

Information about

# Gallstones



## What are Gallstones?

Gallstones (biliary calculi) are small pebble-like substances that form in the gallbladder.

The gallbladder is a small pear-shaped sac that lies below the liver. Bile is made in the liver, and stored in the gallbladder until the body needs it. The presence of fatty foods triggers the gallbladder to squeeze bile into the small intestine.

Bile helps with digestion and breaks up dietary fat. It contains water, cholesterol, fats, bile salts, proteins, and bilirubin (a waste product). If bile contains too much cholesterol, bile salts, or bilirubin, it can harden into gallstones.

Gallstones can block the normal flow of bile if they move from the gallbladder and lodge in any of the ducts that carry bile from the liver to the small intestine. The ducts include the:

- Hepatic ducts - which carry bile out of the liver.
- Cystic duct - which takes bile to and from the gallbladder.
- Common bile duct - which takes bile from the cystic and hepatic ducts to the small intestine.

## Why do Gallstones form?

There is no single cause of gallstones. Gallstones can be as small as a grain of sand or as large as a golf ball. The gallbladder can develop just one large stone, hundreds of tiny stones, or a combination of the two. The three types of gallstones are cholesterol stones, pigment stones and mixed stones.

### Cholesterol stones

If the liver produces too much cholesterol, cholesterol crystals may form in bile and harden to become stones. Cholesterol stones can grow to significant sizes, large enough to block bile ducts.

### Pigment stones

Numerous, small dark stones form because of changes in other bile components or because the gallbladder fails to empty normally.

### Mixed stones

These are the most common type and tend to develop in batches. They are composed of cholesterol and salts.

Gallstones become more common with advancing age and can be found in up to 15% of people 50 years and over. They are more common in women than in men, in people who are overweight and in those with a family history of gallstones. People with diabetes, taking cholesterol lowering medicines or who lose a lot of weight quickly are also more at risk.

## What symptoms do Gallstones cause?

In most cases gallstones don't cause any problems, and 7 out of 10 people have no symptoms.

The most common symptoms include:

- Pain in the abdomen and back. Pain is generally infrequent but severe.
- Increase in abdominal pain after eating a fatty meal.

Most people with gallstones never have a serious complication. However, if stones are present for many years, about 1 in 10 people will develop jaundice (a yellow discolouration of the skin and whites of the eyes), pancreatitis or infections. Some of the specific complications relating to gallstones can include:

- **Obstructive jaundice or cholestasis**  
A blockage of bile flow causes jaundice.
- **Biliary colic** - An obstruction of the cystic duct (the neck of the gallbladder) resulting in severe pain and fever. No inflammation is present.

- **Cholecystitis** - Inflammation of the gallbladder. A secondary infection may be present. Nausea and vomiting may also occur.
- **Cholangitis** - Inflammation of the bile duct. May occur if the bile ducts become blocked and subsequently infected with bacteria from the small intestine.
- **Pancreatitis** - Occasionally, stones at the lower end of the duct cause inflammation of the pancreas gland, a very painful condition.
- **Gallstone ileus** - Gallstones obstruct the small or large intestine.

These complications often require urgent treatment in hospital, but preventive surgery is rarely advisable.

Indigestion, fullness, nausea and fatty food intolerance are not due to gallstones, and won't be improved by surgery.



**The most common symptom is episodes of moderate or severe pain in the upper abdomen or back.**

## How are Gallstones diagnosed?

The first investigation is usually an ultrasound study, a painless and relatively simple test that is highly accurate in locating stones in the gallbladder.

Further investigation may be needed if complications occur, or if stones in the bile duct are thought likely. For example, ERCP (endoscopic retrograde cholangiopancreatography) may be needed to locate and remove bile duct stones. In ERCP, a flexible tube called an endoscope is passed through the oesophagus and stomach into the small bowel, dye is injected into the bile duct and then x-rays are taken.

## What sort of operation might I need?

Treatment will usually require surgery or endoscopic removal of stones from the bile duct.

If you have frequent gallbladder attacks, your doctor may recommend you have your gallbladder removed (cholecystectomy). Surgery to remove the gallbladder, a non-essential organ, is one of the most common surgeries performed on adults.

This surgery is usually done by 'keyhole' surgery, using laparoscopes. The operation requires three small incisions in the abdomen and usually 1 or 2 days in hospital.

Occasionally, 'keyhole' surgery is impossible or risky and the gallbladder is instead removed through a longer incision below the right ribs. This requires a longer hospital stay, perhaps from 5 to 8 days.

Operations such as these are very safe but always carry a small risk of problems during surgery (such as bleeding or damage to the bile duct) and of later complications such as chest infections. Occasionally, x-rays taken during the operation show a stone in the bile duct that requires a later endoscopic procedure (ERCP as described above). If you are concerned about possible risks, ask your doctor for further information.

## Will an operation cure my symptoms?

Surgery will cure any symptoms arising from gallstones. You can live perfectly well without your gallbladder! After surgery, bile made in the liver will continue to aid digestion and you will not need to change your diet.

This information leaflet has been designed by the Digestive Health Foundation as an aid to people who have been diagnosed with gallstones or for those who wish to know more about this topic. This is not meant to replace personal advice from your medical practitioner.

The Digestive Health Foundation (DHF) is an educational body committed to promoting better health for all Australians by promoting education and community health programs related to the digestive system.

The DHF is the educational arm of the Gastroenterological Society of Australia (GESA). GESA is the professional body representing the specialty of gastrointestinal and liver disease. Members of the Society are drawn from physicians, surgeons, scientists and other medical specialties with an interest in gastrointestinal (GI) disorders. GI disorders are the most common health related problems affecting the community.

Research and education into gastrointestinal disease are essential to contain the effects of these disorders on all Australians.

Further information on a wide variety of gastrointestinal conditions is available on our website.

**dhf**

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