreatic lithotripsy — Pancreatic lithotripsy refers to a procedure in which shock waves are used to break up stones that have become lodged in the pancreatic duct. This helps to improve the flow of digestive juices. The procedure is available in Europe and in a few centers in the United States.

Surgery — Surgery is usually reserved for people with chronic pancreatitis who have pain that does not respond to other treatments. The best time to have surgery is debated. Some studies suggest that early surgery slows the progression of chronic pancreatitis, while others suggest that the condition worsens even in people who have surgery early. At this time, doctors usually recommend surgery for people with chronic pancreatitis who have pain that does not respond to other treatments and who have dilated (enlarged) pancreatic ducts.

Treatment of greasy stools and digestive problems — Several treatments are available for people who do not absorb enough fat and/or have excessive fat in the stools.

Reducing fat intake — Reducing the amount of fat in the diet can reduce the amount of fat in the stools, causing them to be less greasy. Restricting fat intake to 20 grams per day or less may be recommended.

Lipase supplements — Dietary supplements that contain the enzyme lipase can reduce greasy stools and help the body to digest fat. These supplements partially replace the lipase normally produced by the pancreas.

Medium chain triglycerides (MCTs) — Medium chain triglycerides, a form of dietary fat, are more easily digested and absorbed than the long chain triglycerides found in most foods. MCTs are available as an oil that can be mixed with fruit juice. MCTs are a good source of calories for people with chronic pancreatitis who have lost weight and who do not respond to dietary changes or pancreatic enzyme supplements.

