



## *X-Plain* *Cholecystectomy – Open and Laparoscopic* **Reference Summary**

### **Introduction**

Gallstones are a relatively common condition that causes severe pain in the abdomen.

Some times, even though there are no gallstones, the gallbladder does not function normally and could cause similar symptoms to gallstones.

Your doctor may recommend surgery to remove your gallbladder.

The decision whether or not to have this surgery is also yours.

This reference summary will help you understand better the benefits and risks of this surgery.

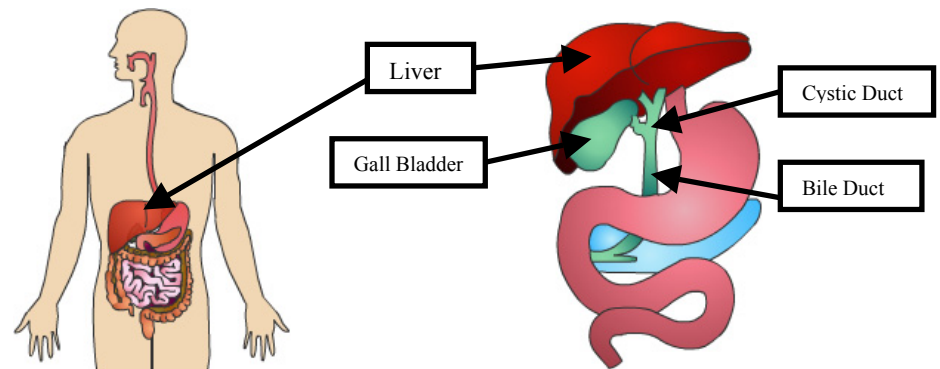
### **Anatomy**

Special juices called 'bile' are made in the liver. The bile helps you digest food.

The gallbladder is a small pouch that sits under the liver on the right side of the abdomen.

Bile passes from the liver to the gallbladder where it is stored. The gallbladder stores the bile until it is needed.

When you eat fatty foods, the gallbladder squeezes the bile through the cystic duct to the common bile duct.



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## Symptoms And Their Causes

Stones can form in the gallbladder.

These stones can move and block the cystic duct and cause severe pain. This pain is located mainly in the right side of the abdomen after you eat fatty foods such as eggs or pizza.

Stones could also cause nausea, vomiting, fever, and infection.

If the stone moves to the common bile duct and gets stuck, it can cause pain, yellowish discoloration of the skin, known as 'jaundice,' and inflammation.

Some times, patients can suffer from similar symptoms of pain and discomfort even though there are no gallstones. In these cases, the gall bladder may not be functioning properly. Doctors can order special radiological tests to check the function of the gall bladder.

## Alternative Treatments

Diet changes can sometimes help with the symptoms.

Antibiotics can help treat the infection, but they do not eliminate the stones.

Taking the gallbladder out, however, is frequently necessary to control the symptoms.

Most of the bile made in the liver flows directly to the intestine and is not stored in the gallbladder.

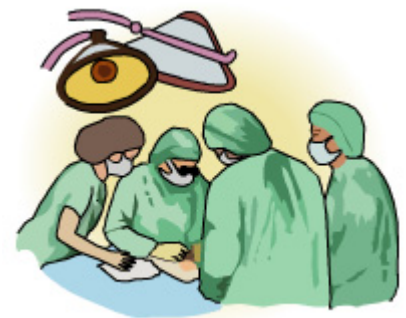
This is why, when the gallbladder is removed, the juices made in the liver can still flow into the intestines and help with digestion.

## Procedure

There are 2 ways to take out the gallbladder.

One method uses a big skin incision known as 'open cholecystectomy.'

The other method is done with scopes and smaller incisions. It is known as 'laparoscopic cholecystectomy.'



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The benefits of 'laparoscopic' operation are a faster recovery period and shorter hospital stay.

Unfortunately not everybody is a candidate for laparoscopic surgery. For example, patients who have had previous surgeries in their abdomen may not be able to have this procedure.

Sometimes the surgeon can start a laparoscopic operation and end up having to switch to an 'open' surgery.

This is usually done if the surgeon realizes that the open surgery is safer for the patient. Switching from laparoscopic to an open operation rarely happens.

The laparoscopic and open surgeries are performed under general anesthesia. This means you will be asleep during the operation.

In the open surgery, the surgeon makes an incision in the upper abdomen.

The peritoneum or abdominal cavity is then entered.

The gallbladder is then removed.

X-rays may be taken during the surgery to determine if stones are stuck in the common bile duct.

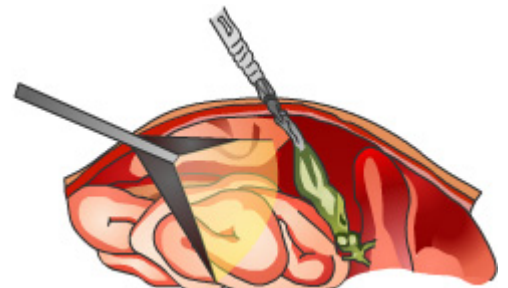
Rarely, stones can be present in the common bile duct. If so, the duct may be opened and explored and the stones removed.

If the bile duct is explored, a special drain is inserted in it and taken to the outside from the side of the abdomen to help the duct heal. This drain is taken out several days or weeks later, depending on the nature of the drain.

The surgeon then closes the incision.

With the 'laparoscopic' operation, the abdominal cavity is filled with a special gas.

Multiple small incisions are then made. Scopes are inserted in the abdominal cavity.



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The gallbladder is then separated from the common bile duct.

The gallbladder is then taken out.

X-rays may be taken during the surgery to determine if stones are stuck in the common bile duct.

Rarely, stones may be present in the common bile duct. If so, they can be removed immediately with the scope, or by converting to an open surgery. They can also be removed later during a separate procedure. Your surgeon will determine the most appropriate option for your condition.

After the laparoscopic surgery, the small incisions are closed.

### **Risks And Complications**

This surgery is very safe. There are, however, several possible risks and complications. These are unlikely but possible. You need to know about them just in case they happen. By being informed you may be able to help your doctor detect complications early.

The risks and complications include those related to anesthesia and those related to any type of surgery.

Risks related to anesthesia include, but are not limited to, strokes, kidney failure, pneumonia, and blood clots in the legs. These risks will be discussed with you in greater detail by your anesthesiologist or nurse anesthetist.

Blood clots in the legs can occur. This usually shows up a few days after surgery. It causes the leg to swell and hurt.

These blood clots can be dislodged from the legs and go to the lungs where they will cause shortness of breath, chest pain, and possibly even death. Sometimes the shortness of breath can happen without prior warning.

It is therefore extremely important to let your doctors know if any of these symptoms occur.

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Getting out of bed shortly after surgery may help decrease the risks of blood clots.



Some of the risks are seen in any type of surgery. These include:

1. Infection, deep or at the skin level. Infections can involve the abdomen incision. Deep infections may involve the abdominal cavity itself. This is known as peritonitis. Treating deep infections may require long-term antibiotics and possibly surgery.
2. Bleeding, either during or after the operation. This may require a blood transfusion or another operation. Blood transfusions are rarely needed.
3. Skin scar.

Other risks and complications are related specifically to this surgery. These again are very rare. However, it is important to know about them.

Structures in the abdomen could be damaged. Such problems can include the following: The liver and the common bile duct could be injured.

Injury to the bile duct could lead to leakage of the bile into the peritoneal cavity and even to the outside. One or more operations may be needed in these cases to repair the damage to the bile duct.

The intestines and stomach could be perforated.

The blood vessels going to the liver could be affected.

Damage to these structures could lead to permanent damage and the necessity to proceed with other operations. These again are very rare. Death may result from these complications but this is extremely rare.

Hernias through the incisions are possible. This happens if the internal wall of the abdomen is weak and intestines push under the skin. This may need another operation.

Diarrhea that could last for a long time can occur after a gall bladder operation. However, this is rare.

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## After The Surgery

After the operation is done, you are transferred to the recovery room and then to a regular room.

A tube will be connected to your vein to provide nourishment until you can eat and drink again.

Your nurse will help you walk as soon as possible so you can circulate blood in your legs. This prevents blood clots.

You may go home the same day or in a few days, depending on which procedure you had and how well you are doing.

Make sure to contact your doctor in case of any new symptoms, such as fever, severe abdominal pain, weakness, swelling, or infection.

## Summary

Gallstones cause severe pain, and the pain is likely to increase if left without treatment.

Removing the gallbladder through surgery relieves the symptoms. Juices made in the liver can still flow into the intestines and help with digestion.

Gallbladder surgery is very safe and very successful. Risks and complications are very rare. Knowing about them will help you detect and treat them early.



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