

LIVER ANATOMY, HISTOLOGY AND PHYSIOLOGY

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Annotation: *This article discusses the liver, one of the internal organs of living organisms. Liver is one of the most important organs in our body. It helps digest food, synthesizes substances necessary for life, and removes toxins from the body. The liver plays an important role in the digestion of food and the absorption of nutrients from the intestine into the blood, mainly by producing bile. In addition, the liver performs a protective function by neutralizing toxic substances that are formed in the metabolism or entered from the outside. If the liver stops working, it can cause serious problems for the whole body.*

Key words: *liver, hepatocytes, segment, filter, metabolism, hepatitis, fibrosis, cirrhosis, liver cancer.*

The liver is derived from the word "heper" and performs the function of a digestive gland in the body. It participates in the digestion and absorption of food in humans and animals, and stores fat and carbohydrates. In chordates and humans, the liver is an important organ for complex life and is larger than that of fish, amphibians, reptiles, birds, and mammals. The shape of the liver also depends on the structure of

the animal's body. The liver is the largest gland in the body (1200–2200). The color is reddish-brown, and the large right lobe differs from the smaller left lobe. The liver is made up of many separate cells - hepatocytes. Bile ducts, which are the beginning of the bile ducts, are located between the hepatocytes. Hepatocytes are large cells (20-25 μm) of polygonal shape. The liver makes up 60% of the cell elements and performs most of the main functions of the organ. Each such cell is a small "chemical laboratory" that neutralizes all harmful substances and poisons entering the body. Special stellate cells of the liver are able to phagocytose and produce antibodies. The liver can collect blood, and participates in the formation of blood elements and hemoglobin during embryonic development. 1/5 of the blood in the body can fit into the veins of the liver. Excess water in the blood is partially expelled from the liver and goes to the formation of bile and lymph. The liver produces bile continuously and releases it through its biliary tract. The duodenal ulcer begins at the time of eating and continues until the stomach is empty of food. In another meal, the annular muscle of the common bile duct contracts and closes the opening of this duct. After the bile produced in the liver enters the gallbladder, some other substances pass through the gallbladder wall into the blood.

The liver is the largest parenchymatous organ in the body and consists of 300 billion liver cells. There are 2000 types of enzymes in these cells, they mediate all biochemical reactions in the body and take part in life processes in the body. That is why the liver is called the "complex chemical factory of the organism". Currently, with the successful development of liver surgery, the understanding of the segmental structure of the liver is widespread.

A segment is a distinct area of the liver with its own blood circulation, innervation, bile and lymphatic channels. It helps to surgically remove such areas of the liver without damaging the adjacent segments. Segment is not only a spatial concept, it also reflects branching characteristics of the gate system. A large branch of the portal vein enters the segment together with a branch of the hepatic artery, and the bile duct and lymphatic vessels leave the segment. Since the branching of the portal vein is not constant, researchers give different numbers of liver segments. At present, there are several schemes of segmentation of the liver corresponding to the areas of blood supply, bile and lymph drainage. But the most common is Kuino's scheme, according to which the liver is divided into 8 segments, which are different from each other

The location of the liver. The liver lies in the abdominal cavity, under the diaphragm, under the right ribs. The liver develops from the endodermal epithelium of the initial part of the midgut (epithelium). In the third week of fetal life, the liver bud appears in the form of a ridge on the ventral wall of the midgut, and it is called a liver bud. This relief is common at first, and then it is divided into two upper and

lower reliefs. If the liver tube and liver gland tissue appear from the upper bulge, the gallbladder develops from the lower bulge. The common grass path will later become a common grass path. Until the third month of the fetus's life, both lobes of the liver become homogeneous. At the end of the third month, its right lobe becomes larger and the caudal lobe begins to develop. The liver of a newborn embryo is filled with blood and its four lobes are clearly visible. It occupies the upper part of the abdominal cavity. The weight of the liver is on average 135 g, which is 4-4.5% of the body weight. Since the peritoneum covering the liver is empty, it is mobile. The left part is equal to or multiple of the right part. Because the fetus receives blood rich in oxygen and nutrients to the left lobe of the liver. After the birth of the embryo, blood circulation in the liver, especially in the left lobe, changes and the growth of the left lobe slows down. Liver tissue is not well developed in a newborn embryo.

The function of the liver. The liver performs more than 500 functions in the body. The main function of the liver is filtration, which removes harmful substances from the blood. It contains blood from the stomach, small intestine, spleen, pancreas and gall bladder. The liver contains the digestive system, the immune system and the endocrine system. Fat digestion is one of the functions of the liver. Bone produced by the liver produces fat in the small intestine and is used for energy.

The most common of injuries is hepatitis. Hepatitis is inflammation of liver cells. Inflammation is a universal reaction of the body to injury. In this case, the body tries to limit the affected area and destroy the causative agents of diseases, such as pathogenic bacteria. Hepatitis can be acute or chronic. Acute hepatitis, the inflammation that occurs quickly, can be cured without consequences if the negative factor affecting it is eliminated. If the inflammatory process lasts for 6 months or more and becomes chronic, then fibrosis begins to appear in the place of dead hepatocytes.

Fibrosis is the replacement of liver tissue with connective tissue fibers. As with any injury repair, a scar will form at the site of the injury to the liver. It consists of a strong tissue rich in collagen, elastin and other substances that are usually located in the intercellular space. Scar tissue cannot fulfill the functions of newly dead liver cells. The process of fibrosis can be fast and last for a very long time. The end result of fibrosis is cirrhosis.

In conclusion, I have to express the following points: The role of the liver in the body is to digest food, it neutralizes most of the harmful substances that come in with food, water or air. It also plays a major role in metabolism. Bile, which participates in the digestion of food in the intestine, stimulates the movement of the liver and large intestine. All the necessary nutrients pass through the liver and are processed. In addition, the liver mixes with the blood and synthesizes many plasma proteins. The

liver acts as a depot for large amounts of blood that can be thrown into the blood vessels during death or shock.

In the modern world, a person faces the negative consequences of a polluted environment and has to work in stressful conditions, and he completely forgets about human health. Food products purchased by citizens often contain pesticides, nitrates, insecticides, harmful preservatives and dyes, heavy metal salts and other toxic substances. In addition, uncontrolled medications, constant stress, depression, failure to give up bad habits, sleep and improper nutrition negatively affect the body's protective function, and the liver deteriorates. The liver, the body's natural filter, can become contaminated and stop working properly if it is too heavy.

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