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HISTOLOGICAL STRUCTURE OF MORPHO–FUNCTIONAL UNITS OF THE LIVER (LIVER FRAGMENTS)

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Annotation. *Liver fragments as a morphofunctional unit of the liver, being the main structural and functional unit of the liver, play a central role in the implementation of all its biological activities. Fragments of the liver include hepatocytes (liver cells), sinusoidal capillaries, a central vein, and a portal tract. These fragments carry out basic processes such as blood circulation, metabolism, detoxification, and bile production. The histological structure of the liver fragment ensures that each part of it performs specific tasks, including the radical arrangement of liver cells and the passage of blood through sinusoids, as well as the effective functioning of bile production and excretion systems. This article will focus on the analysis of the histological structure of liver fragments, their functional significance and role in the body.*

Keywords: *liver fragments, Morpho-functional unit, hepatocytes, sinusoidal capillaries, central Vein, portal pathways*

The liver is one of the largest and most important organs of the human body, the structural and functional unit of which is the liver fragment. The liver lump is a complex structure in which several important processes take place.

The structure of the liver lump

1. Liver cells (hepatocytes):

The main component of the liver lump.

They are arranged radially and form rows.

Hepatocytes are responsible for metabolism, detoxification, and bile production.

2. The Central Vein:

It is located in the center of the liver lump.

The blood coming from the lobe is collected in this vein.

3. Sinusoidal capillaries:

Small capillaries passing between hepatocytes.

Blood flows through them from the portal vein and hepatic artery, which is in contact with hepatocytes.

4. Portal paths:

It consists of three main structures between the lobes (portal vein, hepatic artery, and bile ducts).

It is responsible for the exchange of blood and bile.

Liver lump functions

1. Metabolic activity:

Metabolism of carbohydrates, fats and proteins.

Storing glucose in the form of glycogen or releasing it as needed.

2. Detoxification:

The liver neutralizes and removes toxic substances from the body.

3. Bile production:

It produces and stores bile, which ensures the digestion of fats.

4. Blood purification:

Removes old red blood cells, microorganisms and other particles from the blood.

5. Storage of vitamins and minerals:

It preserves the reserves of substances such as vitamins A, D, E, K and iron.

Formation and structure of the classical liver fragment

A classical fragment of the liver is a structural and functional unit of the liver, which is the main center of blood circulation and bile formation. Classical lobes (lobes), by their structure and blood supply, effectively perform liver functions.

Formation of a classical fragment

Classic lumps are formed as a result of the arrangement of liver cells in a certain order:

1. Liver cells (hepatocytes):

The main part of the liver tissue.

Hepatocytes are arranged concentrically, radially, forming rows.

2. Connective tissues:

The classics separate the pieces from each other.

Portal pathways are located between connective tissues.

3. Blood and lymphatic vessels:

The circulatory system in the lobes is provided by the central Vein, portal veins and sinusoidal capillaries.

The structure of the classical fragment

The structure of a classic liver lump consists of several main components:

1. The Central Vein:

* Located in the center of the classic fragment.

* Blood from the sinusoidal capillaries collects in the central vein and passes through it into the hepatic vein.

2. Hepatocytes:

* They are primary cells and are located inside the fragment in the form of radial rows.

Responsible for metabolic processes, detoxification and bile production.

3. Sinusoidal capillaries:

• Dilated capillaries passing between hepatocytes.

* Mixed blood coming from the portal vein and hepatic artery passes through the sinusoids, during which it is exchanged with hepatocytes.

4. Portal paths:

* Located at the corners of the classic fragment.

It includes three main structures called triads:

The portal vein: it brings nutrients with the blood.

Hepatic artery: it supplies oxygen to the liver tissue.

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Bile duct: bile is produced and bile is collected from it.

5. Bile ducts:

* Bile is produced by hepatocytes and delivered to the portal tract through small bile ducts.

* Bile moves in the opposite direction, that is, in the direction opposite to the blood flow.

Classical fraction functions

1. Metabolism:

about the metabolism of glucose, lipids and proteins.

The liver stores reserve substances (for example, glycogen and vitamins).

2. Detoxification:

o Neutralizes toxic substances.

it breaks down drugs and metabolic products.

3. Bile production:

about hepatocytes produce bile, which ensures the digestion of lipids.

4. Blood purification:

o Removes microorganisms and other particles from the blood.

Conclusion

A classic liver fragment is a structure consisting of hepatocytes and blood vessels located radially around a central vein. Its main function is blood circulation, control of metabolic processes and ensuring the production of bile. This complex and orderly structure allows the liver to perform vital processes in the body.

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