HISTOLOGICAL STRUCTURE OF KIDNEYS

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https://doi.org/10.5281/zenodo.7546673

Abstract: Nowadays, the histological study of the kidney is gaining importance in medicine.
Reason: In medicine and practice, diseases such as kidney stones, blood formation in the kidney - hematuria, glucose formation in the kidney - glucosuria, protein formation in the kidney - oliguria, increased renal arterial blood pressure are increasing. Their treatment mainly focuses on the histological structure of the kidneys.
Key words: Kidney, nephron, cortex, medulla, Shumlyansky-Baumen capsule, Malpighian tangle, primary convoluted tubule, secondary convoluted tubule, gene loop, collecting tubules, filtration barrier, reverse flow mechanism, forced reabsorption, filtration, podocytes, parietal and visceral sheets, cytotrabeculae, cytopedicles

Introduction: The kidneys perform a very important function in the human body: the body participates in maintaining the stability of the internal environment, controls the exchange of water and mineral salts, participates in keeping the pressure in the arteries at a standard level, controls the acid-alkaline balance of the internal environment, the humoral function is the production of erythropoietin, renin, prostaglandin takes part in the exchange of protein, fat, carbon and vitamins in the body. The main function of the kidneys is to produce urine. Kidney disease leads to poisoning of the human body and sometimes death. we can consider the main mechanisms of its occurrence.

The main part: Kidneys are located in 1 pair of bean-like shapes, on the back wall of the abdominal cavity, on both sides of the lumbar region of the spine. Kidneys have a great influence on organs and tissues. When the kidneys are cut from the frontal level, two parts are distinguished: 1) Cortex renalis; 2) Core substance (Medulla renalis). the insides are clearly visible. When the cortex material is viewed through a microscope, it is possible to see nephrons - the anatomical functional unit of the kidney. a) primary curved tube; 2) Loop of Henle; a) descending proximal tube; b) ascending distal tube; 3) curved tube of Lamchi; 4) collecting ducts; Shumlyansky-Baumen capsule and Malpighian tangle inside it from parietal and visceral sheets Capillary plexus: consists of capillary nets, fenestrated endothelium in capillaries and a 3-layer basement membrane lying below it. substances must be passed through the filter. However, because there is a filtration barrier here, not all substances can pass into the capsule cavity. The filtration barrier is formed by: 1) podocyte cells; 2)

cytotrabeculae; 3) glomerular capillary; 4) filtration membrane; a) basal membrane; b) endothelium;

c) visceral sheet slits; The visceral sheet of the capsule is covered with flat epithelial cells - podocytes. Cytotrabeculae grow out of the podocyte body and divide into cytopedicles. The cytopedicles touch the basal membrane of the capillaries. Z covers and strengthens the capillaries as it holds the prey. Between the cytopedicles there are gaps - slits, they are 30-50 nm in size. Capillaries also have slits, through which substances smaller than 7 nm can pass into the capsule cavity. In particular, blood-shaped elements, large proteins of blood plasma, immune cells, fibrinogen, and those with high molecular mass. proteins cannot pass through. The fluid that has passed into the capsule cavity is considered to be a filtration fluid. Proximal part of the nephron. 1. The epithelium of the proximal tubule consists of single-layered cylindrical striated and basal convoluted cells, and striated microvilli are visible in the electron microscope. Microvilli provides reabsorption of substances in urine into the blood. through microvilli, small molecule proteins, glucose, electrolytes and water are reabsorbed from primary urine into the blood. The descending tube is thin, 13-15 μm in diameter, the wall consists of flat epithelial cells. 1-2 short microvilli are held in the apical part of the cell. through which water is reabsorbed into the blood.

A cubic cell consisting of a tube with a diameter of 30 μm in the ascending thick part. Na+ is absorbed in this tube and participates in maintaining the acid-base balance. There are many mitochondria here and they contain ATF-ase. high activity and the connection of mitochondria with the basal and lateral membranes of the cell are considered factors that perform complex activities such as increasing the concentration of urine. The absorption of water through the descending proximal tubule and sodium absorption through the ascending distal tubule creates a reverse flow mechanism. Secondary through the tube, Na+, K+, H2o and other substances are reabsorbed into the blood. The amount of reabsorption of these substances into the blood creates a forced reabsorption mechanism. Consists of several segments. There are 4 parts of the tubule, one of which is the cortex of the kidney, and the other three parts are located in the medulla. Collecting tubules have two types of leaking and dark cells. The leaking cells are cuboidal and evenly distributed in the cytoplasm. a plate-like complex consisting of few mitochondria, cisternae, vacuoles and vesicles, small tubules of the endoplasmic reticulum, free ribosomes and polysomes are found, there are many short protrusions on the side surface membranes. Dark cells. Blue ultrastructural structures from leaking cells. It differs from pligi. These cells contain a lot of mitochondria and dense hyaloplasm. Urine acidification (having an acidic condition) is related to the activity of the intermediate cells of the collecting ducts. is supplied with blood through it. Renal artery branches into small vessels, forming arterioles It is crushed to form a malpigi ball. The diameter of the afferent arteriole is twice that of the efferent arteriole. This causes a pressure difference. The muscular layer of the afferent arteriole is well developed, because it directly branches off from the abdominal aorta. The splenic vein passes into the blood vessel. Ball veins are involved only in the formation of urine. Shumlyansky-Baumen's capsule is formed by the same blood vessel entering and leaving the same blood vessel.

Conclusion: In conclusion, it should be said that the kidneys are one of the organs that secrete toxic substances into the external environment in the human body. Kidney disease causes various diseases and has a toxic effect on a person. In particular, urea, creatinine, indole, uric acid, and ammonia secreted by the kidneys are in the human body. When the

kidneys are infected, the tissues lose their normal function and the body swells, because the toxic substances have a toxic effect on the tissues and cells.

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