
Gallbladder - gallstones and surgery

Summary

- Gallstones are small stones made from cholesterol, bile pigment and calcium salts, which form in a person's gall bladder.
 - Medical treatment isn't necessary unless the gallstones cause symptoms.
 - Treatment options include surgery and shattering the stones with soundwaves.
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The gallbladder is a small sac that holds bile, a digestive juice produced by the liver that is used in the breakdown of dietary fats. The gallbladder extracts water from its store of bile until the liquid becomes highly concentrated. The presence of fatty foods triggers the gallbladder to squeeze its bile concentrate into the small intestine.

Gallstones (biliary calculi) are small stones made from cholesterol, bile pigment and calcium salts, usually in a mixture that forms in the gallbladder. They are a common disorder of the digestive system, and affect around 15 per cent of people aged 50 years and over.

Some things that may cause gallstones to form include the crystallisation of excess cholesterol in bile and the failure of the gallbladder to empty completely.

In most cases, gallstones don't cause any problems. However, you might need prompt treatment if stones block ducts and cause complications such as infections or inflammation of the pancreas (pancreatitis).

Surgeons may remove your gallbladder (called a cholecystectomy) if gallstones (or other types of gallbladder disease) are causing problems. Techniques include laparoscopic ('keyhole') cholecystectomy or open surgery. The gallbladder is not a vital organ, so your body can cope quite well without it.

Symptoms of gallstones

In approximately 70 per cent of cases, gallstones cause no symptoms. The symptoms of gallstones may include:

- pain in the abdomen and back. Pain is generally infrequent, but severe
- increase in abdominal pain after eating a fatty meal
- jaundice
- fever and pain, if the gallbladder or bile duct becomes infected.

Types of gallstones

There are three main types of gallstones being:

- mixed stones – the most common type. They are made up of cholesterol and salts. Mixed stones tend to develop in batches
- cholesterol stones – made up mainly of cholesterol, a fat-like substance that is crucial to many metabolic processes. Cholesterol stones can grow large enough to block bile ducts
- pigment stones – bile is greenish-brown in colour, due to particular pigments. Gallstones made from bile pigment are usually small, but numerous.

Causes and risk factors for gallstones

Gallstones are more common in women than in men. They are also more common in overweight people and people with a family history of gallstones.

There is no single cause of gallstones. In some people, the liver produces too much cholesterol. This can result in the formation of cholesterol crystals in bile that grow into stones. In other people, gallstones form because of changes in other components of bile or because the gallbladder does not empty normally.

Diagnosis of gallstones

Doctors diagnose gallstones by using a number of tests, including:

- general tests – such as physical examination and x-rays
- ultrasound – soundwaves form a picture that shows the presence of gallstones
- endoscope test – endoscopic retrograde cholangiopancreatography (ERCP). A thin tube is passed through the oesophagus and injects dye into the bowel to improve the quality of x-ray pictures
- hepatobiliary iminodiacetic acid (HIDA) scan – a special type of nuclear scan that assesses how well the gallbladder functions
- magnetic resonance cholangiopancreatography (MRCP) – a form of the body-imaging technique magnetic resonance imaging (MRI). The person's liver, biliary and pancreatic system is imaged using an MRI unit. The image is similar to an ERCP test.

Complications of gallstones

If gallstones cause no symptoms, you rarely need any treatment.

Complications that may require prompt medical treatment include:

- biliary colic – a gallstone can move from the body of the gallbladder into its neck (cystic duct), leading to obstruction. Symptoms include severe pain and fever
- inflammation of the gallbladder (cholecystitis) – a gallstone blocks the gallbladder duct, leading to infection and inflammation of the gallbladder. Symptoms include severe abdominal pain, nausea and vomiting
- jaundice – if a gallstone blocks a bile duct leading to the bowel, trapped bile enters the person's bloodstream instead of the digestive system. The bile pigments cause a yellowing of the person's skin and eyes. Their urine may also turn orange or brown
- pancreatitis – inflammation of the pancreas, caused by a blocked bile duct low down near the pancreas. Pancreatic enzymes irritate and burn the pancreas and leak out into the abdominal cavity
- cholangitis – inflammation of the bile ducts, which occurs when a bile duct becomes blocked by a gallstone and the bile becomes infected. This causes pain, fever, jaundice and rigors (shaking)
- infection of the liver
- cancer of the gallbladder (occurs rarely).

Treatment for gallstones

Gallstones that cause no symptoms, generally don't need any medical treatment. In certain cases (such as abdominal surgery for other conditions), doctors may remove your gallbladder if you are at high risk of complications of gallstones.

Treatment depends on the size and location of the gallstones, but may include:

- dietary modifications – such as limiting or eliminating fatty foods and dairy products
- lithotripsy – a special machine generates soundwaves to shatter the gallstones. This treatment is used in certain centres only, for the minority of people with small and soft stones
- medications – some medications can dissolve gallstones, but this treatment is only rarely given, due to side effects and a variable success rate

- surgery.

Surgical removal of the gallbladder or gallstones

Around 80 per cent of people with gallstone symptoms will need surgery. Surgeons may remove your entire gallbladder (cholecystectomy), or just the stones from bile ducts.

Techniques to remove the gallbladder include:

- laparoscopic cholecystectomy – ‘keyhole’ surgery. The surgeon makes a number of small incisions (cuts) through the skin, allowing access for a range of instruments. The surgeon removes the gallbladder through one of the incisions
- open surgery (laparotomy) – the surgeon reaches the gallbladder through a wider abdominal incision. You might need open surgery if you have scarring from prior operations or a bleeding disorder.

Medical factors to consider before cholecystectomy

Before the operation, you need to discuss some things with your doctor or surgeon, including:

- your medical history, since some pre-existing conditions may influence decisions on surgery and anaesthetic
- any medications you take on a regular basis, including over-the-counter preparations
- any bad reactions or side effects from any medications.

Laparoscopic cholecystectomy

The general procedure includes:

- The surgeon makes a number of small incisions into your abdomen, so that slender instruments can reach into the abdominal cavity.
- A tube blowing a gentle stream of carbon dioxide gas is inserted. This separates the abdominal wall from the underlying organs.
- The surgeon views the gallbladder on a TV monitor by using a tiny camera attached to the laparoscope.
- Special x-rays (cholangiograms) during the operation can check for gallstones wedged in the bile ducts.
- The ducts and artery that service the gallbladder are clipped shut. These clips are permanent.
- The gallbladder is cut free using either laser or electrocautery
- The gallbladder, along with its load of gallstones, is pulled out of the body through one of the abdominal incisions.
- The instruments and the carbon dioxide gas are removed from the abdominal cavity. The incisions are sutured (closed up) and covered with dressings.

Open gallbladder surgery

The general procedure is the same as for laparoscopic surgery, except that the surgeon reaches the gallbladder through a large, single incision in the abdominal wall. Sometimes, an operation that starts out as a laparoscopic cholecystectomy turns into open surgery if the surgeon encounters unexpected difficulties, such as not being able to see the gallbladder properly.

Immediately after gallbladder surgery

After a gallbladder operation, you can expect to:

- feel mild pain in your shoulder from the carbon dioxide gas
- receive pain-relieving medications
- be encouraged to cough regularly to clear your lungs from the general anaesthetic
- be encouraged to walk around as soon as you feel able

- stay overnight in hospital, if you had a laparoscopic cholecystectomy
- stay up to eight days in hospital, if you had open surgery.

Complications after gallbladder surgery

All surgery carries some degree of risk. Possible complications of cholecystectomy include:

- internal bleeding
- infection
- injury to nearby digestive organs
- injury to the bile duct
- leakage of bile into the abdominal cavity
- injury to blood vessels.

Self-care after gallbladder surgery

Be guided by your doctor, but general self-care suggestions include:

- Rest as much as you can for around three to five days.
- Avoid heavy lifting and physical exertion.
- Expect your digestive system to take a few days to settle down. Common short-term problems include bloating, abdominal pains and changes to toilet habits.

Most people recover within one week of laparoscopic surgery.

Long-term outlook after gall bladder surgery

You will need to see your doctor between seven and 10 days after surgery to make sure all is well. Some rare complications may have to be followed up with another operation.

Where to get help

- Your doctor
- Gastroenterologist
- NURSE-ON-CALL Tel. 1300 60 60 24 – for expert health information and advice (24 hours, 7 days)

Things to remember

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This page has been produced in consultation with and approved by:

Canberra Hospital - Gastroenterology Unit

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