

TITLE

Histological study of the canine lacrimal drainage system.

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Purpose: Histological structure of the lacrimal drainage system (LDS) has never been determined in the canine species. The current study aims to contribute to a better knowledge of its microscopic features.

Material/Methods: Investigations were performed on 11 LDS of various breed of dogs (5 males and 6 females, aged 1 to 17 years (mean age 9.5) obtained at the veterinary school necropsy room (death non-related to ocular or respiratory disease). After delicate dissection and 4% formalin fixation, each complete LDS was divided into five tissue blocks: 1/ lacrimal canaliculi, 2/ lacrimal sac, 3/ proximal part of nasolacrimal duct (ND) (into the bone lacrimal canal), 4/ middle part of ND (deep to the nasal mucosa on the nasal face of the maxilla), 5/ distal part of ND (which ends by opening into the nasal vestibule). Tissues were decalcified if necessary and routinely processed. Longitudinal (8 cases) and transversal (3 cases) sections of each parts were stained with hematoxylin and eosin and periodic acid Schiff.

Results: The internal wall of lacrimal canaliculi was lined by a thick stratified squamous epithelium resting on a basement membrane and a collagenic connective tissue. The lacrimal sac, as well as the proximal and middle parts of the ND, was composed of a bistratified columnar epithelium resting on a basement membrane. In the latter, the lamina propria consisted of two strata: a thin loose connective tissue layer and externally a rich venous plexus organized as a cavernous body. Goblet cells were solitary or in small groups forming mucous glands. Tufts of cilia were noticed at the apical pole of sparse epithelial cells in some specimens. The internal wall of the distal part of ND was lined by a stratified squamous epithelium (which became cornified through the nasolacrimal ostium) resting on a basement membrane and a dense collagenic connective tissue. Lymphoid cells sometimes arranged in follicles were regularly observed from the lacrimal sac to the middle parts of ND.

Conclusion/Discussion: Alike humans and other species, the dog has a LDS which exhibits histological features characteristic of conduction, secretion and local immune protection.