

УДК 616-091.616.995(599.742.12)

<https://doi.org/10.31016/978-5-6050437-8-2.2024.25.363-367>

**ПАТОЛОГОАНАТОМИЧЕСКИЕ ИЗМЕНЕНИЯ
НОСОВЫХ ПУТЕЙ *VULPES VULPES L.*, 1758
ПРИ ИНВАЗИИ *CAPILLARIA (EUCOLEUS) BOEHMI*
SUPPERER, 1953**

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Аннотация

Инвазия носовой нематодой *Capillaria (Eucoleus) boehmi* Supperer, 1953 регистрируется у лисиц Северной Америки, Европы, в некоторых регионах России, в том числе и на территории Пермского края, однако, до настоящего момента в научной литературе описание патологоанатомических изменений у диких лисиц не представлено, что обуславливает актуальность данного исследования. Нами проведена аутопсия трупов лисиц, добытых охотниками или ставших жертвами дорожно-транспортных происшествий. Проведено вскрытие носовых полостей. Образцы тканей помещали в 10%-ный раствор нейтрального формалина. Изготовление гистологических препаратов проводили в ветеринарной лаборатории UNIMvet на оборудовании Leica с окраской гематоксилин-эозином, последующим сканированием и исследованием с использованием программного обеспечения DigitalPathology© (Россия). Гистологический анализ позволил установить изменения, характеризующие выраженный, неактивный, эозинофильный, плазмоцитарный ринит. Собственная пластинка слабо инфильтрирована лимфоцитами. Отмечено отсутствие бокаловидных клеток. Вокруг фрагментов гельминтов ткани с выраженным отеком, обильно инфильтрированы эозинофилами, плазмócитами, в меньшей степени – лимфоцитами и мастоцитами. Указанные изменения характеризуют развитие у лисиц выраженной хронической воспалительной реакции с преоб-

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ладанием эозинофилов и плазмочитов, указывающих на присутствие аллергического компонента.

Ключевые слова: лисица, носовой капилляриоз, эозинофильно-плазмочитарный ринит

**PATHOANATOMICAL CHANGES IN THE NASAL WAYS
OF *VULPES VULPES* L., 1758 INFECTED BY *CAPILLARIA*
(*EUCOLEUS*) *BOEHMI* SUPPERER, 1953**

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Abstract

The infection by the nasal nematode *Capillaria (Eucoleus) boehmi* Supperer, 1953 has been recorded in foxes in North America, Europe, and in some regions of Russia including the Perm Kray. However, to date, a description of pathoanatomical changes in wild foxes has not been presented in scientific literature, which determines the relevance of this study. We carried out dissection of the carcasses of foxes killed by hunters or in road accidents. The nasal cavities were opened. Tissue samples were placed in a 10% neutral formaldehyde solution. The histological preparations were prepared in the UNIMvet veterinary laboratory using Leica equipment with hematoxylin-eosin staining, subsequent scanning and examination using DigitalPathology© software (Russia). Histological analysis demonstrated changes that characterized pronounced, inactive, eosinophilic, plasmacytic rhinitis. The lamina propria was weakly infiltrated with lymphocytes. The absence of goblet cells was observed. Around the fragments of helminths, the tissues had pronounced swelling and were heavily infiltrated with eosinophils, plasma cells, and, to a lesser extent, lymphocytes and mastocytes. Such changes characterized a pronounced chronic inflammatory reaction development in foxes with a predominance of eosinophils and plasma cells that indicated an allergic component.

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Keywords: fox, nasal capillariasis, eosinophilic and plasmacytic rhinitis

Introduction. Currently, the number of foxes in the Perm Krai is gradually decreasing and currently amounts to only 5070 individuals [1], while more and more often predators appear in close proximity to human habitation, and therefore there is a danger of transmitting certain infections and parasites.

According to available literary information, the species *Capillaria (Eucoleus) boehmi* Supperer, 1953 is recorded in foxes in North America, Europe, and in some regions of Russia with prevalence of 26.6% [2, 4]. This infection in foxes in the Perm Kray was first registered in 2022 in the Perm Krai and Kishert [3]. Pathological changes in nasal capillariasis have not been described in the literature so far, and therefore it was decided to conduct this study.

Materials and methods. In the course of our work, parasitological expeditions were carried out in various areas of the Perm Krai, during which the carcasses of foxes were obtained after hunting or road accidents. All carcasses were examined using the method of partial helminthological dissection per Skrjabin. Tissue samples of the upper respiratory tract were obtained after extirpation of the anterior nasal bone and immediately placed in a 10% neutral formalin solution. Histological preparations were prepared in the UNIMvet veterinary laboratory using Leica equipment with hematoxylin-eosin (H&E) staining and subsequent scanning and examination using DigitalPathology© software (Russia).

Results. We established changes that characterized inactive, eosinophilic and plasmacytic rhinitis. The respiratory epithelium was mature, smooth, pseudostratified, uniform with mechanical artifacts, represented by columnar epithelium with moderate weakly basophilic cytoplasm and an apical oval hyperchromic nucleus. The absence of goblet cells was observed. The lamina propria was abundant, loose at the periphery and weakly infiltrated with lymphocytes. In many fields of view, fragments of nematodes and their eggs were detected in the lamina propria (Fig.).

Around areas with helminths, the lamina propria was edematous, markedly infiltrated with eosinophils, plasma cells, and to a lesser extent, lymphocytes and mastocytes.

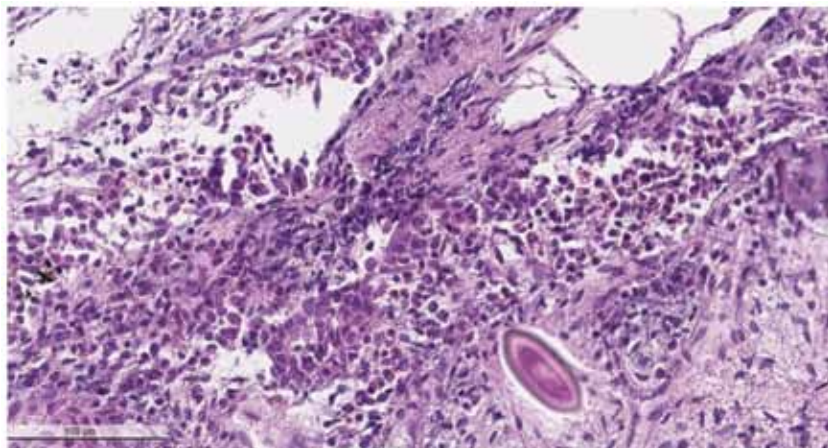


Fig. Strong mixed inflammatory infiltration of the lamina propria with a predominance of eosinophils, plasma cells and, to a lesser extent, lymphocytes. Single mastocytes. H&E. Magnification. x 1000

Conclusions. Thus, histological analysis made it possible to establish that at the site of *C. boehmi* localization in foxes a pronounced chronic inflammatory reaction with a predominance of eosinophils and plasma cells developed, which indicated an allergic component.

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