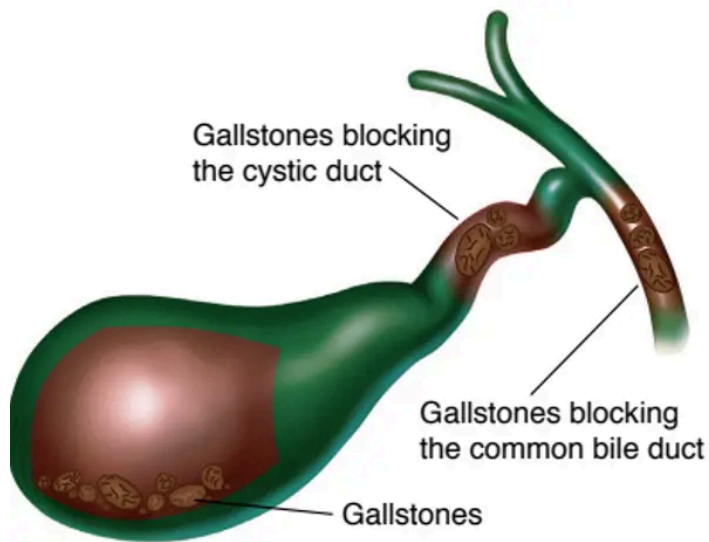
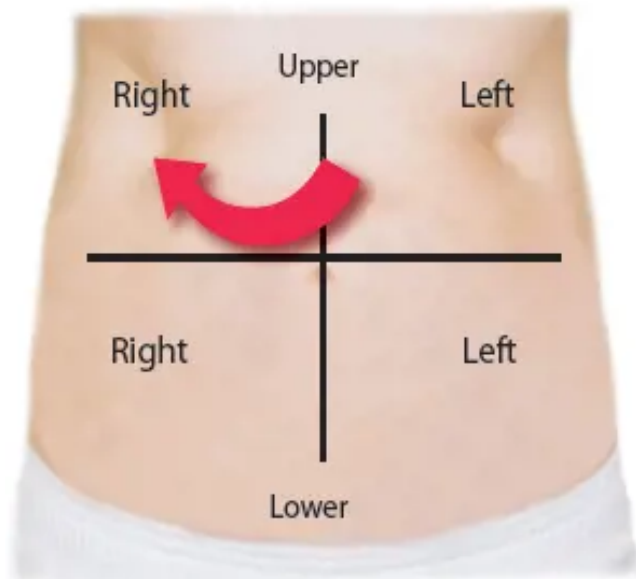


Cholecystectomy

Cholecystectomy is the surgical removal of the gallbladder. The operation is done to remove the gallbladder due to gallstones causing pain or infection.



Common Symptoms



The most common symptoms of cholecystitis are¹:

- Sharp pain in the right upper abdomen
- Low fever
- Nausea and bloating
- Jaundice (yellowing of the skin) may occur if gallstones are in the common bile duct.

Treatment Options

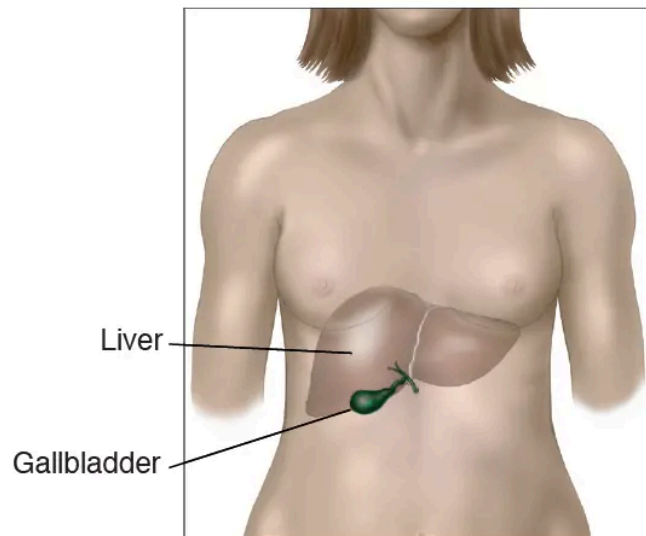
Surgical Procedure²

Laparoscopic cholecystectomy—The gallbladder is removed with instruments placed into small incisions in the abdomen.

Open cholecystectomy—The gallbladder is removed through an incision on the right side under the ribcage.

Nonsurgical Procedure—Stone removal by endoscopy

For Gallstones without Symptoms—Watchful waiting for all patients,³ Increased exercise

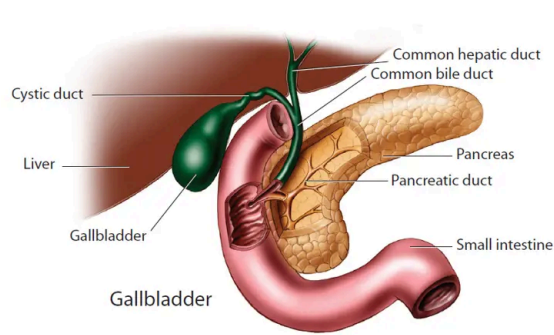


Benefits and Risks of the Operation

Benefits—Gallbladder removal will relieve pain, treat infection, and, in most cases, stop gallstones from coming back.

Complications are rare; Possible risks include—Bile leak, bile duct injury, bleeding, infection, fever, liver injury, infection, numbness, raised scars, hernia at the incision, anesthesia complications, puncture of the intestine, and death.^{2, 4}

Risks of not having an operation—The possibility of continued pain, worsening symptoms, infection or bursting of the gallbladder, blood clots, and possibly death.⁵



Expectations

Before your operation— Evaluation usually includes blood work, a urinalysis, and an abdominal ultrasound.⁶ Your surgeon and anesthesia provider will discuss your health history, home medications, and pain control options.

The day of your operation— Check with your surgeon for when you have to stop eating and drinking. Usually, you stop eating for 6 hours before surgery. You may drink clear liquids up to 2 hours before.⁷⁻⁸ Most often, you will take your normal medication with a sip of water. You will need someone to drive you home.

Your recovery— If you do not have complications, you usually will go home the same day after a laparoscopic procedure or in 1 to 2 days after an open procedure.⁴ Movement and deep breathing after your operation can help prevent postoperative complications such as blood clots, fluid in your lungs, and pneumonia. Every hour, take 5 to 10 deep breaths and hold each breath for 3 to 5 seconds.

Call your surgeon if you have severe pain, stomach cramping, chills, a high fever (over 100.4°F or 38.3°C), odor or increased drainage from your incision, your skin turns yellow, no bowel movements for three days, or vomiting.

Questions to Ask About the Operation

- What are the risks and side effects of general anesthesia?
- What type of procedure will be used to remove the gallbladder—laparoscopic or open?
- Ask your surgeon how frequently they perform this procedure?
- What are the risks of this procedure for myself or my child?
- What level of pain after surgery should I expect and how will it be managed?
- How long will it be before I can return to my normal activities—work, driving, lifting?
- What can I expect after the operation?
- What type of care will I have to provide for myself?
- Will I have drains or tubes?

The Condition

The Gallbladder

The gallbladder is a small pear-shaped organ under the liver. The liver makes 3 to 5 cups of bile every day which is stored in the gallbladder. The gallbladder sends bile to the small intestine through ducts to help digest fats in food.¹

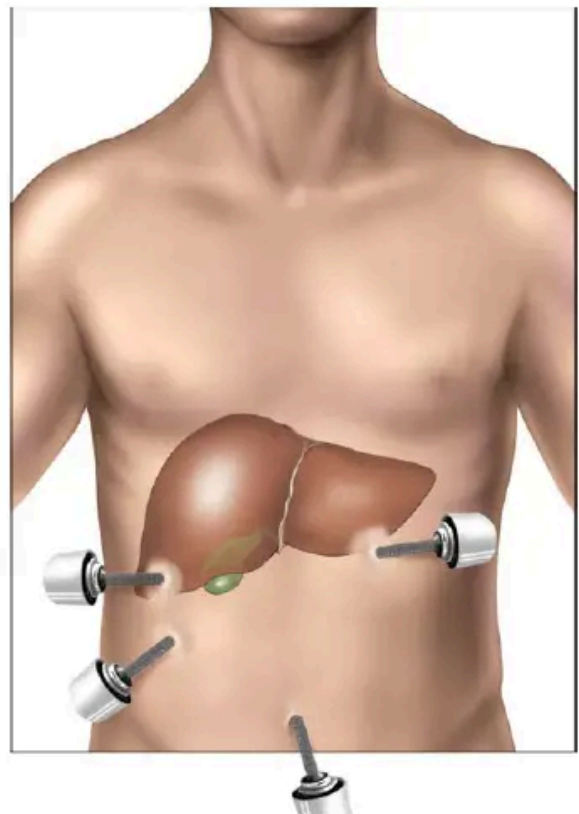
Gallstones

Gallstones are hardened digestive fluid that can form in your gallbladder. Gallstones can leave the gallbladder and block the flow of bile through the ducts and cause pain and swelling of the gallbladder (Cholecystitis).

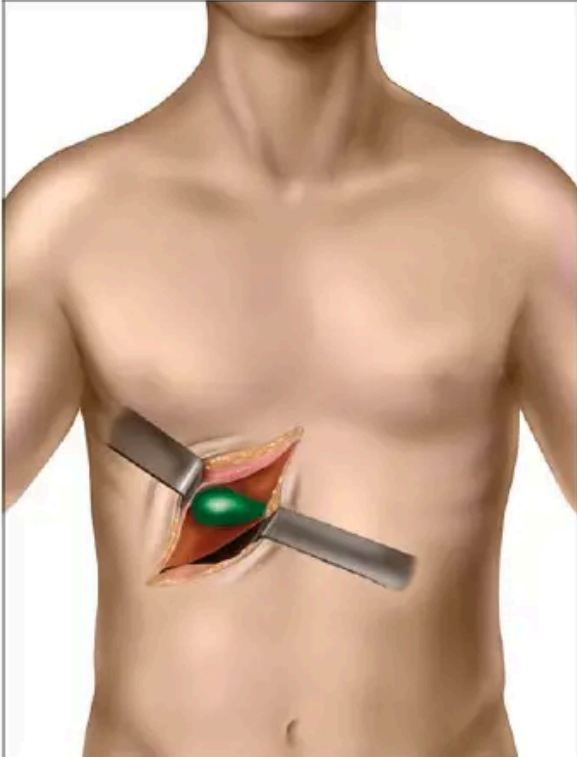
Common Tests

The Procedure

Laparoscopic Cholecystectomy



Open Cholecystectomy



Cholecystitis in Children

In children, inflammation of the gallbladder can be caused by gallstones. This is called acute (sudden) calculous (with gallstones) cholecystitis (ACC). ACC is most common in children with intestinal diseases and sickle cell disease.⁷ Children with sickle cell disease should have an ultrasound screening for gallstones.⁸ A more frequent type of cholecystitis in children is acute acalculous (without gallstones) cholecystitis (AAC). Children with cholecystitis who have pain, fever, nausea or jaundice (yellow skin) may be treated with IV fluids, antibiotics and non-opioid pain medication in the hospital. Cholecystectomy may be recommended for children with painful gallstones. The

procedure is most often done laparoscopically through small incisions in the belly button or abdomen.

Risks	Percent for Average Patient	Keeping You Informed
Pneumonia: Infection in the lungs	Open 1.6% Laparoscopic 0.2%	You can decrease your risk by rinsing with antiseptic mouthwash the morning of your operation (to decrease mouth bacteria), quitting smoking, and getting up to walk 4-5 times each day after surgery.
Heart complication: Heart attack or sudden stopping of the heart	Open 0.9% Laparoscopic 0%	Problems with your heart or lungs can be affected by general anesthesia. Your anesthesia provider will take your history and suggest the best option for you.

Wound infection	Open 7.2% Laparoscopic 1.0%	Antibiotics are not routinely given except for high-risk patients. You should wash your abdomen with an antimicrobial soap such as Dial the night before the operation.
Urinary tract infection: Infection of the bladder or kidneys	Open 0.8% Laparoscopic 0.4%	A Foley catheter may be placed during surgery to drain the urine. Let your surgical team know if you have trouble urinating after the tube is removed.
Blood clot: A blood clot in the legs can travel to the lung	Open 1.9% Laparoscopic 0.2%	Longer surgery and bed rest increase the risk. Walking 5 times/day and wearing support stockings reduce the risk.
Renal (kidney) failure: Kidneys no longer function in making urine and/or cleaning the blood of toxins	Open 0.8% Laparoscopic 0%	Pre-existing renal problems, Type 1 diabetes, being over 65 years old, and other medications may increase the risk.

Return to surgery	Open 2.6% Laparoscopic 0.6%	Bile leakage or a retained stone may cause a return to surgery or require additional endoscopy or radiology procedures. Your surgical team is prepared to reduce all risks of return to surgery. ¹
Death	Open 0.7% Laparoscopic 0%	Your surgical team will review for possible complications and be prepared to decrease all risks.
Discharge to nursing or rehabilitation facility	Open 5.8% Laparoscopic 0.7%	Pre-existing health conditions can increase this risk.
Bile Duct Injury/Leakage*¹ 4	Open 1/1,000 patients	Injury can happen between 1 week to 6 months after the operation from fever, pain, jaundice, or bile leakage from the incision. Further testing and surgery may be needed. ¹⁴
Retained common bile	Open 1.8%	A gallstone may pass after surgery and block the bile from draining. The stone

duct stone*¹

should be removed because of an increased risk of blockage or swelling of the pancreas or bile duct.¹

Pregnancy Complications, premature labor and fetal loss*

Fetal loss 4% (uncomplicated removal) up to 60% if pancreatitis

Most pregnant women with gallstones will have no symptoms during pregnancy.¹⁵

1% means that 1 of 100 people will have this complication

**Results from the last 10 years of literature*

The ACS Surgical Risk Calculator estimates the risk of an unfavorable outcome. Data is from a large number of patients who had a surgical procedure similar to this one. If you are healthy with no health problems, your risks may be below average. If you smoke, are obese, or have other health conditions, then your risk may be higher. This information is not intended to replace the advice of a doctor or health care provider. To check your risks, go to the ACS Risk Calculator at <http://riskcalculator.facs.org>.

Recovering from Surgery

Access resources and information you need to optimize your recovery from surgery.

Surgery FAQ

Answers to common questions surgical patients have before, during, and after a procedure.

Translations

The ACS is proud to offer language translations of this important information. Follow the links below to access PDFs.

[View Spanish](#) (Colecistectomía)

[View Chinese](#) (胆囊切除术)

Glossary

Abdominal ultrasound: A handheld transducer, or probe, is used to project and receive sound waves to determine the location of deep structures in the body. A gel is wiped onto the patient's skin so that the sound waves are not distorted as they cross through the skin.

Advance directives: Documents signed by a competent person giving direction to health care providers about treatment choices. They give you the chance to tell your feelings about health care decisions.

Adhesions: A fibrous band or scar that causes internal organs to adhere or stick together.

Bile: A fluid produced by the liver and stored in the gallbladder which helps in the digestion of fats.

Biliary colic: Sudden pain in the abdomen caused by spasm or blockage of the cystic or bile duct lasting for more than 30 minutes.

Bilirubin: A yellow breakdown product of the red blood cells. High levels may indicate diseases of the liver or gall bladder.

Complete blood count (CBC): A CBC measures your red blood cells (RBCs) and white blood cells (WBCs). WBCs increase with inflammation. The normal range for WBCs is 5,000 to 10,000.

Endoscopic retrograde cholangiopancreatography (ERCP): A tube with a light and a camera on the end is passed through your mouth, stomach, and intestines to check for conditions of the bile ducts and main pancreatic duct and to remove gallstones.

Gallbladder: The gallbladder is a small pear-shaped organ under the liver. The liver makes 3 to 5 cups of bile every day which is stored in the gallbladder.

Gallstones (Cholelithiasis): Hardened deposits of digestive fluid that can form in your gallbladder.

Gallstone Pancreatitis: Gallstones can move to and block the common bile duct, the pancreatic duct or both.

Hepatobiliary iminodiacetic acid scan or gallbladder scintigraphy (HIDA): A scan that shows images of the liver, gallbladder, and bile ducts following injection of a dye into the veins.

Intraoperative cholangiogram: During surgery to remove the gallbladder (cholecystectomy), a small tube called a catheter is inserted into the cystic duct, which drains bile from the gallbladder to check for remaining gallstones.

Magnetic resonance cholangiopancreatography (MRCP): A medical imaging technique that uses magnetic resonance imaging to visualize the biliary and pancreatic ducts.

DISCLAIMER

The American College of Surgeons (ACS) is a scientific and educational association of surgeons that was founded in 1913 to improve the quality of care for the surgical patient by setting high standards for surgical education and practice. The ACS endeavors to provide procedure education for prospective patients and those who educate them. It is not intended to take the place of a discussion with a qualified surgeon who is familiar with your situation. The ACS makes every effort to provide information that is accurate and timely, but makes no guarantee in this regard.

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The information provided in this brochure is chosen from recent articles based on relevant clinical research or trends. The research listed below does not represent all of the information that is available about your procedure. Ask your doctor if he or she recommends that you read any additional research.

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