



Laparoscopic Cholecystectomy

1. ANATOMY AND PHYSIOLOGY

The function of the gall bladder is to store and release bile after a meal. Bile is manufactured in the liver and is important for the digestion of fatty food. The bile is stored temporarily in the gall bladder. In the event of gallstones and a diseased gall bladder the bile secretion from the liver bypasses the gall bladder and performs a normal function of digestion in the duodenum.

2. PATHOLOGY

Patients who develop gallstones, biliary sludge or simply a “poorly functioning gall bladder” usually have a fine chemical imbalance in the manufacture of bile. The bile tends to precipitate at a site of pooling namely the gall bladder, with the formation of sludge or stones. This leads to local irritation and inflammation of the gall bladder wall and may predispose to infection. Stones may block the exit of the gall bladder leading to distension, and predisposing to infection in the obstructed system. A severely inflamed gall bladder can become gangrenous, rupture and form abscesses. Gallstones may also traverse the common bile duct causing inflammation of the pancreas, obstruction to biliary flow, jaundice and infection in the bile duct and liver. Gall bladder cancer is uncommon, but occurs only in the case of gallstones being present for at least ten to fifteen years.

3. CLINICAL PRESENTATION

Gallstones may be detected incidentally on ultrasound in an asymptomatic patient. However most patients with stones or sludge have symptoms of biliary dyspepsia which include vague upper abdominal and upper gastro-intestinal symptoms. These symptoms may be minimal, and patients often adapt to them without seeking medical advice. The first major symptom is biliary colic, presenting with attacks of severe pain due to stones obstructing the exit of the gall bladder or travelling into the bile duct. Patients with cholecystitis become seriously ill with fever, rigors, severe pain and systemic illness. Stones in the bile duct can be very serious, presenting with jaundice, cholangitis (infection in the biliary system) and pancreatitis. The latter two complications carry a significant risk of mortality.

4. DIAGNOSIS

Diagnosis of gall bladder disease depends on the clinical setting, an ultrasound, and or a nuclear scan of the gall bladder. The ultrasound may fail to show biliary sludge. A nuclear scan can measure the function of the gall bladder and prove its diseased state. The presence of gallstones implies a poorly functioning, and diseased gall bladder.

LAPAROSCOPIC CHOLECYSTECTOMY (CONT.)

5. INDICATION FOR SURGERY

Most patients with gallstones or a diseased gall bladder are advised to undergo elective laparoscopic cholecystectomy. Elderly patients with underlying medical conditions and minimal gall bladder symptoms are managed without intervention. Several longterm studies performed in Europe and North America have shown a significant risk of gallstone complications developing in patients who have not received treatment.

6. OPTIONS IN MANAGEMENT

Formerly patients underwent a major surgical procedure through a large incision with removal of the gall bladder. During the early 80's attempts were made to obviate the surgery, with efforts to dissolve the gallstones using large doses of bile salts. This was shown to be dangerous causing liver damage and the stones recurred on cessation of treatment. Percutaneous aspiration of stones from the gall bladder was attempted in Britain and Europe, but without any longterm success and with the risk of peritonitis due to leakage of the gall bladder. The lithotripter used for kidney stones is ineffectual for gall-stones. The treatment of choice involves laparoscopic (keyhole) surgery on the gall bladder.

7. THE OPERATION

The procedure requires a general anaesthetic under ideal circumstances with optimal laparoscopic equipment available. I operate with a team (same anaesthetist, staff and assistant surgeon on each occasion).

Routine precautions include prophylaxis against venous thrombosis and the administration of antibiotics. The operation is performed through five tiny puncture wounds on the abdominal wall. A camera attached to a telescope is entered into the peritoneal cavity which is insufflated with Carbon dioxide. An excellent view of the entire peritoneal cavity is obtained and an initial diagnostic laparoscopy carried out. The anatomy of the area is carefully defined and an x-ray (cholangiogram) is taken to show the anatomy of the bile duct and to exclude the presence of stones in the duct. In the event of technical difficulties in showing the anatomy or in the case of very extensive sepsis, conversion to an open operation may be required. For elective surgery this would occur in 2% of cases. The operation is usually completed in one hour, and requires a careful dissection of the gall bladder and its blood supply, with removal of the gall bladder via the umbilical port. A small drain to the gall bladder bed is sometimes required and this is removed within 24 to 48 hours.

Modern technology and a vast personal experience with this operation has minimised the amount of dissection required, the risks involved and has expedited the post-operative recovery. The risks associated with the operation itself include an injury to the bile duct, bleeding and injuries related to port site entry to the peritoneal cavity. Dr Currer's experience of over 3,500 laparoscopic cholecystectomies, and prior to that over 500 "open procedures".

LAPAROSCOPIC CHOLECYSTECTOMY (CONT.)

8. POST-OPERATIVE COURSE

Most patients are managed in hospital for two days following the procedure. A clear fluid diet may be commenced once the patient is transferred to the ward, and early ambulation to the bathroom is encouraged. Initial post-operative pain relief is achieved by the infiltration of long-acting local anaesthetic into the wounds during the procedure. Further post-operative discomfort is easily controlled with simple medications.

There are no longterm adverse sequelae of the operation. Digestion continues as normal and there is no change required in the diet. The gall bladder is a non essential structure, and the digestive process continues as before the operation. The presence of gallstones indicates a diseased gall bladder, which is poorly functioning, and in most respects the biliary system has "given up" on the gall bladder prior to the procedure. The laparoscopic cholecystectomy has revolutionised our approach to gallstones and represents the greatest advance in general surgery in the last thirty years. Patients can expect to be 85 to 90% recovered from the procedure at two weeks, with resumption of their normal activities, and complete recovery at six to eight weeks.