

WALNUT CREEK SURGICAL ASSOCIATES

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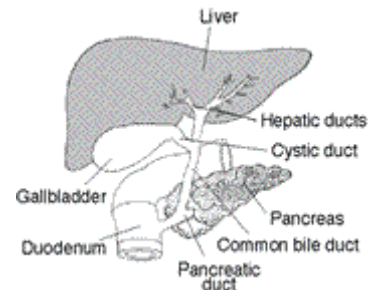
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The Gallbladder and Gallstones

The gallbladder is a structure on the underside of the liver on the right side of the abdomen. The function of the gallbladder is to store bile that is produced in the liver before the bile is secreted into the intestines. Bile secreted into the intestines helps the body digest fats.



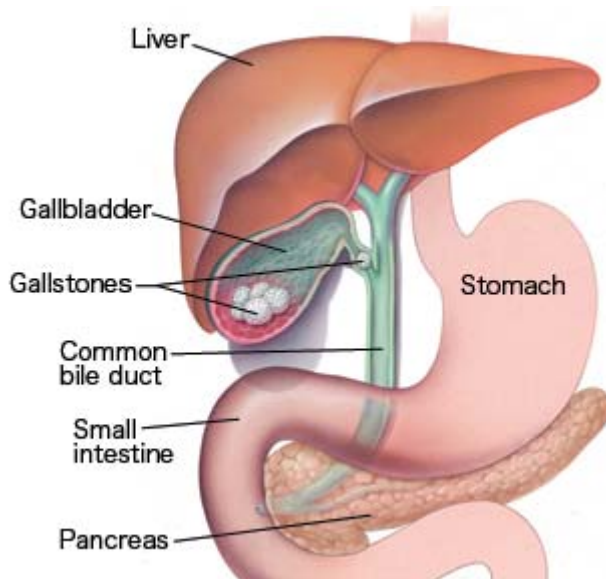
Role in disease

- [Gallstones \(cholelithiasis\)](#) are usually composed of [lecithin](#) and [bile acids](#).
- [Biliary colic](#) is when a [gallstone](#) blocks either the common bile duct or the duct leading into it from the gallbladder.
- **Blocking the flow of bile out of the gallbladder, causes it to swell and resulting in sharp abdominal pain, vomiting, indigestion, bloating, and occasionally fever.**
- Acute or chronic [inflammation](#) of the gall bladder ([cholecystitis](#)) causes [abdominal pain](#). 90% of cases of acute cholecystitis are caused by the presence of gallstones
- **Sometimes the gallbladder contracts abnormally causing pain without stones.**
- When [gallstones](#) obstruct the common [bile duct \(choledocholithiasis\)](#), the patient develops [jaundice](#) and [liver](#) cell damage. It is a medical emergency, requiring [endoscopic](#) or [surgical](#) treatment such as a [cholecystectomy](#).

Stones can be large or small, single or multiple. These factors do not necessarily predict the frequency of symptoms or the severity of the disease. In some cases gallbladder symptoms are caused by the dysfunctional gallbladder.

- Rapid weight loss from dieting can cause gallstones to form.
- If you are pregnant -- hormone changes can make bile more likely to form stones. If your gallbladder needs to be removed, your doctor will talk with you about the timing for

surgery. In some cases, it can be delayed until after childbirth. In others, you may have surgery during pregnancy. This helps protect you and your baby's health.



Common Symptoms

Gallbladder problems can cause painful attacks, often after a meal. Some people have only one attack, some have many. Some just have fever. Common symptoms include:

- Severe pain or aching in the upper abdomen, back, or right shoulder blade
- A dull ache beneath the ribs or breastbone
- Nausea, upset stomach, or vomiting
- Jaundice (a buildup of bile chemicals in the blood), which causes yellowing of the skin and eyes, dark urine, and itching

How are Gallbladder Problems Diagnosed?

Some of the tests used to evaluate include:

- Lab (blood) tests to check for jaundice, liver inflammation, and blood clotting
- [Ultrasound](#): Uses sound waves to image the intra-abdominal organs including the gallbladder. This is the most common test to diagnose gallstones.
- [CT scan](#): Computer constructed x-ray images of the abdominal organs
- [HIDA scan](#): Uses a low level radioactive tracer that is taken up by the gallbladder to measure gallbladder function.
- [MRCP](#): A type of MRI scan that visualizes the common bile duct to check for bile duct obstruction.
- [ERCP](#): A test where a scope is passed via the mouth into the common bile duct allowing dye to be injected into the common bile duct. X-ray pictures are then taken. This test gives the most accurate assessment of the common bile duct. It also is sometimes required to extract stones from the common bile duct.

Treating Gallstones

If your stones are not causing symptoms, you may choose to delay treatment. But if you've had one or more painful attacks, your doctor will likely recommend removing your gallbladder. This prevents more stones from forming and causing attacks. It also helps prevent complications. After the gallbladder is removed, your liver will still make bile to aid digestion. **Removal of the gallbladder is not usually associated with any impairment of digestion.**

Medication

Medication can be given by mouth to dissolve some kinds of small stones. But it takes time for the medication to take effect. Stones may return. Medication is most useful for people who cannot have surgery.

ERCP

ERCP (endoscopic retrograde cholangiopancreatography) uses a thin tube with video and x-rays to locate stones and remove them from the common bile duct. ERCP may be done alone. Or it may be followed by surgery to remove the gallbladder.

Surgery

Surgery is done to remove gallstones and the gallbladder. You cannot just remove the stones and leave the gallbladder, since it is diseased.

- **Laparoscopic cholecystectomy** uses small incisions to locate and remove the gallbladder.
- **Open Cholecystectomy** uses a larger incision to remove the gallbladder, and is more effective for removing stones in the ducts. It may be necessary to perform an open procedure if there is prior surgery, a lot of bleeding during surgery, or an injury to the bile ducts.

Having Surgical Cholecystectomy

If you have painful attacks caused by gallstones or gallbladder disease, your doctor may recommend removing the gallbladder -- a **cholecystectomy**. This surgery usually eliminates pain and prevents future attacks. Best of all, you'll be able to live a full, healthy life even without your gallbladder. This includes eating the foods you enjoyed before your gallbladder problems started.

Before Your Surgery

- Stop taking aspirin, ibuprofen, and naproxen if directed. Ask your doctor what to do if you take prescription blood thinners such as Coumadin (warfarin).
- Have any tests, such as blood tests, that your doctor recommends.

- Don't eat or drink anything after midnight, the night before your surgery. This includes water and coffee.

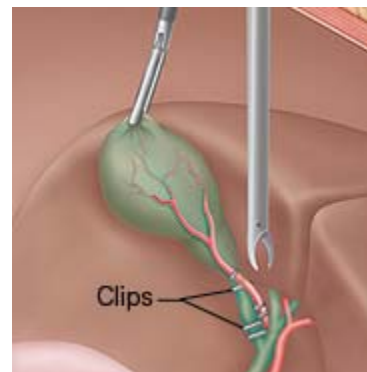
The Day of Surgery

- You'll be given an IV to provide fluids and medication.
- An anesthesiologist will talk with you about the medications used to prevent pain during surgery. Cholecystectomy is done using general anesthesia. This lets you sleep during the procedure.

During Surgery

There are two methods for removing the gallbladder. Your doctor will choose which method is safer for you.

- **Laparoscopic cholecystectomy** is used for most gallbladder problems. A thin, lighted device called a laparoscope sends images to a video monitor. The magnified view lets your surgeon see and remove the gallbladder using only small incisions in the abdomen.
- **Open cholecystectomy** removes the gallbladder through a single, larger incision. It is most often used when scarring or other factors make this a safer procedure for you. There is also a chance that your doctor may need to convert from laparoscopic to open surgery during the operation.



Clips are used to close off the bile duct and blood vessels so the gallbladder can be removed.

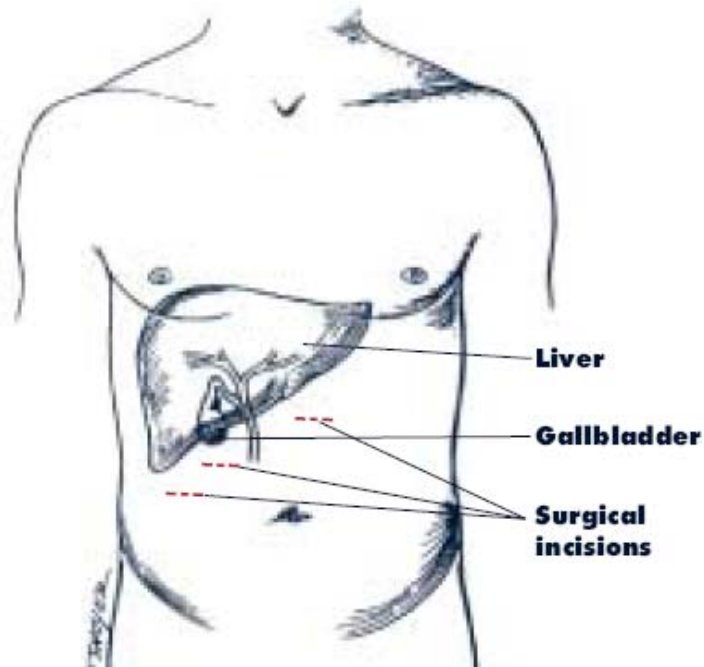
What are the complications?

Complications are rare but may include bleeding, infection, or injury to the main bile duct (tube) that carries bile from your gallbladder to your stomach. During cholecystectomy the intestines or major blood vessels may be injured when the instruments are inserted into the abdomen. Laparoscopic procedures sometimes must be converted to open conventional laparotomy if problems are encountered. Remember, all of these complications are unusual. If stones are found in the common duct an additional procedure may be required.

A stone can be in the main bile duct and require a change to open surgery, or a follow on procedure such as ERCP (endoscopy) to remove the stone. Leaks of blood or bile sometimes must be drained.

Laparoscopic Cholecystectomy

Patients who have this procedure usually recover more quickly and have less pain than with open surgery.



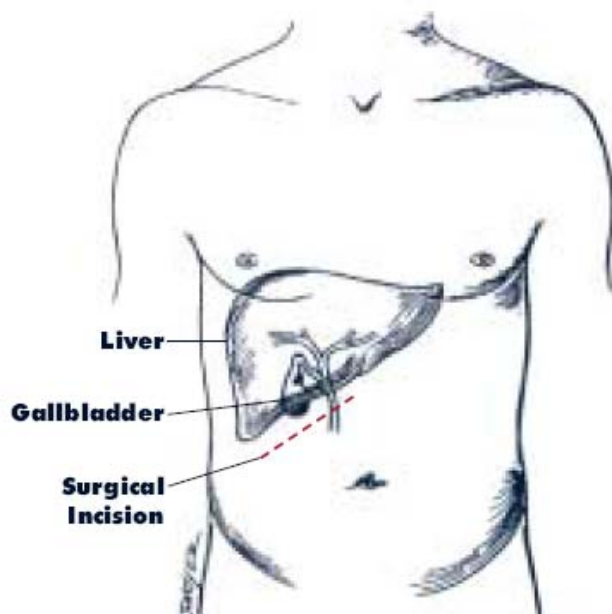
- Small incisions are made in the abdomen. A harmless gas is then used to lift the abdominal wall away from your internal organs. This helps your doctor see and move instruments inside your body.
- A **laparoscope** (a thin, telescope-like device) is inserted through one incision. It sends images of the gallbladder to a video monitor. Surgical instruments are inserted through the other incisions to remove the gallbladder.
- Small clips are used to close off the bile duct and blood vessels. The gallbladder is then detached from the liver and removed through one of the incisions. Bile will now flow directly from the liver to the small intestine.



You doctor views your gallbladder on a video monitor.

WHO SHOULD HAVE OPEN – CONVENTIONAL CHOLECYSTECTOMY?

If you had prior surgery in the area near your gallbladder, if you tend to bleed a lot, you are pregnant, or if you have any problem that would make it hard for your doctor to see your gallbladder, an open surgery may be better for you. Your doctor will decide which type of surgery is appropriate for you.



During conventional cholecystectomy, the surgeon makes an incision that is approximately four to six inches long.

After Gallbladder Surgery

You can usually go home the same day as your surgery. In some cases, you may need to stay overnight. Once you're at home, be sure to follow all your doctor's instructions.

In the Hospital

Bandages will cover your incisions and you may have special boots on your legs to prevent blood clots. To aid recovery, you'll be asked to get up and move as soon as possible. You may also be asked to use a device that helps keep your lungs clear.

At Home

You can get back to your normal routine as soon as you feel able. To speed healing:

- Take any prescribed pain medications as directed.
- Follow your doctor's instructions about bathing and caring for your incisions.
- Walk and move around as often as possible.
- Ask your doctor about driving and going back to work. This is often about 5–10 days after surgery.



Regular exercise helps speed your recovery.

Eating Normally Again

Removing the gallbladder doesn't mean you have to be on a special diet. You should start with light meals and avoid fatty foods. It can also take a few weeks for your digestion to adjust. You may have indigestion, loose stools, or diarrhea. This is normal and should go away in time.

Following Up

Keep follow-up appointments during your recovery. These allow your doctor to check your progress and answer any questions. Be sure to mention if you have any new symptoms. Also mention if you have diarrhea that doesn't go away.

Call your doctor if you have any of the following:

- Fever over 101°F or chills
- Increasing pain, redness, or drainage at an incision site
- Vomiting or nausea that lasts more than 12 hours
- Prolonged diarrhea

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