

TITLE

Histological study of Pekin duck eye and ocular adnexa

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Purpose: To document the normal histological features of captive Pekin duck (*Anas platyrhynchos*) eye and adnexa.

Material/Methods: Eyeballs were collected from 25 Pekin ducks, 2 to 8 weeks old, euthanized for reasons unrelated to ophthalmic diseases. Globes were fixed in 4% formalin or Zenker fluid, sagittally bisected and routinely processed. Sections were stained with hematoxylin and eosin, Masson's trichrome and periodic acid of Schiff.

Results: Overall globe shape was spherical with a flattened front surface, as expected for an avian eye. Two muscular eyelids without Meibomian glands covered the globe, and a thin well developed nictitating membrane lacking cartilage plate was present. The conjunctival epithelium was a stratified squamous or columnar type interspersed with goblet cells and prominent lymphoid follicles in the fornix. Orbital glands were a large lobular Harderian gland sometimes infiltrated by plasma cells and a smaller orbital lacrimal gland. Sclera was typically composed of a cup-shaped hyaline cartilage and an anterior ring of overlapping scleral ossicles. The cornea had a prominent homogenous basement membrane resembling Bowman layer in humans. Iridocorneal angle was well developed with a large sinus lined with endothelial cells, like a Schlemm's canal, lying beneath the trabecular meshwork. The choroid was relatively thick, pigmented and highly vascularised, and in the anterior uvea the most rostral ciliary folds fused to the lens capsule. A striated sphincter and a dilator pupillae muscles were observed within the iris stroma. The lens was biconvex and divided within the capsule in annular pad and central lens body. The 10 retinal layers were comparable to those in mammals except that the retina was avascular. The pecten appeared as a thin pleated highly vascular and pigmented membrane projecting from the optic disc into the vitreous cavity. The cells of the pigment epithelium, tall and narrow, had a clear basal cytoplasm containing the nucleus, and a richly pigmented apical cytoplasm forming cytoplasmic process filled with rod-shaped dark brown granules oriented parallel to the long axis of the cell.

Conclusion/Discussion: this study provides information about histological peculiarities of duck's eyes.