



GHADIALI
General Surgery

P R E S E N T S

Dr. Mufa T. Ghadiali is skilled in all aspects of General Surgery.
His General Surgery Services include:

- General Surgery
- Advanced Laparoscopic Surgery
- Surgical Oncology
- Gastrointestinal Surgery
- Hernia Surgery
- Endoscopy

What are Gallstones All About?

Multimedia Health Education

Disclaimer

This movie is an educational resource only and should not be used to manage gallstones. All decisions about the management of gallstones must be made in conjunction with your Physician or a licensed healthcare provider.

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MULTIMEDIA HEALTH EDUCATION MANUAL

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INTRODUCTION

Gallstones are crystalline structures in the gallbladder or the bile ducts, usually ranging in size from a grain of sand to 3-4 centimeters. The exact cause of gallstone formation is unknown but abnormal metabolism of cholesterol and bile salts are a factor in their formation. To understand more about gallstones, let us learn a little about normal anatomy of the liver and gallbladder.

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Unit 1:

Normal Anatomy

Normal Anatomy

Gallbladder:

The gallbladder is a pear shaped organ which lies just below the liver. The gallbladder stores bile that is sent from the liver.

Bile is a watery, yellow-green liquid produced by the liver to aid in the digestion of fatty foods. The most common disorder of the gallbladder is gallstones. Functions of the gallbladder include:

- Concentration and storage of bile
- Release of bile into the small intestine to help with digestion of fats
- Enzyme secretion to aid in fat digestion

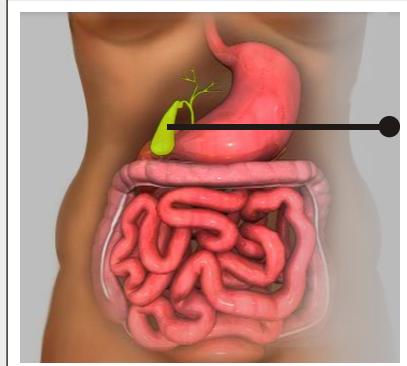
(Refer fig.1)

Liver:

The Liver is the largest organ in the body and the main organ of metabolism and energy production. Other functions of the liver include:

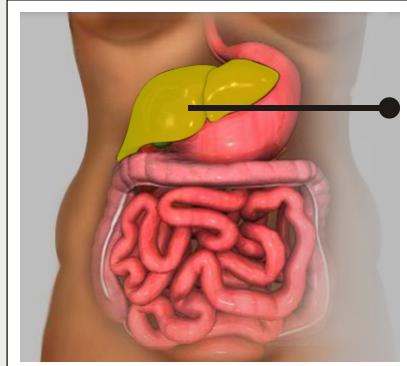
- Production of bile to aid digestion of fats
- Storage of iron, vitamins, and trace elements
- Detoxification of poisons and other substances
- Conversion of waste products for excretion by the kidney
- Formation of the plasma proteins albumin and fibrinogen.
- Aids in eliminating bacteria from the blood

(Refer fig.2)



Gallbladder

(Fig.1)



Liver

(Fig.2)

Gall Stones: Types and Causes

Types of gallstones and causes:

- Cholesterol Stones
- Pigment Stones
- Mixed Stones

Cholesterol Stones:

Cholesterol stones are usually yellow-green and are made primarily of hardened cholesterol. They account for about 80 percent of gallstones. Scientists believe cholesterol stones form when bile contains too much cholesterol, too much bilirubin, or not enough bile salts, or when the gallbladder does not empty as it should for some other reason.

Pigment Stones:

Pigment stones are small, dark stones made of bilirubin. The exact cause is not known. They tend to develop in people who have cirrhosis, biliary tract infections, and hereditary blood disorders such as sickle cell anemia in which too much bilirubin is formed.

Mixed Stones:

This is the most common type of gallstone and is comprised of cholesterol and salts.

Other causes of gallstone formation are related to excess excretion of cholesterol by the liver through bile and changes to the absorptive ability of the gallbladder lining.

Risk Factors for Gallstones

The following risk factors increase your chance of gallstone formation:

- Gender - Women between 20 and 60 years of age are twice as likely to develop gallstones as men.
- Age - people over 60 years old.
- Ethnicity - Native Americans and Mexican Americans.
- Obesity - Obesity is a major risk factor for gallstones, especially in women.
- Diet - high calorie, high fat, high cholesterol diet.
- Estrogen - Excess estrogen from pregnancy, hormone replacement therapy, or birth control pills.
- Cholesterol lowering drugs
- Diabetes - People with diabetes generally have high levels of fatty acids called triglycerides.

- Rapid weight loss - As the body metabolizes fat during rapid weight loss, it causes the liver to secrete extra cholesterol into bile, which can cause gallstones.
- Liver disease
- Pancreatitis

Symptoms

Only about 20 percent of persons with gallstones have symptoms.

Most people with “silent” gallstones (who have no symptoms) do not require treatment. People who experience intermittent pain can try to reduce their intake of fatty foods to help prevent or reduce the pain episodes.

For patients with symptoms, it is important to obtain an accurate diagnosis as symptoms can be very similar to those of a heart attack, appendicitis, ulcers, irritable bowel syndrome, hiatal hernia, pancreatitis, and hepatitis.

Symptoms vary but will often occur after eating fatty meals and they may occur during the night, suddenly awakening the patient. Common complaints include:

- Abdominal bloating
- Colic pain-pain that comes and goes
- Recurring intolerance of fatty foods
- Steady pain in the upper right of the abdomen that increases rapidly and lasts from 30 minutes to several hours
- Pain in the back between the shoulder blades
- Pain under the right shoulder
- Nausea or vomiting
- Indigestion, flatulence and belching
- Chills
- Low grade fever
- Jaundice and clay colored stools

Diagnoses

Ultrasound scanning is the most sensitive and specific test for gallstones. It can detect 95% of gallstones and can confirm gallstones as small as 2 mm. Ultrasound is a medical imaging test that utilizes sound waves and their echoes to create 2 dimensional images.

Other diagnostic tests may include:

Unit 2:

Gall Stones

- Computed Tomography (CT) scan - a special x-ray that uses computers to show cross sections of body tissues and organs.
- Endoscopic Retrograde Cholangiopancreatography (ERCP) - In this procedure, the patient swallows an endoscope, a long flexible, lighted tube connected to a computer and TV monitor. The doctor guides the endoscope through the stomach and into the small intestine. The doctor then injects a special dye that temporarily stains the ducts in the biliary system. ERCP is used to locate and remove stones in the ducts.
- Cholesystography - an x-ray that shows the path of a radiopaque contrast that is swallowed by the patient.
- Blood tests - Blood tests may be used to look for signs of infection, obstruction, pancreatitis, or jaundice.

Complications

The obstruction caused by a gallstone may lead to Biliary Colic or Cholecystitis (Inflammation of gallbladder).

Other complications that may occur include:

- Cirrhosis - Cirrhosis is the result of chronic liver disease that causes scarring of the liver and liver dysfunction.
- Cholangitis - an infection of the common bile duct which carries bile (to help in digestion) from the liver to the gallbladder and then to the intestines.
- Fluid or pus accumulation in the gallbladder
- Distention of the gallbladder with mucous secretions (mucocele)
- Gangrene leading to perforation, peritonitis (serious infection of the peritoneum), fistulas (abnormal passageways), and pancreatitis.
- Pancreatitis
- Septicemia - a bacterial blood infection.

Treatment Options: Conservative

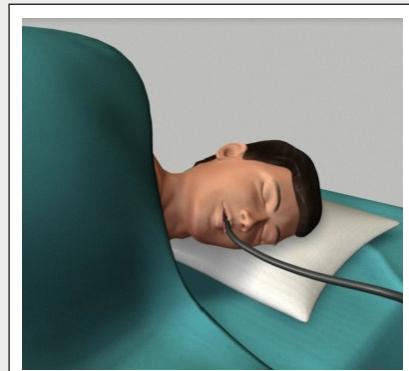
Conservative treatment options for Gallstones includes:

- Low fat diet with replacement of Vitamins A, D, E, and K and administration of bile salts
- Narcotics to relieve pain
- Antispasmodics and Anticholinergics to relax smooth muscle and decrease spasm
- Antiemetics to treat nausea and vomiting
- Lithotripsy-invasive procedure which breaks up gallstones with ultrasonic waves
- Nasogastric Tube (NG tube)-a tube passed through the nose into the stomach attached to suction to keep the stomach empty and reduce stimulation of the gallbladder.

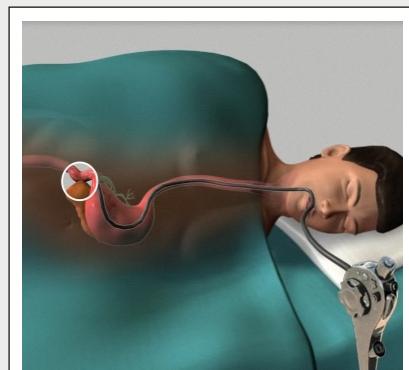
Endoscopic Retrograde Cholangiopancreatography (ERCP):

In this procedure, the patient swallows an endoscope a long, flexible, lighted tube connected to a computer and TV monitor. The doctor guides the endoscope through the stomach and into the small intestine. Gallstones can sometimes be removed with special tools attached to the end of the endoscope.

(Refer fig. "3 to 6")



(Fig.3)



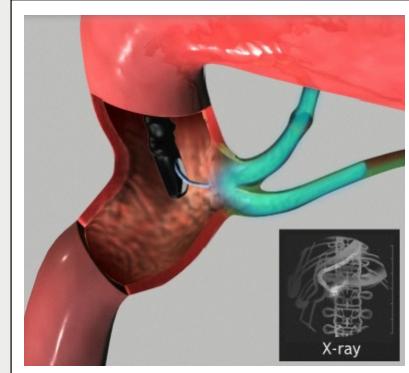
(Fig.4)

Unit 3:

Treatment Options

Endoscopic Retrograde Cholangiopancreatography (ERCP):

(Refer fig. "3 to 6")



(Fig.5)



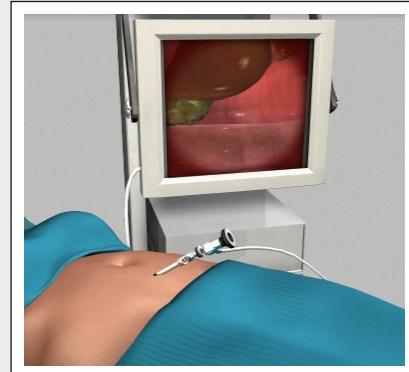
(Fig.6)

Surgery

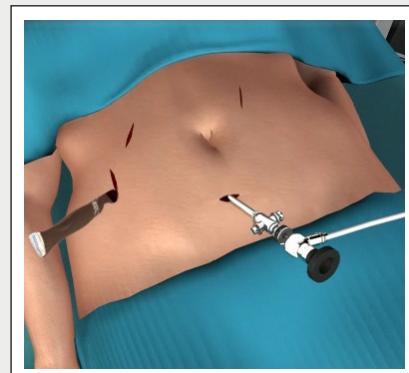
Surgery to remove the gallbladder is the most common way to treat symptomatic gallstones. The most common operation is called laparoscopic cholecystectomy.

For this operation, the surgeon makes several tiny incisions in the abdomen and inserts surgical instruments and a miniature video camera into the abdomen. The camera sends a magnified image from inside the body to a video monitor, giving the surgeon a close up view of the organs and tissues.

(Refer fig. "7 to 10")



(Fig.7)



(Fig.8)

Unit 3:

Treatment Options

Surgery

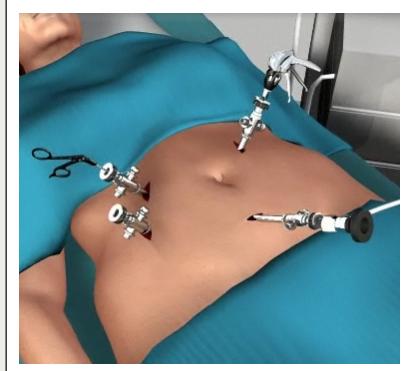
(Refer fig. "7 to 10")

While watching the monitor, the surgeon uses the instruments to carefully separate the gallbladder from the liver, ducts, and other structures. If gallstones are in the bile ducts, the physician (usually a gastroenterologist) may use endoscopic retrograde cholangiopancreatography (ERCP) to locate and remove them before or during the gallbladder surgery.

After treating the problems, the portals (incisions) are closed by suturing or by tape and covered with a sterile bandage.

Laparoscopy is much less traumatic to the muscles, ligaments, and tissues than the traditional method of surgically opening the abdomen with long incisions.

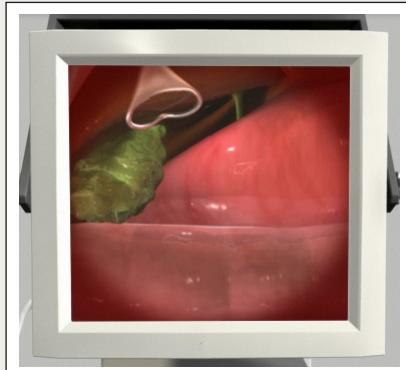
(Refer fig. "11 to 14")



(Fig.9)



(Fig.10)



(Fig.11)



(Fig.12)

Unit 3:

Treatment Options

Surgery

(Refer fig. "11 to 14")



(Fig.13)



(Fig.14)

Post-Op

Because the abdominal muscles are not cut in laparoscopic gallbladder surgery, the pain and complications associated with abdominal surgery are lessened. However, complications can occur with any surgery.

The most common complication in gallbladder surgery is bile duct injury. This can cause leakage of bile causing a painful and dangerous infection.

Other complications include:

- Excessive bleeding
- Damage to organs or blood vessels in the abdomen
- Infection
- Abnormal reaction to anesthesia
- Blood clot development

Fortunately, the gallbladder is an organ people can live without. Gallbladder removal does not cause nutritional deficiencies and does not require any special diet after your surgery

Although every effort is made to educate you on GALLSTONES and take control, there will be specific information that will not be discussed. Talk to your doctor or health care provider about any concerns you may have about GALLSTONES.



YOUR SURGERY DATE



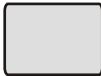
READ YOUR BOOK AND MATERIAL



VIEW YOUR VIDEO /CD / DVD / WEBSITE



PRE - HABILITATION



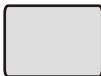
ARRANGE FOR BLOOD



MEDICAL CHECK UP



ADVANCE MEDICAL DIRECTIVE



PRE - ADMISSION TESTING



FAMILY SUPPORT REVIEW

Physician's Name : _____

Patient's Name : _____

Physician's Signature: _____

Patient's Signature: _____

Date : _____

Date : _____