ENDOTHELIAL LYMPHATIC CAPILLARIES OF COLON MUCOSA OF DOMESTIC DOG, SWINE, BULL

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Study, using a light microscope, by impregnation lymphatic channels by weak solution of silver nitrate, found that the endothelial walls of lymph capillaries of colon of domestic dogs, swine, bovine arranged in a continuous single-layer reservoir in 3-5 or more cells. They are characterized by similar patterns of structure and have scalloped (stellate, ameboid), diamond-shaped and polygonal shapes. Number of endothelial cells that form the wall of the lymphatic capillaries is proportional to its diameter.

Scalloped cells in form reminiscent of the star, the edges of which very winding and processes-rays of various shapes and size come in depressions between neighboring endothelial spikes.

The length and width of these cells are almost identical.

Scalloped endothelial cells are typical to the star-shaped capillaries with the large diameter - 100 mcm. They are also found in the joints of capillaries. Scalloped ameboid endotelial cells form a wall of lymphatic capillaries of small diameter - up to 50 microns.

In the cytoplasm of the scalloped endothelial cells are Argyrophilicic inclusion.

Argyrophilic inclusion also is between the individual endothelial cells. They are mainly round and oval, are alone and grouped. Their size as the size of such inclusions in the cytoplasm and varies from 1 to 5 microns.

They are located mainly in the periphery of cells and have different shapes and sizes. Moreover, the macropreparations enlightened we found the endothelial cells with enhanced limits in some places that are oval, round, elongated shape, surrounded on all sides by the two neighboring endothelial cells on the enlightened macropreparations.

Rhomboid endothelial cells are shaped corresponding to their title, the length of these cells significantly exceeds their greatest width.

The contours of the rhomboid endothelial cells have relatively equal level, although their edges are winding, and the boundaries between them are often intermittent.

These cells are typical to the middle-size capillaries - to 100 microns. Argyrophilic inclusion in the cytoplasm of rhomboid endothelial cells is very small.. It isn’t between individual endothelial cells.

Rhomboid and oblong-rhomboid endothelial cells, usually strictly oriented along the axis of the capillary or vessel. At the same time, we have not set any regularity in the orientation of the scalloped endothelial cells or irregular polygonal endothelial cells relative to the longitudinal axis of the lymph capillary.

Among rhomboid endothelial cells frequently are found polygonal endothelial cells.

Polygonal endothelial cells have polygonal shape. They occupy an intermediate position between scalloped and rhomboid endothelial cells and are found mainly in the wall of the capillaries of middle diameter.

Most of these cells are elongated and as rhomboid cells are oriented along the capillaries. The length of these cells is more than their width.

The contours of the polygonal endothelial cells are relatively equal. Argyrophilic inclusion in their cytoplasm and between single endothelial cells is very rare.

A minority of polygonal endothelial cells has the form similar to scalloped, but their cytoplasmic processes are insignificant, in their cytoplasm and between the cells also can be found argyrophilic inclusion. The length and width of the endothelial cells are almost identical.

It is believed that the larger the vessel, the less is the content of irregular-shaped and wing-shaped endothelial cells and there are the rhomboid and the spindle-shaped endothelial cells.

Very rarely there are endothelial cells of all forms in the wall of some lymph capillaries of the mucous membrane of the colon of the domestic dog, swine, bull.

In some preparations we noticed an acute-shaped or finger-shaped outpouching of the lymphatic post-capillary wall.

Moreover, we found bivalve valves. They have the shatters with the form of folds of equal size, placed at an acute angle to each other. The top of acute angle is in the middle of lymphatic vessel. That is, they are oriented in the direction of the flow of lymph.

In the main bivalve valves are typical to the lymphatic vessels of average diameter.

Lymphatic vessels have numerous constrictions and expansions, due to the presence of a large number of valves.

Valves of the lymphatic vessels of the domestic dog, swine, bull are composed of the central connective tissue zone which is covered by the germinated to the lumen, vascular endothelium.

According to their histological structure the valves are the fold of the inner covering of lymphatic vessels. They consist of a central connective plate covered on the inner and outer surfaces of the endothelium. Endothelium of the inner surface of the valve is the same that the vessel wall's endothelium. The endothelial cells of the outer surface are less extracted in length, the limits between them are smoother compared to endothelial cells of the vascular wall and the inner surface of the valve.

In large lymphatic vessels the valves are composed of endothelium, collagen and elastic fibers.

Often the lymphatic vessels on the location of the valve have a circular groove that completely covers the vessel, indicating the possibility of its complete closure.

Valves promote lymph flow in one direction. The lymphatic vessels, according to the Bertels' law, are passable only in the centripetal direction, the opposite direction of flow of the lymph is impossible. However, in pathological conditions often appears insufficient of the valve system that enables retrograde flow of lymph. This phenomenon, in particular, plays a role in the spread of retrograde metastasis cancer .

Described features were in almost all preparations of caecum, colon, rectum of these species.

Findings summarizing the results of our studies of the structure of lymphatic capillaries' wall according to the data received with the light microscopy (the method of the impregnation of lymphatic vessels with the weak solutions of silver nitrate) should note the following:

- Endothelial walls of lymph capillaries are presented by flat cells;

- In the form of length and width ratio were identified three forms of endothelial cells - scalloped, rhomboid (rhomboid, elongated) and polygonal;

- The significant species differences in form of the endothelial cells, their cytoplasm and limits between cells in domestic dogs, swine, and bulls were not detected.

Lymphatic channel, lymphatic capillary, lymphatic vessels, pig, dog, ox, large intestine