CONDITION

Gallstones

Gallstones are hardened deposits of bile that form inside the gallbladder.

WHAT IT IS
Hardened deposits inside the gallbladder

BODY SYSTEM
Digestive system

MAIN SYMPTOMS
Upper abdominal pain, nausea, vomiting, back pain

WHAT CAUSES IT
Imbalance in cholesterol, bile salts, or bilirubin

HOW IT IS DIAGNOSED
Abdominal ultrasound, blood tests, sometimes bile duct imaging

MAIN TREATMENT
Monitoring, symptom control, or gallbladder removal

CAN IT BE CURED?
Yes - gallbladder removal prevents new gallbladder stones

IS IT AN EMERGENCY?
Sometimes - persistent pain, fever, or jaundice

LONG-TERM OUTLOOK
Usually excellent, especially after gallbladder removal

Overview

Gallstones are hard deposits that form in the gallbladder. The gallbladder is a small organ under the liver. It stores bile, a fluid that helps your body digest fats.

Most gallstones are made mainly from cholesterol. Others form from bilirubin, a substance produced when the body breaks down old red blood cells. Stones can be as small as grains of sand or large enough to fill much of the gallbladder.

Many people have gallstones without knowing it. These are sometimes called "silent" gallstones and often do not need treatment.

Problems begin when a stone blocks the flow of bile. A temporary blockage can cause an attack of upper abdominal pain, known as biliary pain or biliary colic. A longer blockage can inflame or infect the gallbladder. Stones may also enter the main bile duct and affect the liver

or pancreas.

Gallstones are different from kidney stones. They form in different organs and require different treatment.

Symptoms

Gallstones often cause no symptoms. When symptoms occur, the most typical one is steady pain in the upper abdomen. The pain may be in the centre or under the ribs on the right. It can spread to the right shoulder or back.

The pain often becomes intense and remains steady rather than coming in brief cramps. It may begin after eating, including after a fatty meal, but attacks can happen at other times. An episode may last from about 30 minutes to several hours.

Other symptoms can include:

Fever, chills, yellow skin or eyes, dark urine, pale stools, or pain that does not settle may point to a complication rather than a simple gallstone attack. These symptoms need prompt medical assessment.

- Nausea or vomiting
- Sweating or restlessness during the pain
- Tenderness in the upper right abdomen
- Bloating or indigestion, although these symptoms have many other causes

Causes and risk factors

Bile contains cholesterol, bile salts, bilirubin, and other substances. Gallstones can form when these substances are out of balance, when the gallbladder does not empty fully, or when bile becomes concentrated.

Cholesterol stones are the most common type in many countries. Pigment stones, which contain more bilirubin, are more likely in people with certain blood, liver, or bile duct conditions.

Factors linked with a higher chance of gallstones include:

Gallstones are more common in women, partly because oestrogen can increase cholesterol in bile. Having a risk factor does not mean you will develop stones, and some people develop them without an obvious risk factor.

- Increasing age
- A family history of gallstones
- Pregnancy or previous pregnancies
- Obesity
- Rapid weight loss, including after weight-loss surgery
- Conditions that cause increased breakdown of red blood cells
- Cirrhosis, which is severe scarring of the liver
- Crohn's disease affecting the end of the small intestine
- Diabetes
- Some medicines, including certain hormone treatments

Diagnosis

Symptoms alone cannot confirm gallstones because ulcers, reflux, liver conditions, pancreatitis, heart problems, and other conditions can cause similar pain.

An abdominal ultrasound is usually the main test. It uses sound waves to create pictures and can show stones in the gallbladder, thickening of the gallbladder wall, and widening of the bile ducts.

Blood tests cannot usually confirm uncomplicated gallstones. They can show signs of infection, inflammation, liver trouble, or pancreatitis.

If a stone in the main bile duct is suspected, further imaging may be needed. Magnetic resonance cholangiopancreatography, or MRCP, is a type of MRI that produces detailed images of the bile ducts. Endoscopic ultrasound uses a small ultrasound device passed through the mouth into the digestive tract.

A procedure called ERCP uses an endoscope and X-rays to examine the bile ducts. Because it can cause complications, it is generally used when treatment may also be needed, such as removing a bile duct stone.

CT scans may identify complications but can miss some cholesterol stones.

Treatment and management

Silent gallstones usually do not require treatment. They may remain symptom-free for years.

Routine removal of the gallbladder is not generally needed simply because stones were found during imaging for another reason.

If gallstones repeatedly cause typical pain, the main treatment is surgery to remove the gallbladder. This operation is called a cholecystectomy. It is usually performed through several small cuts using a camera, known as laparoscopic or keyhole surgery. Open surgery through a larger cut is sometimes necessary.

You can live without a gallbladder. After it is removed, bile flows directly from the liver into the small intestine rather than being stored between meals.

During a painful attack, treatment may include pain relief and medicine for nausea. These measures can settle symptoms but do not remove the stones.

An inflamed gallbladder, called acute cholecystitis, often requires hospital care. Treatment may include fluids, pain relief, antibiotics like amoxicillin or doxycycline when infection is suspected, and gallbladder surgery. The timing of surgery is based on the illness, test results, and the person's overall health.

Stones in the main bile duct usually need to be removed. This is often done with ERCP, sometimes followed by gallbladder removal to reduce the chance of another stone entering the duct.

Medicines that slowly dissolve certain cholesterol stones are used only in selected situations, such as when surgery is unsuitable. Treatment can take a long time, does not work for every stone, and stones may return after the medicine is stopped.

Changing your diet cannot dissolve existing stones. If particular foods trigger pain while you are awaiting treatment, eating smaller meals and limiting those foods may reduce attacks. A very restrictive or fat-free diet is not routinely necessary.

Complications

A stone blocking the gallbladder outlet can cause acute cholecystitis. This usually causes persistent upper-right abdominal pain, tenderness, and sometimes fever.

A stone in the main bile duct can stop bile draining from the liver. This may cause jaundice, which means yellowing of the skin or whites of the eyes. If infection develops in a blocked bile duct, the condition is called cholangitis and needs urgent hospital treatment.

A stone can also block the shared opening of the bile and pancreatic ducts. This may cause acute pancreatitis, a sudden inflammation of the pancreas that often produces severe upper abdominal pain and vomiting.

Rare complications include a hole in the gallbladder, an abnormal connection with the intestine, or bowel blockage caused by a large stone.

Prevention

There is no guaranteed way to prevent gallstones. You cannot change inherited risk, age, or previous pregnancies.

Maintaining a weight that is healthy for you may lower the chance of cholesterol stones. If you are losing weight, gradual and sustainable weight loss is less likely to promote stones than very rapid loss or repeated crash dieting.

Regular meals and a balanced eating pattern that includes fibre and healthy fats may support normal gallbladder emptying. However, no specific food, supplement, cleanse, or "gallbladder flush" has been shown to remove established gallstones safely.

People undergoing rapid weight loss for medical reasons may sometimes be offered measures to reduce gallstone risk. This requires individual medical assessment rather than self-treatment.

Living with it and what to expect

Silent gallstones may never cause trouble. When they are found by chance, you may only need to know which symptoms should lead to medical review.

Once gallstones begin causing typical attacks, further episodes can occur, although their timing is unpredictable. Pain may settle when a stone moves away from the gallbladder outlet, but the stone remains and may block it again.

While waiting for assessment or treatment, it can help to record when pain occurs, how long it lasts, where it spreads, and whether there is vomiting, fever, or jaundice. This can help distinguish gallstone pain from other digestive symptoms.

Most people return to their usual activities after gallbladder removal. Recovery time differs according to the type of surgery, the work you do, and whether there were complications.

Some people have temporary loose stools, bloating, or difficulty with large fatty meals after surgery. These symptoms often improve as the digestive system adjusts, but persistent diarrhoea or continuing pain should be reviewed. Removing the gallbladder treats gallbladder stones, but it does not guarantee that every abdominal symptom was caused by them.

New stones cannot form inside a gallbladder that has been removed. Stones can rarely remain

or later form within the bile ducts.

When to get medical help

Arrange a routine medical appointment if you have repeated episodes of upper abdominal pain, especially if they last more than 30 minutes or spread to your back or right shoulder. Also seek review if gallstones were found on a scan and you are unsure whether recent symptoms are related.

Seek urgent same-day medical care for:

Call emergency services if severe abdominal pain occurs with fainting, confusion, breathing difficulty, profound weakness, or other signs that you are becoming seriously unwell. Do not drive yourself if you feel faint or severely ill.

- Upper abdominal pain that is severe, persistent, or worsening
- Pain with fever or chills
- Yellow skin or eyes
- Dark urine or unusually pale stools
- Repeated vomiting or difficulty keeping fluids down
- Pain during pregnancy or alongside serious health conditions

Common questions

Can gallstones go away on their own?

Gallstones usually remain unless they are removed or, in selected cases, dissolved with medicine. A small stone may pass into the intestine, but it can cause a blockage or pancreatitis on the way. Pain stopping does not necessarily mean the stone has gone.

Does everyone with gallstones need surgery?

No. Gallstones that cause no symptoms usually do not need treatment. Surgery is more often considered when stones cause repeated typical pain or complications such as gallbladder inflammation, bile duct blockage, or pancreatitis.

What foods trigger gallstone pain?

Fatty or large meals can trigger an attack because eating causes the gallbladder to contract. Triggers are not the same for everyone, and attacks may happen without a clear food trigger. Avoiding a food may reduce symptoms, but it will not remove the stones.

Can I live normally without a gallbladder?

Yes. The liver continues producing bile, which flows directly into the intestine. Most people can return to a normal diet and usual activities after recovery. Some need to reintroduce larger or higher-fat meals gradually.

Can gallstones come back after surgery?

Gallbladder stones cannot return after the gallbladder has been removed. Rarely, a stone may be left in a bile duct or a new bile duct stone may form later. New jaundice or gallstone-like pain after surgery should be assessed.

Are gallbladder cleanses safe or effective?

There is no good evidence that oil, juice, herbs, or other "flushes" remove gallstones. Material passed afterward may be clumps formed from the cleanse rather than stones. These products can cause pain, vomiting, diarrhoea, or delays in appropriate care.

Sources

- National Institute of Diabetes and Digestive and Kidney Diseases: Gallstones , symptoms, causes, diagnosis, and treatment
- National Institute for Health and Care Excellence: Gallstone disease-diagnosis and management, Clinical Guideline CG188
- European Association for the Study of the Liver: Clinical Practice Guidelines on the prevention, diagnosis and treatment of gallstones , Journal of Hepatology , 2016
- American College of Radiology: Appropriateness Criteria-Right Upper Quadrant Pain , imaging guidance
- NHS: Gallbladder removal , procedure and recovery information
- Lammert F, Gurusamy K, Ko CW, et al. Gallstones , Nature Reviews Disease Primers , 2016