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## **MORPHOLOGICAL CHANGES OF KIDNEY PATHOLOGY OF THE RIVER BEAVER (*CASTOR FIBER L.*) IN THE NATURAL ECOSYSTEM OF THE REPUBLIC OF BELARUS**

**Denis Zhurov, Aleksandr Zhukov**

VSU named after P.M. Masherov, Vitebsk, Belarus

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The fauna of aquatic animals in Belarus is represented by a huge number of animals. One of these animals is the river (common) beaver (*Castor Fiber L.*). Beavers belong to the category of strictly herbivorous, semi–aquatic animals that feed exclusively on tree bark or plant shoots. They eat more than 200 species of plants (calamus, stinging nettle, broad–leaved cattail, meadowsweet, yarrow and horse sorrel). From trees and shrubs, they prefer aspen, willows (about 10 species), willingly eat young oaks, hazel, linden, elm, bird cherry, birch. Sometimes beavers eat pine and spruce bark. It is possible that coniferous trees contain some substances necessary for animals that have medicinal properties [1].

The aim of this work is to study pathomorphological changes in the kidneys of the river beaver.

**Material and methods.** The studies were carried out on the cadaveric material of adult river beavers ( $n = 2$ ), delivered to the prosectorium of the Department of Pathology and Histology of the VSAVM for the purpose of conducting a forensic veterinary examination. In the study, macroscopic changes in the urinary system of animal corpses were described, and pieces of kidneys were selected for further histological examination. They were fixed in a 10%– solution of neutral formalin. To study general structural changes, the sections were stained with hematoxylin – eosin. The data obtained were documented by microphotography using digital systems for reading and inputting video images, as well as software for inputting and processing images [2, 3, 4, 5].

**Findings and their discussion.** Macroscopic examination in the kidneys revealed foci of compaction and an uneven gray–brown color of the incision surface. The histological examination of the selected material revealed signs of acute and chronic inflammatory processes. So, in the cortex, the vascular glomeruli were in a state of hyperemia, in the cavities of Shumlyansky's capsules,

an accumulation of serous exudate (serous glomerulonephritis) was noted. A significant part of the urinary tubules (proximal and distal convoluted, straight) and collecting tubes were in a state of necrosis. The cells of these structures are swollen, with nuclei in a state of pycnosis and lysis, destroyed by the cell membrane. In the areas that underwent the greatest destruction, there was a proliferation of cellular elements – lymphocytes, macrophages, as well as fibroblasts and fibrocytes, which formed an insignificant amount of connective tissue fibers. The vascular glomeruli here were in a state of atrophy and sclerosis – reduced, deformed, the capillaries were compressed by the expanding connective tissue. Moreover, these changes were more pronounced in the older animal. Throughout the renal parenchyma, vessels are visible in a state of acute venous hyperemia, which developed against the background of acute heart failure.

**Conclusion.** The changes found in the kidneys of beavers indicate the effect of nephrotoxic substances on the animal organism. They can be gallic and phosphoric acids, tannin, alkaloids, flavonoid glycosides, hyperosides, quercetin, tannins, which are found in abundance in plants included in the diet of beavers. In the winter–spring period, due to the meager diet of animals of this species, as well as due to the nutritional conditions (most of the food base is under water, which creates conditions for rotting and deterioration of plant food), the above substances can accumulate in the body and negatively to influence the organism of this animal species, including its urinary system.

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