

Gall Stone disease:

What Are Gallstones?



- **Small, pebble-like substances**
- **Multiple or solitary**
- **May occur anywhere within the biliary tree**
- **Have different appearance - depending on their contents**

Pigment Stones

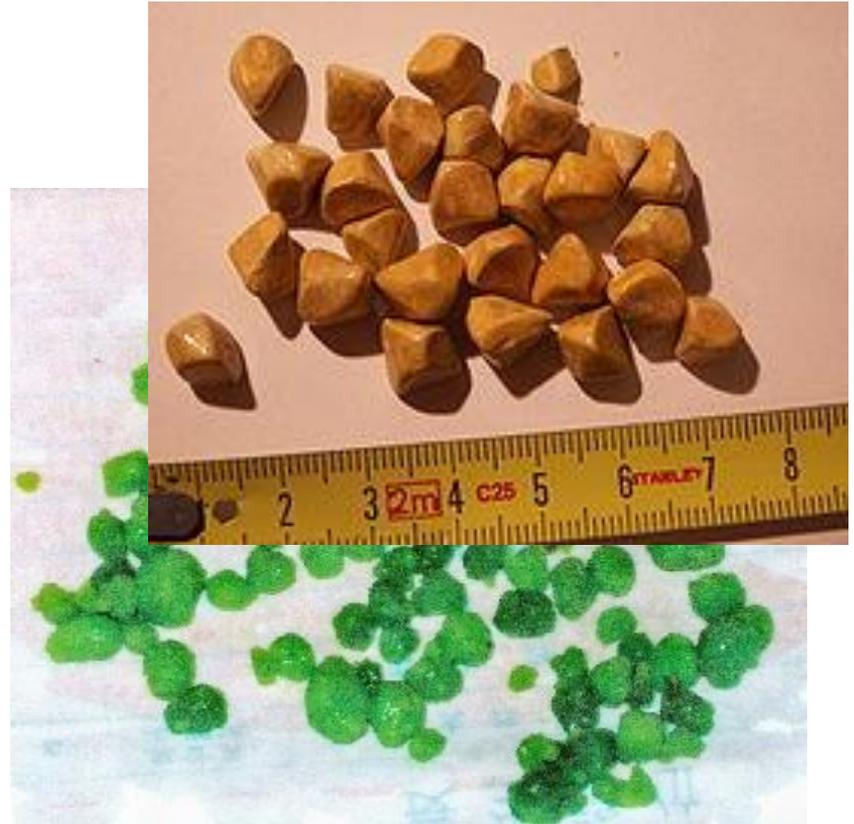


- Small
- Friable
- Irregular
- Dark
- Made of bilirubin and calcium salts
- Less than 20% of cholesterol
- Risk factors:
 - Haemolysis
 - Liver cirrhosis
 - Biliary tract infections
 - Ileal resection



Cholesterol Stones

- Large
- Often solitary
- Yellow, white or green
- Made primarily of cholesterol (>70%)
- Risk factors:
 - 4 “F” :
 - Female
 - Forty
 - Fertile
 - Fat
 - Fair (5th “F” - more prevalent in Caucasians)
 - Family history (6th “F”)



Mixed Stones

- Multiple
- Faceted
- Consist of:
 - Calcium salts
 - Pigment
 - Cholesterol (30% - 70%)
- 80% - associated with chronic cholecystitis



Gallstone Prevalence

- 10% of people over 40 yrs.
- 90% “silent stones”
- Risk factors for becoming symptomatic:
 - Smoking
 - Parity

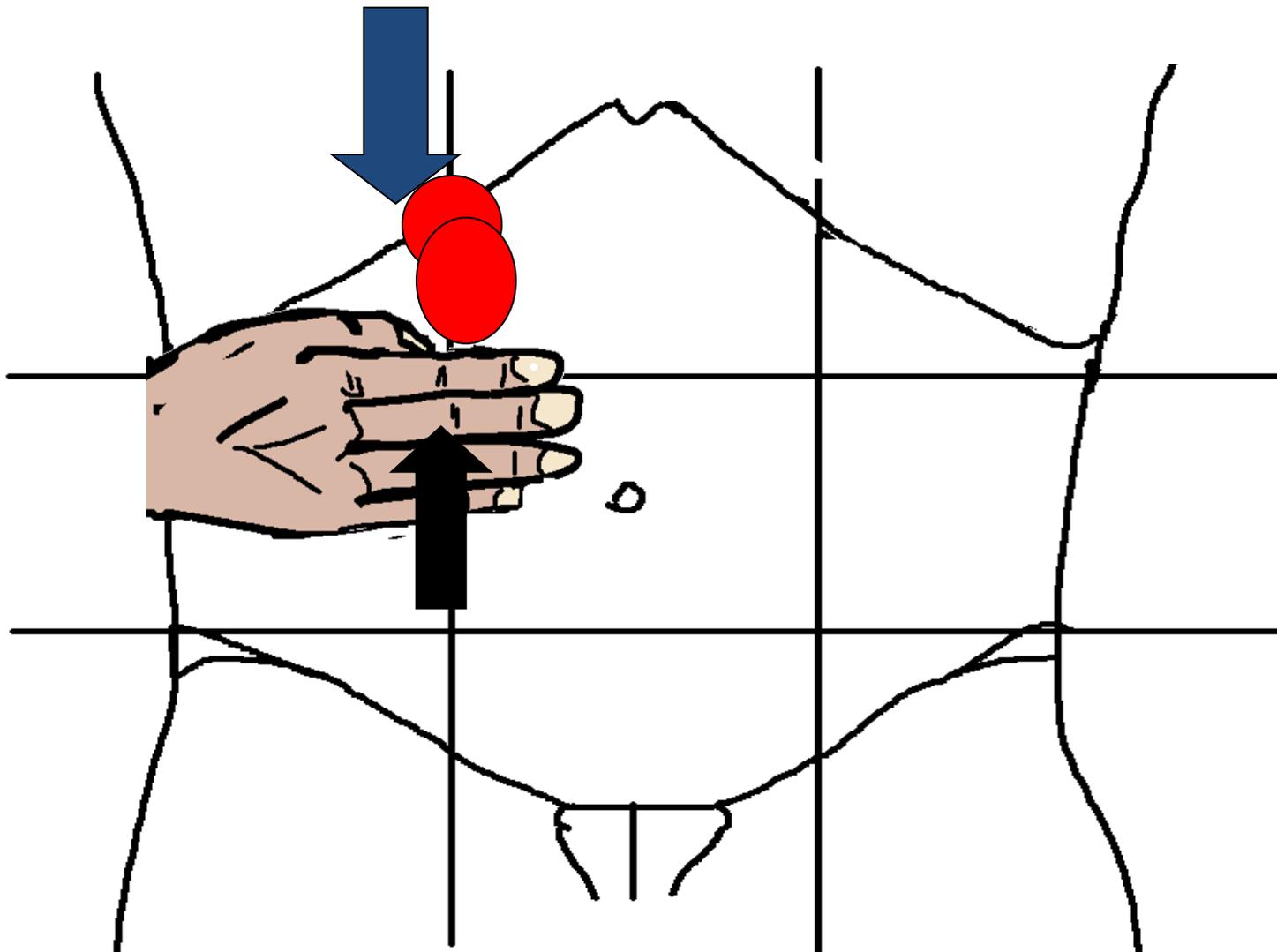
Risk Factors

- Women
- Age > 60 years
- American Indians & Mexican Americans
- Overweight or obese men and women
- People who tend to fast or lose weight quickly
- Family history of gallstones
- Diabetes
- Diet high in cholesterol
- Use of OCPs
- Pregnancy

Symptoms

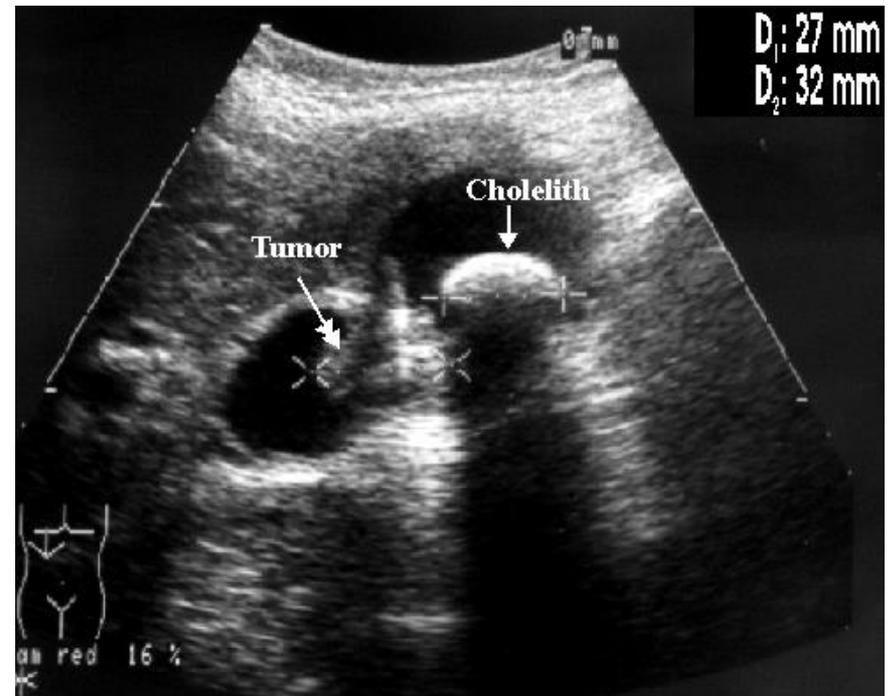
- Pain in the RUQ
 - Most common and typical symptom
 - May last for a few minutes to several hours
 - Mostly felt after eating a heavy and high-fat meal
- Pain under right shoulder when lifting up arms
- Fever, nausea and vomiting
- Jaundice (obstruction of the bile duct passage)
- Acute pancreatitis (gallstone enters the duct leading to pancreas and blocks it)

Murphy's Sign: Inspiratory arrest with manual pressure below the gallbladder



Complications Of Gallstones

- In the GB:
 - Biliary colic
 - Acute and chronic cholecystitis
 - Empyema
 - Mucocoele
 - Carcinoma
- In the bile ducts:
 - Obstructive jaundice
 - Pancreatitis
 - Cholangitis
- In the gut:
 - Gallstone ileus



Diagnosis

- **Ultrasound**
- (CT) scan
 - May show gallstones or complications, such as infection and rupture of GB or bile ducts
- (HIDA scan)
 - Used to diagnose abnormal contraction of gallbladder or obstruction of bile ducts
- Endoscopic retrograde cholangiopancreatography (ERCP)
 - Used to locate and remove stones in bile ducts
- Blood tests
 - Performed to look for signs of infection, obstruction, pancreatitis, or jaundice

USG



CT Scan



Management

- Asymptomatic gallstones do not require operation
- Whilst awaiting for surgery
 - Low fat diet
 - Dissolution therapy (ursodeoxycholic acid) generally useless

Surgical options

- Cholecystostomy
- Subtotal cholecystectomy
- Open cholecystectomy
- Laparoscopic cholecystectomy

Cholecystostomy

- Patients at high risk related to multisystem organ failure
- Severe pulmonary, renal, or cardiac disease
- Recent myocardial infarction
- Cirrhosis with portal hypertension
- Acalculus cholecystitis after severe trauma, burns, or surgery
- Empyema or gangrene of the gallbladder

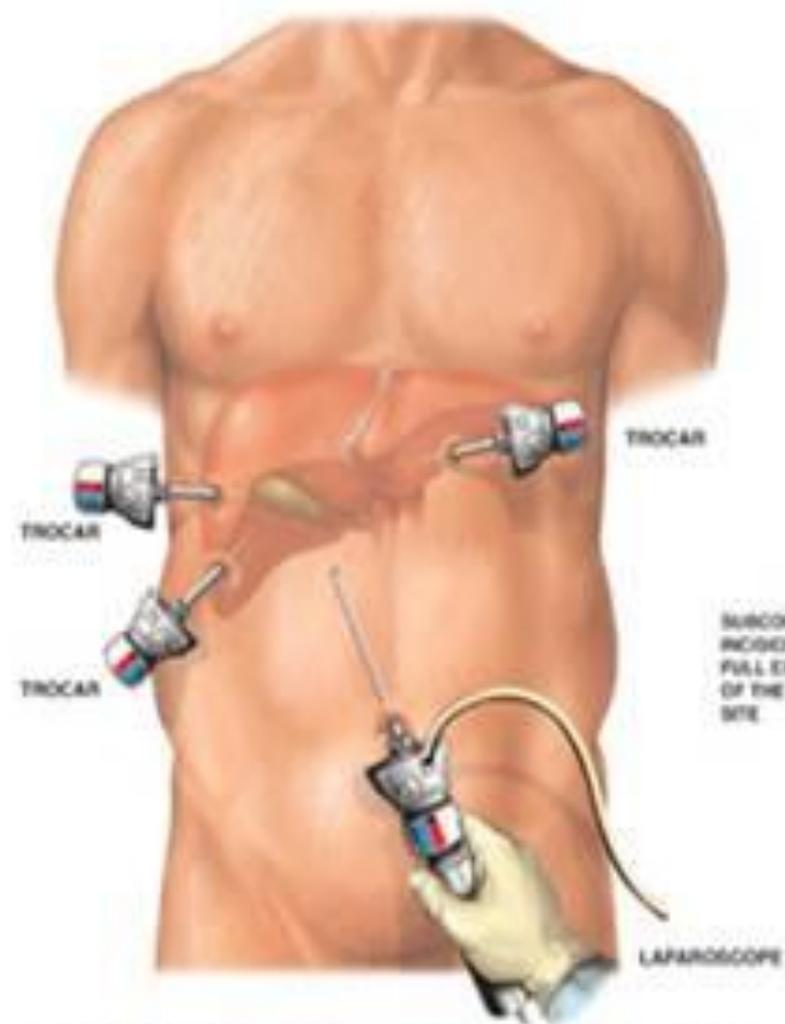
Subtotal Cholecystectomy

- Severe inflammation renders identification of the anatomy impossible, eg. Gangrenous cholecystitis
- Scarred partially intrahepatic gallbladder
- Severe cirrhosis and portal hypertension

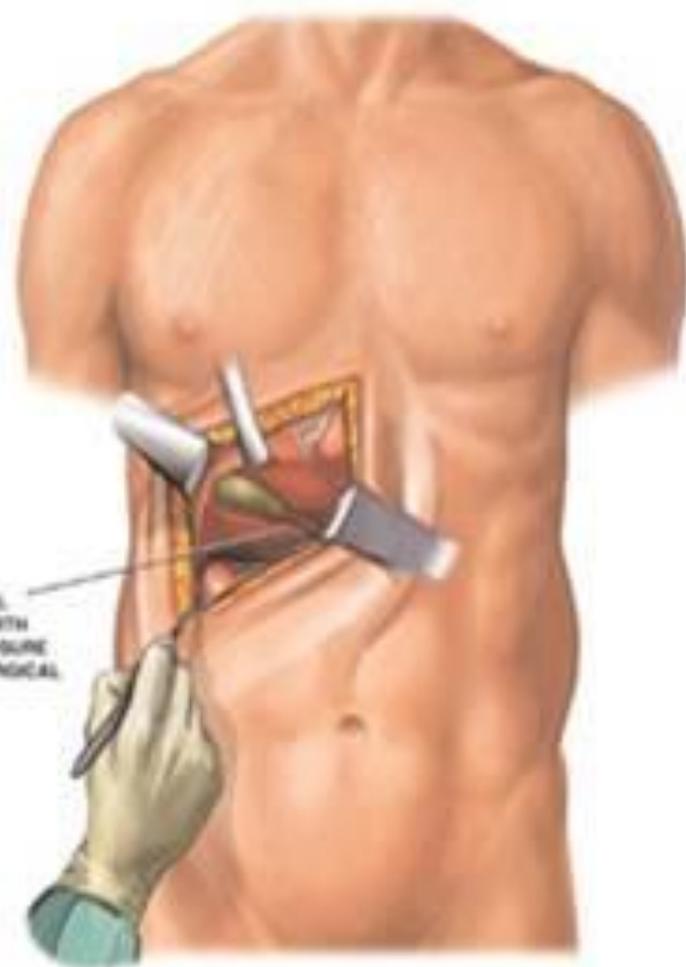
Cholecystectomy

Laparoscopic Surgery

- Advantages:
 - Less post-op pain
 - Shorter hospital stay
 - Quicker return to normal activities



LAPAROSCOPIC CHOLECYSTECTOMY PROCEDURE



OPEN CHOLECYSTECTOMY PROCEDURE

Complications of Lap Cholecystectomy

- Trocar/Veress needle injury
- Hemorrhage
- Wound infection and/or abscess
- Ileus
- Bile leak
- Gallstone spillage
- Deep vein thrombosis
- Retained common bile duct (CBD) stone
- CBD injury & stricture
- Pancreatitis
- Conversion to open procedure

- **Nonsurgical treatment:**

- Only in special situations

- When a patient has a serious medical condition preventing surgery
- Only for cholesterol stones

- Oral dissolution therapy

- Ursodeoxycholic acid - to dissolve cholesterol gallstones
- Months or years of treatment may be necessary before all stones dissolve

Prevention



A sensible diet is the best way to prevent gall stones

Avoid crash diet or very low intake of calories

Eat good sources of fiber