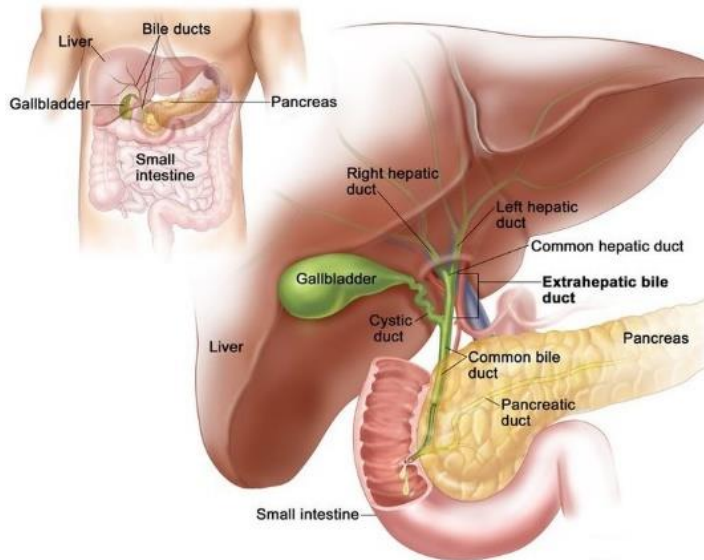


## **Cholecystectomy (Removal of the Gallbladder)**



The gall bladder is a small pear-shaped organ that lies in the right upper part of your abdomen, under your ribs. It is attached to the liver. The liver makes bile and excretes it into a tube (bile duct) that drains into the first part of the small bowel, called the duodenum. The gall bladder collects and stores the bile produced by the liver. When you eat a “fatty” meal the gallbladder is stimulated to contract, excreting the bile into the duodenum, enabling for the absorption of fat. In about 10% of the population, stones form within the gallbladder, called “gallstones”. These begin as small crystals that increase in size over time and can cause symptoms. These symptoms commonly occur after eating, particularly when fat is consumed, causing pain, bloating, restlessness and nausea (biliary colic). The pain typically lasts for minutes or a few hours and may occur randomly. Most people who go on to develop more severe complications of gallstones usually have had biliary colic previously.

### **Why do some people develop gallstones?**

It is not known why some people develop gallstones. Some factors that have been shown to be associated with the development of gallstones include female gender, obesity, family history, increasing age, and having previously had babies.

### **What are some of the severe complications that gallstones can cause?**

Acute cholecystitis is an infection of the gallbladder. It usually begins like biliary colic, but the pain becomes constant, and is associated with fever. Acute cholecystitis usually requires hospital admission for intravenous antibiotics and can be managed surgically by the removal of the gallbladder. Surgery can sometimes be safely

deferred until the infection/inflammation has all settled (around 6 weeks), making the surgery easier and safer.

**Cholangitis:** If stones pass from the gallbladder into the bile duct, they may cause partial or complete blockage of bile flow. This will lead to stasis of bile within the liver, causing an abnormality in the liver function blood tests. If severe you may become jaundiced (yellow) and pass dark urine. When associated with fever and pain, it indicates infection of the bile. This is called cholangitis. This is a medical emergency and requires urgent decompression of the blockage either at the time that the gallbladder is removed (operative exploration) or endoscopically prior to the removal of the gallbladder.

**Pancreatitis:** The pancreas is a digestive organ intimately related to the bile ducts. Occasionally gallstones can pass out of the gallbladder and into the bile ducts, causing obstruction to the pancreatic duct, leading to inflammation of the pancreas, a condition called pancreatitis. Pancreatitis can range from minor back pain through to a severe life-threatening illness. The gallbladder is usually removed as soon as possible following an episode of pancreatitis to lessen the chance of a further attack.

Gallbladder cancer is a rare tumour condition that usually affects older people with a long history of gallstones. Gallstones predispose to the cancer, but fear of cancer is not an indication for surgery because it is so rare. Gallbladder cancer may be discovered incidentally during the removal of a gallbladder and is usually cured in these circumstances. More advanced cancers may require much larger operations (liver resection), or even be incurable.

### **Who needs a cholecystectomy?**

Patients with any of the severe complications of gallstones mentioned above should have a laparoscopic cholecystectomy. Patients with gallstones and symptoms of biliary colic should have a cholecystectomy, before they develop of severe complications. Occasionally patients without gallstones, who have significant symptoms, will require a cholecystectomy. Rarely, patients with large gallbladder polyps (growths) will have a cholecystectomy because of the possibility of developing gallbladder cancer.

### **What tests are done?**

Most patients have the diagnosis of gallstones made by ultrasound. An ultrasound can occasionally miss stones and they are found by either MRI or endoscopic ultrasound (EUS). You will also need some blood tests done to ensure that the liver function and clotting function is normal.

### **Will removal of the gallbladder alter my digestive system?**

In most people removal of the gall bladder has little or no effect on digestion. Bile produced by the liver continues to pass through the bile ducts and into the duodenum. Most people find that once the gall bladder is removed the symptoms you have had will resolve, allowing them to eat a normal diet again. With no gallbladder some patients may experience diarrhoea. This is usually only after “fatty” meals and can be treated by dietary modification or bile acid sequestrants.

### **How is the gallbladder removed?**

The most common method of removing the gallbladder is by laparoscopic (keyhole) surgery. A camera, known as a laparoscope, connected to a high intensity light is introduced through a small incision through your umbilicus (belly button). A further three little puncture wounds are made (one in the upper abdomen and two under your ribs on the right-hand side to allow the surgical instruments to be introduced. To provide space for the surgery to be performed, your abdomen is filled with carbon dioxide. Once the gallbladder is dissected off the liver and the connections to the bile ducts and blood vessels are clipped, it is removed through the umbilical incision. The procedure normally takes around 60 minutes. In about 3-5% of cases the gall bladder cannot be safely removed laparoscopically, and a traditional open technique is required (laparotomy). This requires a 15-20 cm incision in your upper abdomen parallel with your right rib cage. This is a bigger procedure and will result in a hospital stay of several days (on average between 5days). In view of the small chance of needing “open” surgery you will be asked to consent to both techniques.

### **What are the benefits?**

The main benefits are relief from the recurring pain and infections caused by a diseased gallbladder.

### **What are the risks?**

All surgery has some risks. Complications occur in about 5% of cases and most are mild and easily resolved. Rare but severe complications that are specific to undergoing laparoscopic cholecystectomy include injury to the bile ducts (1 per 300), bile leak (1 per 100), intestine (bowel) or other internal organs or injury to blood vessels causing bleeding. These complications may require further procedures or operations to rectify the issues. During the removal of the gallbladder it is common for stones to escape into the abdominal (peritoneal) cavity. This often causes no problem, with the risk of having a complication from an escaped stone is about 1 in 3000. Because this risk is very small, we do not routinely discuss whether this has

happened during your operation or not. If it is important to you and you would like to know whether your surgeon thinks stones could have escaped, you can ask at any time after the operation. General risks of surgery includes wound infection, particularly the umbilical port site; deep vein thrombosis (DVT), pulmonary embolism, or development of a hernia at one of the incision sites. This is caused by a weakness of the abdominal muscles and may require corrective surgery. There is an increased risk of post-operative complications if you are overweight or if you smoke.

### **Are there any alternatives?**

There are no other effective treatments for the management of gallstones. Various other methods, including drugs or shock waves to crush the stones, have been trialled. In some cases, they lead to resolution of the stones, but they almost always recur, or the fragments cause other complications. In some instances, it may be recommended that you not have the operation due to other medical issues. In that instance alternative treatment strategies may be discussed.

### **Don't I need my gallbladder?**

No, the gallbladder is largely redundant, as it is a vestigial organ. The bile produced by the liver will continue to pass into the small bowel, and the bile ducts will store all the bile necessary for healthy function.

### **How long will I be in hospital?**

Most patients will come into hospital on the day of their operation and stay one night. If the operation is performed early in the day, and it is straight forward, then it may be possible for you to go home later that evening.

### **What happens before the operation?**

Prior to the operation you will be asked to complete an anaesthetic questioner. This will be passed onto the anaesthetist that will be looking after you during the operation. Depending upon your medical status you may require an assessment or other investigations. You will need to have bloods taken in the recent weeks prior to surgery, and these may need to be repeated. You will be given specific instructions about when to stop eating and drinking, please follow these carefully as otherwise this may pose an anaesthetic risk and we may have to cancel your surgery. You should bath or shower before coming to hospital as you normally would. You do not need to shave any of the abdominal hair. You should take all your normal medication even on the day of surgery with a small amount of water. If you are on any

medication that affects blood clotting you need to let the surgeon know well in advance of your surgery, as they may need to be stopped.

### **What happens when I arrive at the hospital?**

You will be seen by the nursing staff and taken to your room. You will be asked to change into a theatre gown. The surgeon and anaesthetist will visit you and answer any questions that you have. You will be asked to sign a consent form, if you haven't already. You will be taken into the operating room by a nurse who will be with you until you are asleep.

### **What happens after the operation?**

You will be woken in the operating room after the operation has been completed and taken into the recovery area. You will have an intravenous line in your arm that is attached to fluid and enables the hospital staff to give you medication. You will have an oxygen mask over your mouth that will administer supplemental oxygen. A blood pressure cuff will be on one of your arms, and intermittently inflate to measure your blood pressure. Sometimes a drain will be left in your abdomen to drain any fluid that may collect if it has been a particularly difficult operation. You will be able to eat and drink as soon as you are hungry after the procedure. You will normally be able to get out of bed a few hours after surgery.

### **How much pain will I experience post-operatively?**

Most people only experience mild-to-moderate pain, which is readily controlled with oral analgesia (painkillers). You may experience some pain from your wounds, especially on movement. If you do, the nurses will give you analgesia. You may notice some shoulder pain that is referred pain from the gas insufflated into your abdomen during surgery. This gas will gradually disappear, but the discomfort may persist for several days. At the time of discharge, you will be given a supply of painkillers and postoperative instructions on what to take when. After about 10 days most of the discomfort should disappear.

### **How long will it take to recover from the anaesthetic?**

Whilst most of the effects of anaesthesia wear off in a few hours, it is common to have poor concentration and memory for a few days thereafter. It is important that you do not make important decisions, sign legal documents or operate machinery or equipment for at least 24 hours after the general anaesthetic.

### **When can I return to normal activities?**

You can return to normal physical and sexual activities when you feel comfortable. It is normal to feel tired after surgery, so take some rest, two or three times a day, and try to get a good night's sleep. After a week or so, you should be able to resume most of your normal daily activities. You should avoid heavy lifting and vigorous exercises for at least 4 weeks.

### **When can I start driving?**

You should not drive for at least 48 hours after the laparoscopy. Before driving you should ensure that you could perform a full emergency stop, have the strength and capability to control the car, and be able to respond quickly to any situation that may occur. Please be aware that driving whilst unfit may invalidate your insurance, and you should check with the conditions of your insurance policy as they do vary.

### **When can I return to work?**

You can return to work as soon as you feel up to it. This will depend on how you are feeling and the type of work that you do. If you have a relatively sedentary job, then you may feel ready to return within 3-4 days. If you are involved in manual labour or heavy lifting, you need to avoid straining for at least two weeks.

### **What can I eat?**

There are no dietary restrictions after removal of the gall bladder and you may resume a normal diet as soon as you are hungry. It may take a few days before your appetite returns. When you feel hungry start with light frequent meals and then increase at your own pace.

### **When will my bowel movements return to normal?**

It may take three or four days to have a normal bowel movement. If you have not had a bowel movement three days after surgery, a mild laxative should help. Alternatively, Alpine tea, prune juice or kiwifruit may be equally effective.

### **How do I care for my wounds?**

The dressings are usually changed the following morning, and we leave them undisturbed until you are seen the following week. It is not an issue taking a shower, they can get wet, but avoid soaking in the bath. If they do fall off, then there is no

need to replace them unless you feel it is more comfortable. Steri-strips are placed over the incision sites under the dressings. These will usually fall off within a week or so. If any are still in place after a week you can gently remove them. The incisions are closed with dissolvable stitches that do not need to be removed. The incisions will probably be red and uncomfortable for 1-2 weeks and some bruising and swelling is common. After the incisions have healed there will be a small, scar like scratch. It is ok to use Bio-oil on the incisions after the first week to help reduce scar prominence.

### **When should I seek help?**

If you have concerns, then either ring the surgeon directly or the hospital for advice. If it is medical emergency, then dial 000 for an ambulance to take you to a hospital. You should let us know if you have a discharge of blood or pus coming from your wounds, develop a fever over 38.5 ° C, vomiting that continues more than three days after surgery, inability to have a bowel movement after four days, have persistent pain not relieved with your prescribed painkillers or persistent abdominal distension (bloating of your tummy), develop increasing pain or swelling around your wounds or become jaundiced (yellowing of the eyes or skin).