

# MICHIGAN STATE UNIVERSITY

Case number: SP23-5140

Presenter: Dodd Sledge and Jayne Ellis

Michigan State University Veterinary Diagnostic Laboratory

Signalment: 11.5-year-old, spayed female, Siberian Husky dog

## Microscopic Description

One section representing the sagittally bisected globe is provided. Creating an exophytic protrusion from the corneal surface, the anterior stroma of the central cornea is focally expanded by a well demarcated, nonencapsulated proliferation of neoplastic endothelial cells that form dense sheets or line blood-filled cavitations and anastomosing channels supported by collagenous trabeculae. Neoplastic cells are plump spindloid, have a small amount of eosinophilic cytoplasm, and have indistinct cell borders. Nuclei are round to ovoid, finely stippled to vesicular, and have 1-2 prominent nucleoli. Anisokaryosis is moderate, occasional cells are multinucleate, and there are 2 mitoses in 10 high power fields (400x). The overlying corneal epithelium is ulcerated, and superficial portions of the mass are necrotic and replaced by necrotic debris and fibrin. At the edges of the protrusion from the corneal surface created by the mass where the epithelium is intact, islands of epithelium with dysplasia and including keratinization extend into the underlying superficial stroma. In rare regions, such hyperplastic epithelium blends into regions of malignant transformation in which single and small nests of overtly neoplastic cells are not bordered by basement membranes, are plump polygonal, and have abundant lightly to more rarely deeply eosinophilic cytoplasm, variably distinct cell borders with occasional prominent intercellular bridges, and large ovoid, finely stippled nuclei with moderate anisokaryosis and a single prominent nucleolus; there are rare mitoses in these small regions. The epithelium near the peripheral aspect of the cornea is segmentally attenuated and underlaid by bands of small to moderate numbers of lymphocytes and plasma cells in the superficial corneal stroma. Segmentally, a broad sheet of uveal stroma bridges from the iris base to the termination of Descemet's membrane, which is arborized and regionally continues onto the surface of the iris in limited areas. There are mild infiltrates of lymphocytes and plasma cells around vessels within the stroma at the iris base.



College of  
Veterinary Medicine

Veterinary Diagnostic  
Laboratory

Michigan State University  
4125 Beaumont Road  
Lansing, MI 48910-8104

517.353.1683  
Fax: 517.353.5096  
animalhealth.msu.edu

## Morphologic Diagnosis(es)

Eye, left:

**Chronic superficial keratitis**

**Corneal hemangiosarcoma**

**Corneal squamous cell carcinoma**

**Goniodysgenesis without evidence of glaucoma**

## Comments:

While the normal cornea is generally considered to be avascular, hemangiomas and hemangiosarcomas of the cornea have been rarely described in a variety of species. In such cases, neovascularization of the cornea has been suggested to be a precursor to development.

Squamous cell carcinoma has rarely been reported in the axial cornea of dogs in association with chronic keratitis. In this case, untreated chronic superficial keratitis, or pannus, likely contributed to such neovascularization and subsequent development both neoplasms within the axial cornea. The broad sheet uveal stroma segmentally bridging the ciliary is consistent goniodysgenesis in this eye; however, the significance of this finding is unclear given the lack of histologic evidence or clinical history of glaucoma. Not all dogs that have segmental goniodysgenesis develop glaucoma. As such, the client was urged to monitor the contralateral eye for development of glaucoma or to pursue gonioscopy rather than to treat prophylactically with antiglaucoma therapy.

## Reference:

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Haeussler DJ Jr, Rodríguez LM, Wilkie DA, Premanandan C. Primary central corneal hemangiosarcoma in a dog. *Vet Ophthalmol*. 2011 Mar;14(2):133-6.

Shank AMM, Teixeira LBC, Dubielzig RR. Canine, feline, and equine corneal vascular neoplasia: a retrospective study (2007-2015). *Vet Ophthalmol*. 2019 Jan;22(1):76-8