



# Contents

<b>Chapter 1. Liver.....</b>	<b>1</b>
<b>Chapter 2. Anatomy.....</b>	<b>2</b>
<b>Chapter 3. Hepatitis.....</b>	<b>3</b>
<b>Chapter 4. Types of Hepatitis.....</b>	<b>4</b>
<b>Chapter 5. Reference.....</b>	<b>6</b>

# Chapter 1. Liver

- the liver is the largest organ of the body
- it is located below the diaphragm in the right upper quadrant of the abdominal cavity
- the liver is supported into a right and left lobe separated by the falciform ligament
- the working cells of the liver are known as hepatocytes
- Hepatocytes have a unique capacity to reproduce in response to liver injury

## Functions of Liver

the Liver is metabolically active organ responsible for many vital life functions the primary functions of liver are:

- Bile production and excretion
- Excretion bilirubin, cholesterol, hormones and drugs
- Metabolism of fats, proteins and Carbohydrates
- Enzyme activation
- Storage of glycogen, vitamins and minerals
- Blood detoxification and Purification

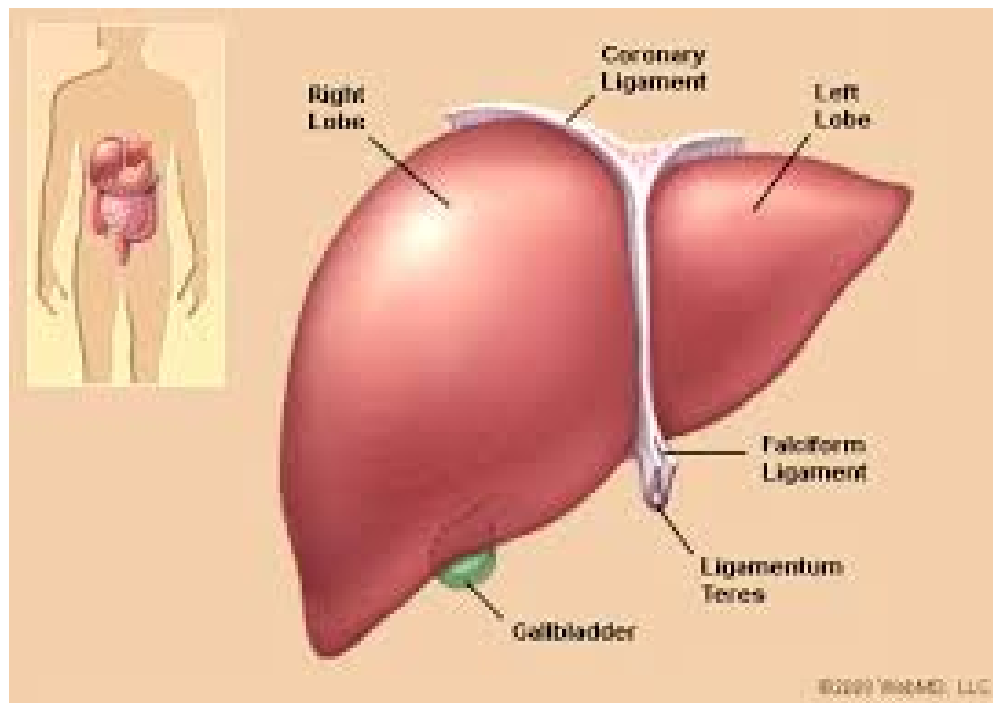
## Disease of Liver

the liver supports almost every organ in the body and is vital for survival, because of the strategic location and multidimensional functions, the liver is also prone to many disease

the most common include:

- Infections such as hepatitis A, B, C, D and E
- Alcohol damage
- Fatty liver
- Cirrhosis
- Cancer
- Drug Damage

## Chapter 2. Anatomy



# Chapter 3. Hepatitis

- Hepatitis is an inflammation of the liver
- Can be caused by
  - Hepatitis Virus
  - Genetic Disease
  - Medications(Including OTC)
  - Alcohol

# Chapter 4. Types of Hepatitis

Although the most common types of viral hepatitis are HAV, HBV and HCV, some clinicians had previously considered the acute and chronic phases of hepatic infections as "types" of viral hepatitis. HAV was considered to be acute viral hepatitis because the HAV infections seldom caused permanent liver damage that led to hepatic (liver) failure. HBV and HCV produced chronic viral hepatitis. However, these terms are outdated and not currently used as frequently because all of the viruses that cause hepatitis may have acute phase symptoms (see symptoms below). Prevention techniques and vaccinations have markedly reduced the current incidence of common viral hepatitis infections; however, there remains a population of about 1 to 2 million people in the U.S. with chronic HBV, and about 3.5 million with chronic HCV according to the CDC. Statistics are incomplete for determining how many new infections occur each year; the CDC documented infections but then goes on to estimate the actual numbers by further estimating the number of unreported infections (see following sections and reference 1).

## **Hepatitis A (HAV)**

In 2016, there were 2,007 new HAV cases reported to the CDC. The hepatitis caused by HAV is an acute illness (acute viral hepatitis) that never becomes chronic. At one time, hepatitis A was referred to as "infectious hepatitis" because it could be spread easily from person to person like other viral infections. Infection with hepatitis A virus can be spread through the ingestion of food or water, especially where unsanitary conditions allow water or food to become contaminated by human waste containing hepatitis A (the fecal-oral mode of transmission). Hepatitis A typically is spread among household members and close contacts through the passage of oral secretions (intimate kissing) or stool (poor hand washing). It also is common to have infection spread to customers in restaurants and among children and workers in day care centers if hand washing and sanitary precautions are not observed.

## **Hepatitis B (HBV)**

There were 3,218 new cases of HBV infection estimated by the CDC in 2016 and more than 1,698 people died due to the consequences of chronic hepatitis B infection in the United States according to the CDC. HBV hepatitis was at one time referred to as "serum hepatitis," because it was thought that the only way HBV could spread was through blood or serum (the liquid portion of blood) containing the virus. It is now known that HBV can spread by sexual contact, the transfer of blood or serum through shared needles in drug abusers, accidental needle sticks with needles contaminated with infected blood, blood transfusions, hemodialysis, and by infected mothers to their newborns. The infection also can be spread by tattooing, body piercing, and sharing razors and toothbrushes (if there is contamination with infected blood). About 5% to 10% of patients with HBV hepatitis develop chronic HBV infection (infection lasting at least six months and often years to decades) and can infect others as long as they remain infected. Patients with chronic HBV infection also are at risk of developing cirrhosis, liver failure, and liver cancer. It is estimated

that there are 2.2 million people in the U.S. and 2 billion people worldwide who suffer with chronic HBV infections.

### **Hepatitis C (HCV)**

The CDC reported that there were 2,967 reported new cases of hepatitis C in 2016. The CDC reports that the actual number of acute cases are estimated to be 13.9 times the number of reported cases in any year, thus, it is estimated that there were actually 41,200 acute hepatitis C cases occurring in 2016. HCV hepatitis was previously referred to as "non-A, non-B hepatitis," because the causative virus had not been identified, but it was known to be neither HAV nor HBV. HCV usually is spread by shared needles among drug abusers, blood transfusion, hemodialysis, and needle sticks. Approximately 75%-90% of transfusion-associated hepatitis is caused by HCV. Transmission of the virus by sexual contact has been reported, but is considered rare. An estimated 75% to 85% of patients with acute HCV infection develop chronic infection. Patients with chronic HCV infection can continue to infect others. Patients with chronic HCV infection are at risk for developing cirrhosis, liver failure, and liver cancer. It is estimated that there are about 3.5 million people with chronic HCV infection in the U.S.

### **Types D, E, and G Hepatitis**

There also are viral hepatitis types D, E, and G. The most important of these at present is the hepatitis D virus (HDV), also known as the delta virus or agent. It is a small virus that requires concomitant infection with HBV to survive. HDV cannot survive on its own because it requires a protein that the HBV makes (the envelope protein, also called surface antigen) to enable it to infect liver cells. The ways in which HDV is spread are by shared needles among drug abusers, contaminated blood, and by sexual contact; essentially the same ways as HBV.

Individuals who already have chronic HBV infection can acquire HDV infection at the same time as they acquire the HBV infection, or at a later time. Those with chronic hepatitis due to HBV and HDV develop cirrhosis (severe liver scarring) rapidly. Moreover, the combination of HDV and HBV virus infection is very difficult to treat.

**Hepatitis E virus (HEV)** is similar to HAV in terms of disease, and mainly occurs in Asia where it is transmitted by contaminated water.

**Hepatitis G virus (HGV, also termed GBV-C)** was recently discovered and resembles HCV, but more closely, the flaviviruses. The virus and its effects are under investigation, and its role in causing disease in humans is unclear.

## Chapter 5. Reference

<https://www.healthline.com/human-body-maps/liver>