وزاره التعليم العالي والبحث العلمي

Care for Patients with Digestive System Disorders

Adult Nursing I

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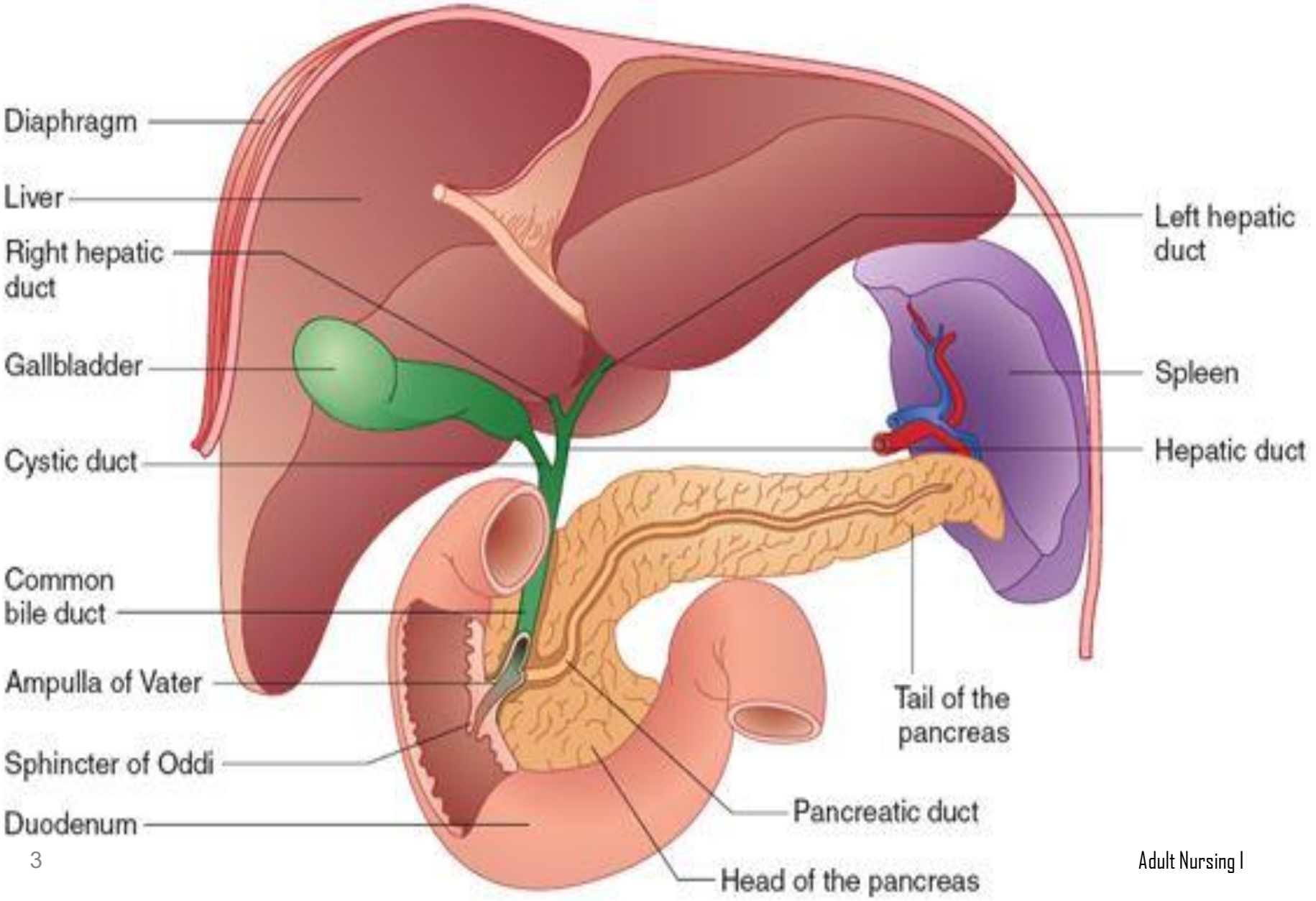
Lecture Outlines

- Hepatitis
- Liver cirrhosis
- Cholelithiasis and cholecystitis.

Anatomy


Diaphragm
Liver
Right hepatic duct
Gallbladder
Cystic duct
Common bile duct
Ampulla of Vater
Sphincter of Oddi
Duodenum
Left hepatic duct
Spleen
Hepatic duct
Tail of the pancreas
Pancreatic duct
Head of the pancreas

Liver

- The liver is located behind the ribs in the upper right portion of the abdominal cavity. It weighs about 1,500 g and is divided into four lobes.
- The liver, the largest gland of the body, can be considered a chemical factory that manufactures, stores, alters, and excretes a large number of substances involved in metabolism.
- The liver is especially important in the regulation of glucose and protein metabolism.

Functions of the Liver

- Glucose Metabolism
- Protein Metabolism
- Fat Metabolism
- Vitamin and Iron Storage
- Drug Metabolism
- Bile Formation
- Bilirubin Excretion
- Forms blood clotting factors
- Phagocytic activity

Assessment

- **Health History**
- **Alcohol and drug use**
- **Lifestyle behaviors**
- **Past medical history**
- **present history**: (jaundice, malaise, weakness, fatigue, pruritus, abdominal pain, fever, anorexia, weight gain, edema, increasing abdominal girth, hematemesis, melena, hematochezia (passage of bloody stools), easy bruising, decreased libido in men and secondary amenorrhea in women, changes in mental acuity, personality changes, and sleep disturbances.

Hepatitis

- It is an inflammation of the liver.
- **Causes**:

1. Viral.
2. Bacterial
3. Parasites
4. Drugs and alcohol
5. Toxic poisoning.
6. Autoimmune disease.

Viral Hepatitis.

- It is a systemic, viral infection in which necrosis and inflammation of liver cells produce a characteristic cluster of clinical, biochemical, and cellular changes.

- five definitive types of viral hepatitis that cause liver disease have been identified: hepatitis A, B, C, D, and E

- Hepatitis A and E are similar in mode of transmission (fecal–oral route), whereas hepatitis B, C, and D share many other characteristics.

Types of viral hepatitis

- Hepatitis A virus : transmitted through fecal–oral route, has a vaccine, not a life-threatening disease. The incubation period is estimated to be between **2 and 6 weeks**, with a mean of approximately 4 weeks.

- Hepatitis B virus: transmitted through blood and permucosal, in addition through sexual activities.HBV can be found in blood, saliva, semen, and vaginal secretions . Has a vaccine, considered as a life-threatening infection and disease. HBV has the incubation period (1 to 6 months).

- Hepatitis C virus : transmitted through blood and its products with other body fluids, in addition through sexual activities. have a vaccine Does not , considered as a life-threatening infection and disease. The incubation period is variable and may range from 15 to 160 days.

Types of viral hepatitis

- Hepatitis D virus : transmitted through blood and its products with other body fluids, in addition through sexual activities. Does not have a vaccine , considered as a life-threatening infection and disease. It comes as a co-infection with hepatitis B virus (delta virus) causes fulminant hepatitis. The incubation period varies between 30 and 150 days

- Hepatitis E virus : transmitted through fecal–oral route, does not have a vaccine, not a life-threatening disease. The incubation period is variable, estimated to range between 15 and 65 days.

Signs and Symptoms

There are generally three stages in hepatitis:

1. The prodromal or pre-icteric (pre-jaundice), stage lasts about 1 week.

- The patient complains of flulike symptoms of malaise, headache
- Anorexia,
- low-grade fever
- Possibly dull right upper quadrant (RUQ) pain.

Signs and Symptoms

2. The Icteric (clinical phase) stage lasts 4 to 6 weeks.

- The patient complains of more severe fatigue.
- Anorexia.
- nausea, vomiting
- Malaise.
- The patient is also likely to have jaundice or noticeable yellowing of the skin, sclera of the eyes, and other mucous membranes.
- The liver is usually enlarged and tender on examination

Signs and Symptoms

3.The post-icteric, or convalescent, stage lasts from 2 to 4weeks to months.

- The patient usually feels well during this time, but full recovery as measured by the return to normal of all liver function tests may take as long as 1 year.
- Hepatitis is considered a reversible process if the patient complies with a medical regimen of adequate rest, good nutrition, and abstinence from alcohol or other liver toxic agents.

Prevention of Hepatitis Hepatitis A

- Educate patients regarding safe practices for preparing and dispensing food.
- Encourage conscientious individual hygiene.
- Encourage proper community and home sanitation.
- Facilitate mandatory reporting of viral hepatitis to local health departments.
- Promote vaccination to interrupt community-wide outbreaks
- Support effective health supervision of schools, dormitories, extended care facilities, barracks, and camps.

Prevention of Hepatitis Hepatitis B

- Advise avoidance of high-risk behaviors.
- Avoid multidose vials in patient care settings.
- Monitor cleaning, disinfection, and sterilization of reusable devices in patient care settings.
- Recommend vaccination for international travelers to regions with high or intermediate levels of endemic hepatitis B virus infection and for persons with chronic liver disease or with human immune deficiency virus infection.
- . Use standard precautions in clinical care.

Prevention of Hepatitis Hepatitis C

- Advise avoidance of high-risk behaviors such as IV drug use.
- Avoid multidose vials in patient care settings.
- Monitor cleaning, disinfection, and sterilization of reusable devices in patient care settings.
- Use barrier precautions in situations of contact with blood or body fluids.
- Use needleless IV and injection systems in health care.
- Use standard precautions in clinical care

Diagnostic tests and procedures

- Virology test (HAV antigen or antibody/ HBVs antigen/ Anti HCV
- U/S
- CT scan
- MRI
- Liver Biopsy
- LFT (liver function test) : SGOT, SGPT, ALP/AST/ TSB/ Albumin.

Nursing Management for Hepatitis A

- **Home-Based Care Focus**
  - Management primarily occurs at home unless symptoms are severe, requiring the nurse to support the patient and family.
- **Managing Symptoms & Education**
  - Help patients and families cope with temporary disability and fatigue.
  - Educate them on when to seek further medical care if symptoms worsen or persist.
- **Key Patient & Family Guidelines: Provide specific instructions on:**
  - Diet: Easy-to-digest, low-fat, high-carb.
  - Rest: Crucial for liver recovery.
  - Follow-up: Importance of regular blood tests.
  - Avoid Alcohol: Essential to prevent further liver damage.
- **Crucial Hygiene & Sanitation for Prevention**

NOTE

- ✓ Most people (more than 90%) who contract HBV infection develop antibodies .
- ✓ chronic hepatitis B remains a major worldwide cause of cirrhosis and hepatocellular carcinoma (HCC) with higher mortality rates.
- ✓ Common Symptoms for HBV : Loss of appetite, indigestion, abdominal pain, body aches, malaise, weakness.
- ✓ Common Symptoms for HBA: start same Symptoms for flu.
- ✓ NONVIRAL HEPATITIS: Toxic Hepatitis and Drug-Induced Hepatitis
- ✓ Modern HCV treatments (DAAs) like sofosbuvir combos. They offer significantly fewer side effects, shorter durations (8-12 weeks), and over 90% cure rates across genotypes, a huge leap from older therapies

Hepatic Cirrhosis

Cirrhosis is a chronic disease characterized by replacement of normal liver tissue with diffuse fibrosis that disrupts the structure and function of the liver.

Types of cirrhosis or scarring of the liver

- **Alcoholic cirrhosis**, in which the scar tissue characteristically surrounds the portal areas. This is most frequently caused by chronic alcoholism and is the most common type of cirrhosis.

- **Postnecrotic cirrhosis**, in which there are broad bands of scar tissue. This is a late result of a previous bout of acute viral hepatitis.

- **Biliary cirrhosis,** in which scarring occurs in the liver around the bile ducts. This type of cirrhosis usually results from chronic biliary obstruction and cholangitis (bile duct infection); it is much less common.

Pathophysiology

1. Chronic liver failure is a progressive disease.
2. Healthy livercells respond to toxins such as alcohol by becoming inflamed.
3. The liver cells are infiltrated with fat and whiteblood cells and are then replaced by fibrotic tissue.
4. As thedisease progresses, more and more liver cells are replaced byfatty and scar tissue.
5. The lobes of the liver are disrupted andthe liver becomes hardened and lumpy.
6. Early in the disease,the liver is enlarged, firm, and hard from the inflammatoryprocess.
7. Later, the liver shrinks and is covered with grayconnective tissue.

Stages of liver damage

Signs and symptoms

- Signs and symptoms of cirrhosis increase in severity as the disease progresses, and severity is used to categorize the disorder as: **compensated or decompensated cirrhosis**

- Compensated cirrhosis, with its less severe, often vague symptoms, may be discovered secondarily at a routine physical examination.
- The hallmarks of decompensated cirrhosis result from failure of the liver to synthesize proteins, clotting factors, and other substances and manifestations of portal hypertension.

Assessing for Cirrhosis

Compensated

- Abdominal pain
- Ankle edema
- Firm, enlarged liver
- Flatulent dyspepsia
- Intermittent mild fever
- Palmar erythema (reddened palms)
- Splenomegaly
- Unexplained epistaxis
- Vague morning indigestion
- Vascular spiders

Decompensated

- Ascites
- Clubbing of fingers
- Continuous mild fever
- Epistaxis
- Gonadal atrophy
- Hypotension
- Jaundice
- Muscle wasting
- Purpura (due to decreased platelet count)
- Sparse body hair
- Spontaneous bruising
- Weakness
- Weight loss
- White nails

complications of cirrhosis

- Edema and ascites, accumulation of fluid (called ascites) causes swelling of the abdomen, abdominal discomfort, and increased weight.
- Spontaneous bacterial peritonitis (SBP), SBP is a life-threatening complication. Some patients with SBP have no symptoms, while others have fever, chills, abdominal pain and tenderness, diarrhea, and worsening ascites.
- Bleeding from esophageal varices
- Hepatic encephalopathy
- Hepatorenal syndrome(failure of the kidneys,
- Hepatopulmonary syndrome
- Hypersplenism
- Liver cancer (hepatocellular carcinoma).

Other serious complications of cirrhosis of the liver include:

- Kidney failure.
- Reduced oxygen in the blood.
- Diabetes.
- Changes in blood counts.
- Increased risk of infections.
- Excessive bleeding and bruising.
- Breast enlargement in men.
- Premature menopause.
- Loss of muscle mass

Treatment

- Treatment of cirrhosis is designed to prevent further damage to the liver, treat complications of cirrhosis, and preventing or detecting liver cancer early.
- Medications may be given to control the symptoms of cirrhosis.
- Edema (fluid retention) and ascites (fluid in the abdomen) are treated, in part, by reducing salt in the diet.
- Drugs called diuretics are used to remove excess fluid and to prevent edema from recurring.
- Diet and drug therapies can help improve the altered mental function that cirrhosis can cause.
- Laxatives such as lactulose may be given to help absorb toxins and speed their removal from the intestines.
- Liver transplantation may be needed for some people with severe cirrhosis.

Nursing Diagnosis

- Fluid volume excess related to portal hypertension (ascites).
- Imbalanced nutrition: less than body requirements related to disinterest in food.
- Pain related to abdominal pressure.
- Risk for disturbed thought processes related to elevated ammonia levels.
- Risk for ineffective breathing pattern related to abnormal amounts of fluid in the abdomen.
- Risk for deficient fluid volume related to bleeding(esophageal varices, clotting disorders).
- Risk for infection related to impaired immune responses

Implementation

Fluid Balance.

1. Weigh the patient on admission to obtain a baseline weight.
2. Report any weight gain or increase in girth promptly.
3. Monitor the patient’s low sodium diet and maintain any ordered fluid restrictions.
4. If intravenous fluids or albumin have been ordered, the assisting careful monitoring of the rate of infusion.
5. Check the patient's vital signs every 4 hours, and report any evidence of difficulty breathing or changes in mental status promptly.
6. 6. Administer ordered diuretics as scheduled. Assist with a paracentesis as required.

Implementation

Nutrition

1. Assess the patient's bowel sounds, abdominal distention, and evidence of bleeding at least once every 8 hours.
2. Report weight loss of more than half a pound from previous measurement.
3. Offer the patient frequent, small, high-calorie meals.
4. Offer frequent mouth care. Administer vitamins or other medications as ordered.

Implementation

Altered Thought Processes.

1. Assess the patient's level of consciousness, speech, behavior, and neuromuscular function frequently.
2. Give simple, clear explanations of care to the patient and give the patient time to understand the explanation.
3. Provide a safe environment for the confused or unsteady patient.

The Gallbladder

The gallbladder is a pear-shaped, hollow, saclike organ, 7.5 to 10 cm (3 to 4 inches) long. It lies in a shallow depression on the inferior surface of the liver and is attached to it by loose connective tissue.

- **Capacity**: The gallbladder has a capacity of 30 to 50 mL of bile.
- **Structure**: Its wall is composed largely of smooth muscle.
- **Connections**: The gallbladder is connected to the common bile duct (CBD) by the cystic duct

Function of the Gallbladder

- **Bile Storage:** The gallbladder functions as a storage depot for bile.
- **Bile Composition:** Bile is composed of water and electrolytes (sodium, potassium, calcium, chloride, and bicarbonate.
- It also contains significant amounts of lecithin, fatty acids, cholesterol, bilirubin, and bile salts.
- Role of Bile Salts: Bile salts, along with cholesterol, assist in the emulsification of fats in the distal ileum.
- Approximately half of the bilirubin (a pigment derived from the breakdown of red blood cells) is a component of bile

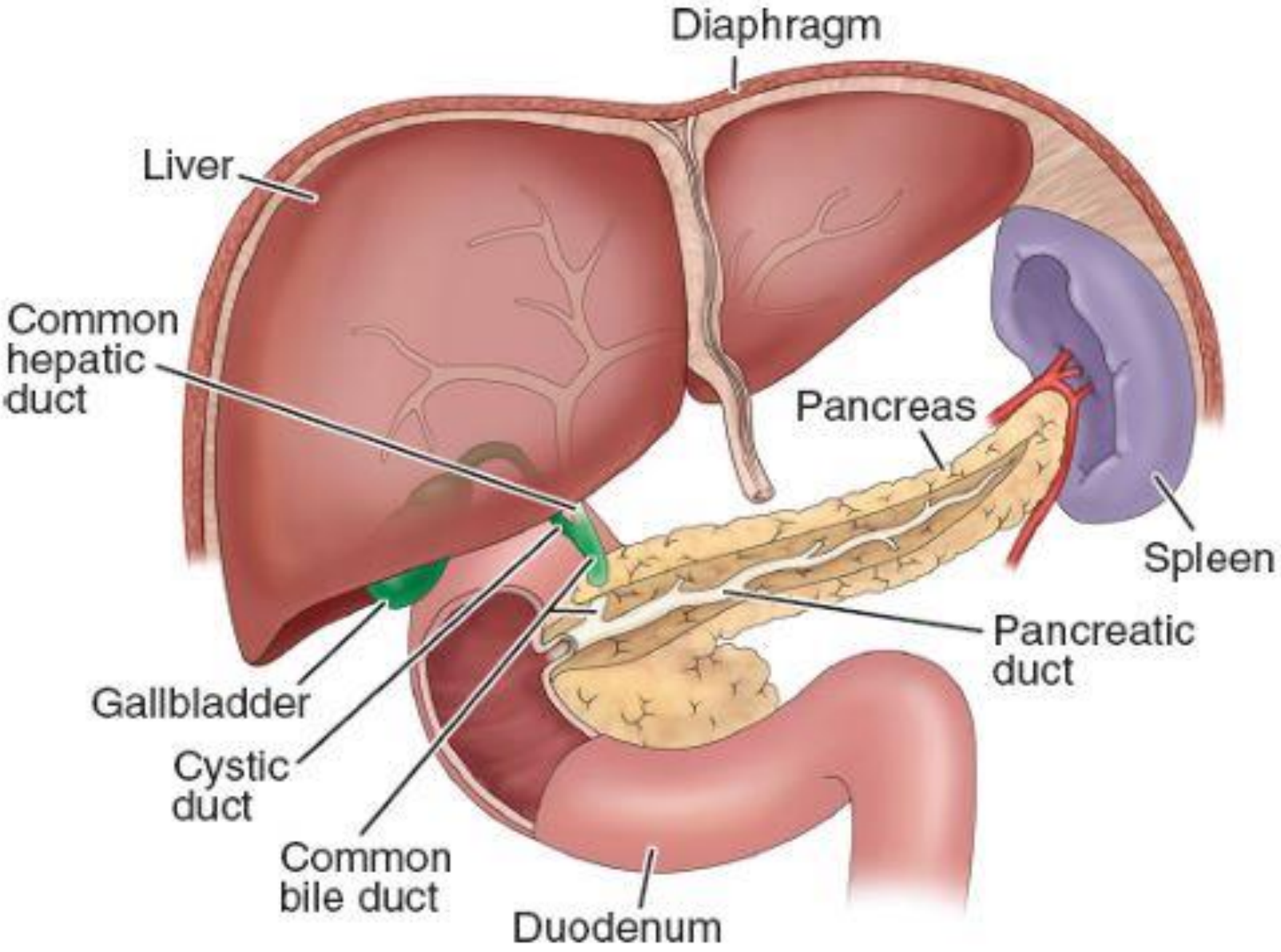


Figure 44-1 • The liver, biliary system, and pancreas.

Cholecystitis

- Cholecystitis is inflammation of the gallbladder which can be acute or chronic.

Signs and symptoms

- Pain, tenderness, and rigidity of the upper right abdomen that may radiate to the midsternal area or right shoulder
- Nausea, vomiting.
- the usual signs of an acute inflammation.
- An empyema of the gallbladder develops if the gallbladder becomes filled with purulent fluid (pus)

Type of Cholecystitis

1. Calculous cholecystitis

- Is the cause of more than 90% of cases of acute cholecystitis.
- A gallbladder stone obstructs bile outflow.
- Bile remaining in the gallbladder initiates a chemical reaction; autolysis and edema occur; and the blood vessels in the gallbladder are compressed, compromising its vascular supply.
- Gangrene of the gallbladder with perforation may result.

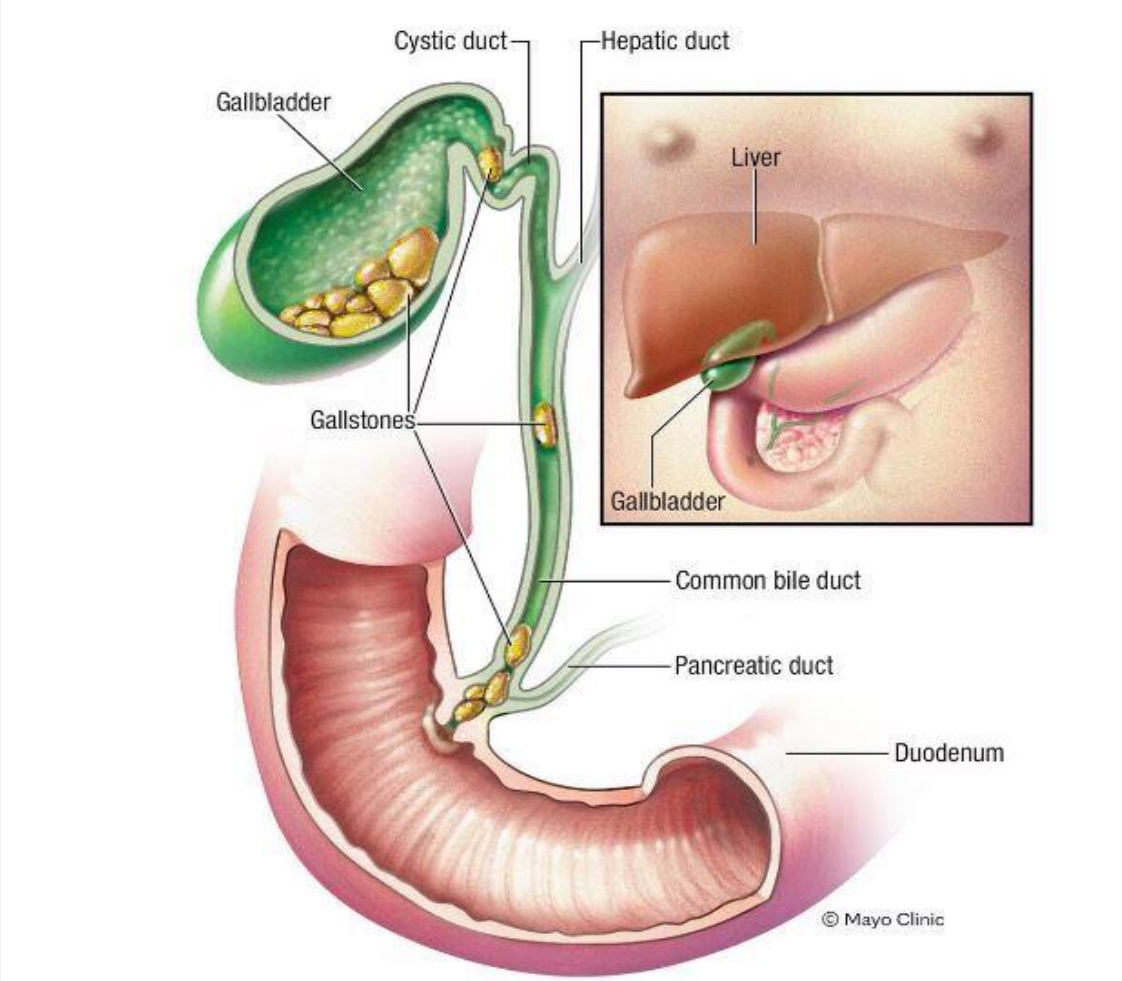
Type of Cholecystitis

2. Acalculous Cholecystitis

- Acalculous cholecystitis describes acute gallbladder inflammation in the absence of obstruction by gallstones.
- Occurs after major surgical procedures, orthopedic procedures, severe trauma, or burns.
- Other factors associated with this type of cholecystitis include torsion, cystic duct obstruction, primary bacterial infections of the gallbladder, and multiple blood transfusions
- Bacteria play a minor role in acute cholecystitis (Escherichia coli, Klebsiella species)

Cholelithiasis

- Calculi, or gallstones, usually form in the gallbladder from the solid constituents of bile.
- They are uncommon in children and young adults but become more prevalent with increasing age.



Major Types of Gallstones

1. Pigment stones

- Pigment stones probably form when unconjugated pigments in the bile precipitate to form stones, bilirubin is one of these pigments.
- The risk of developing such stones is increased in patients with cirrhosis, hemolysis, and infections of the biliary tract
- Pigment stones cannot be dissolved and must be removed surgically

Major Types of Gallstones

2. Cholesterol Stones

- Cholesterol, which is a normal constituent of bile, is insoluble in water. Its solubility depends on bile acids and lecithin (phospholipids) in bile.
- Cholesterol stones account for most of the remaining 75% of cases of gallbladder disease.

RISK FACTORS

- Cystic fibrosis
- Diabetes
- Low-dose estrogen therapy—carries a small increase in the risk of gallstones
- Obesity
- Rapid weight loss (leads to rapid development of gallstones and height risk of symptomatic disease)
- Treatment with high-dose estrogen
- Women, especially those who have had multiple pregnancies .

Clinical Manifestations

- Gallstones may be silent, producing no pain and only mild GI symptoms.
- Epigastric distress, such as fullness, abdominal distention, and vague pain in the right upper quadrant of the abdomen, may occur.\
- This distress may follow a meal rich in fried or fatty foods
- RUQ tenderness

Clinical Manifestations

Note: symptoms due to disease of the gallbladder itself and those due to obstruction of the bile passages by a gallstone.

- Pain and Biliary Colic
- Jaundice (Obstructive Jaundice)
- Changes in Urine and Stool Color
- Vitamin Deficiency

Assessment and Diagnostic Findings

- Abdominal X-Ray
- Ultrasonography
- Radionuclide Imaging or Cholescintigraphy
- Cholecystography
- Endoscopic Retrograde Cholangiopancreatography (ERCP)
- Percutaneous Transhepatic Cholangiography

Medical and Surgical Management

- Nutritional and Supportive Therapy
- Pharmacologic Therapy
- Nonsurgical Removal of Gallstones:
  - Dissolving Gallstones
  - Stone Removal by Instrumentation
  - Intracorporeal Lithotripsy
  - Extracorporeal Shock Wave Lithotripsy
- Surgical Management :
  - Laparoscopic Cholecystectomy
  - Cholecystectomy

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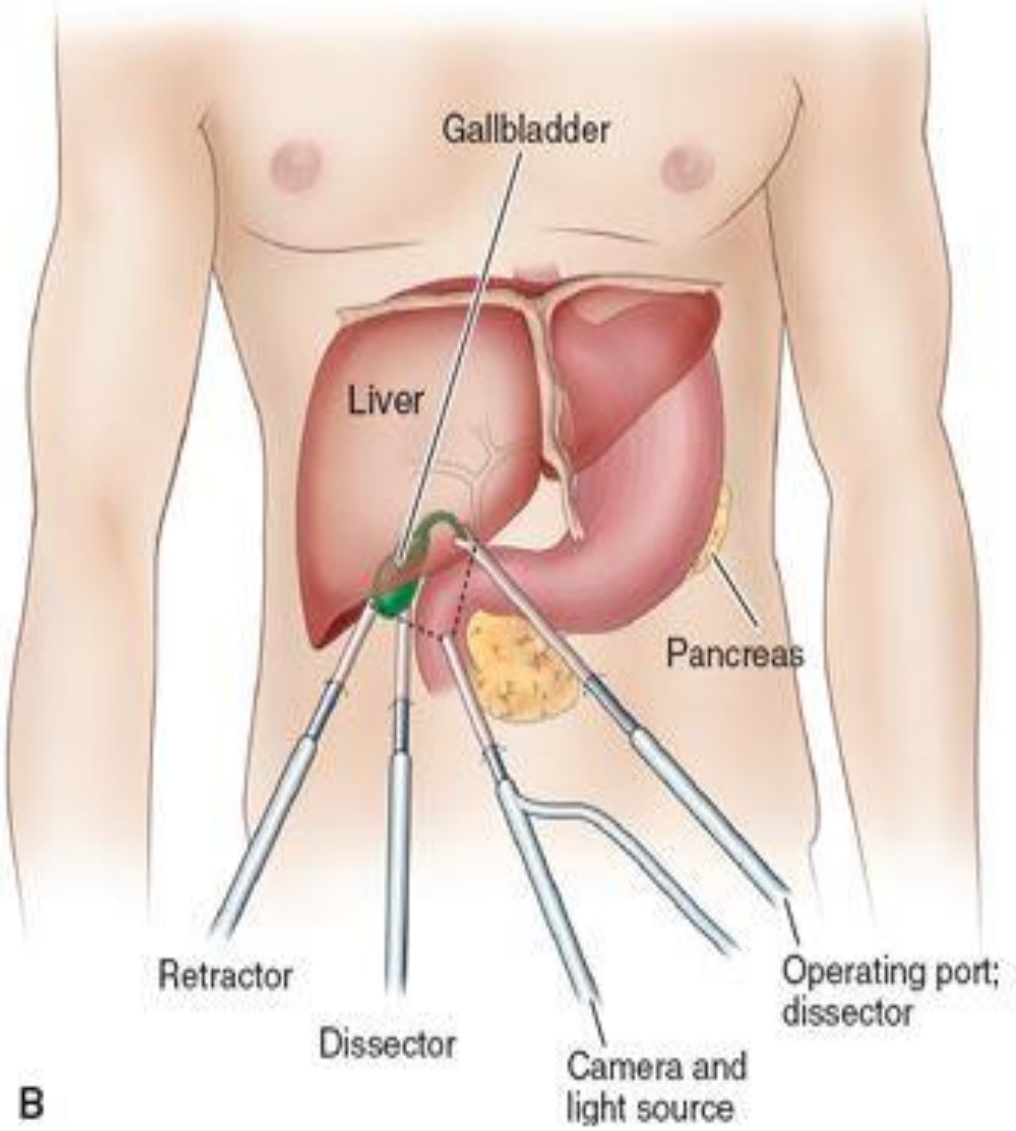
Gallbladder
Liver
Pancreas
Retractor
Dissector
Camera and light source
Operating port; dissector

B

Nursing Diagnoses

- Acute pain and discomfort related to surgical incision
- Impaired gas exchange related to the high abdominal surgical incision (if traditional surgical cholecystectomy is performed).
- Impaired skin integrity related to altered biliary drainage after surgical intervention.
- Imbalanced nutrition, less than body requirements, related to inadequate bile secretion.
- Deficient knowledge about self-care activities related to incision care, dietary modifications (if needed), medications, reportable signs or symptoms (eg, fever, bleeding, vomiting).

Nursing Intervention

- Pain assessment. Observe and document location, severity (0-10 scale), and character of pain.
- Activity. Promote bedrest, allowing the patient to assume a position of comfort.
- Communication. Make time to listen and to maintain frequent contact with the patient.
- Calories. Calculate caloric intake to identify nutritional deficiencies or needs.
- Food planning. Consult the patient about likes and dislikes, foods that cause distress, and preferred meal schedules.


THANK
YOU