

Canine herpesvirus-1 is most likely **NOT** an etiologic factor of classic SCCED development in middle-aged French Bulldogs

Evaluation of canine herpesvirus-1 as a possible etiologic factor of spontaneous chronic corneal epithelial defects in French Bulldogs: preliminary results

RATIONALE:

According to VOPH-ListServ discussions, most common breed diagnosed with CHV-1 keratitis are French Bulldogs. Clinical appearance can resemble SCCED presentation.

PURPOSE

- To evaluate whether French Bulldogs presenting with spontaneous chronic corneal epithelial defects (SCCED) test positive for canine herpesvirus-1 (CHV-1) evaluated on polymerase chain reaction (PCR).

METHODS

- French Bulldogs presenting with non-healing ulcers
- Combined corneo-conjunctival sampling with a dry swab as well as a swab for bacterial cultures
- Real-time PCR assay (CHV-1) and bacterial culture were performed (Laboklin GmbH, Bad Kissingen, Germany)

RESULTS

- 39 eyes from 38 animals;
- 17 females (12 spayed), 21 males (10 castrated)
- 22 left eyes, 15 right eyes, 1 both eyes
- Median age 7.7 years (4.8-11.5)
- ALL SAMPLES WERE NEGATIVE FOR CHV-1**
- 21 bacterial cultures positive, 16 bacterial cultures negative
- Most common isolates: *Staphylococcus pseudintermedius* (n=7), *Staphylococcus haemolyticus* (n=4), beta-haemolytic *Streptococci* (n=3)

CONCLUSION

- Canine herpesvirus-1 is most likely not an etiologic factor of classic SCCED development in middle-aged French Bulldogs.
- Routine CHV-1 PCR testing of French Bulldogs presenting for SCCED is therefore currently not indicated.

CORNEAL CHV-1: BACKGROUND

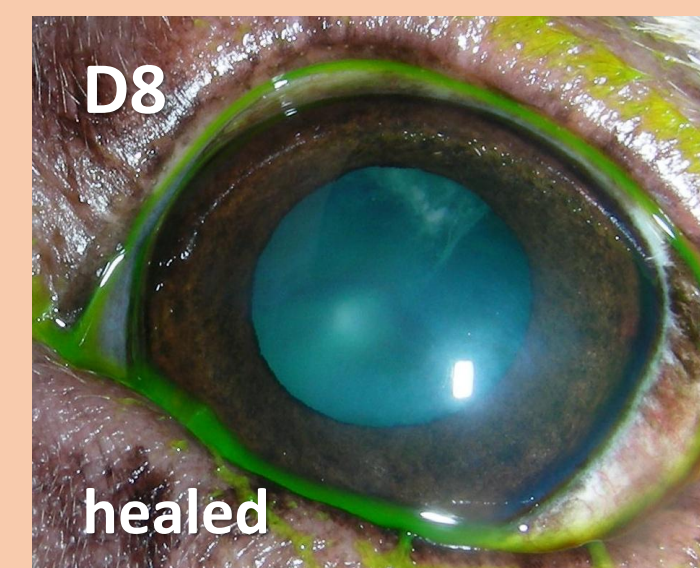
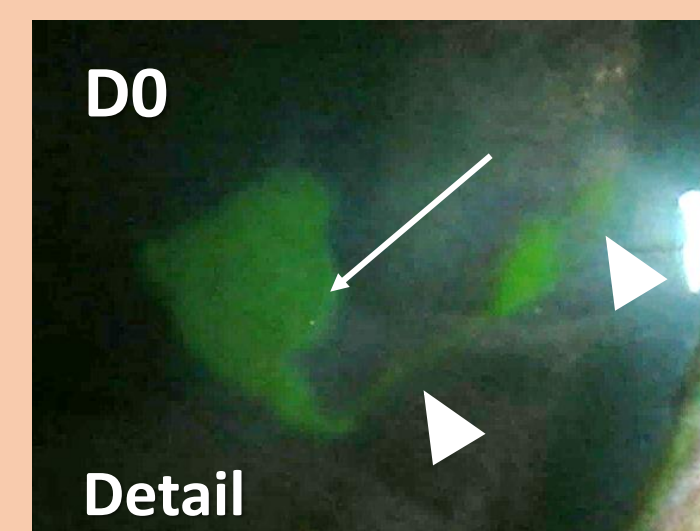
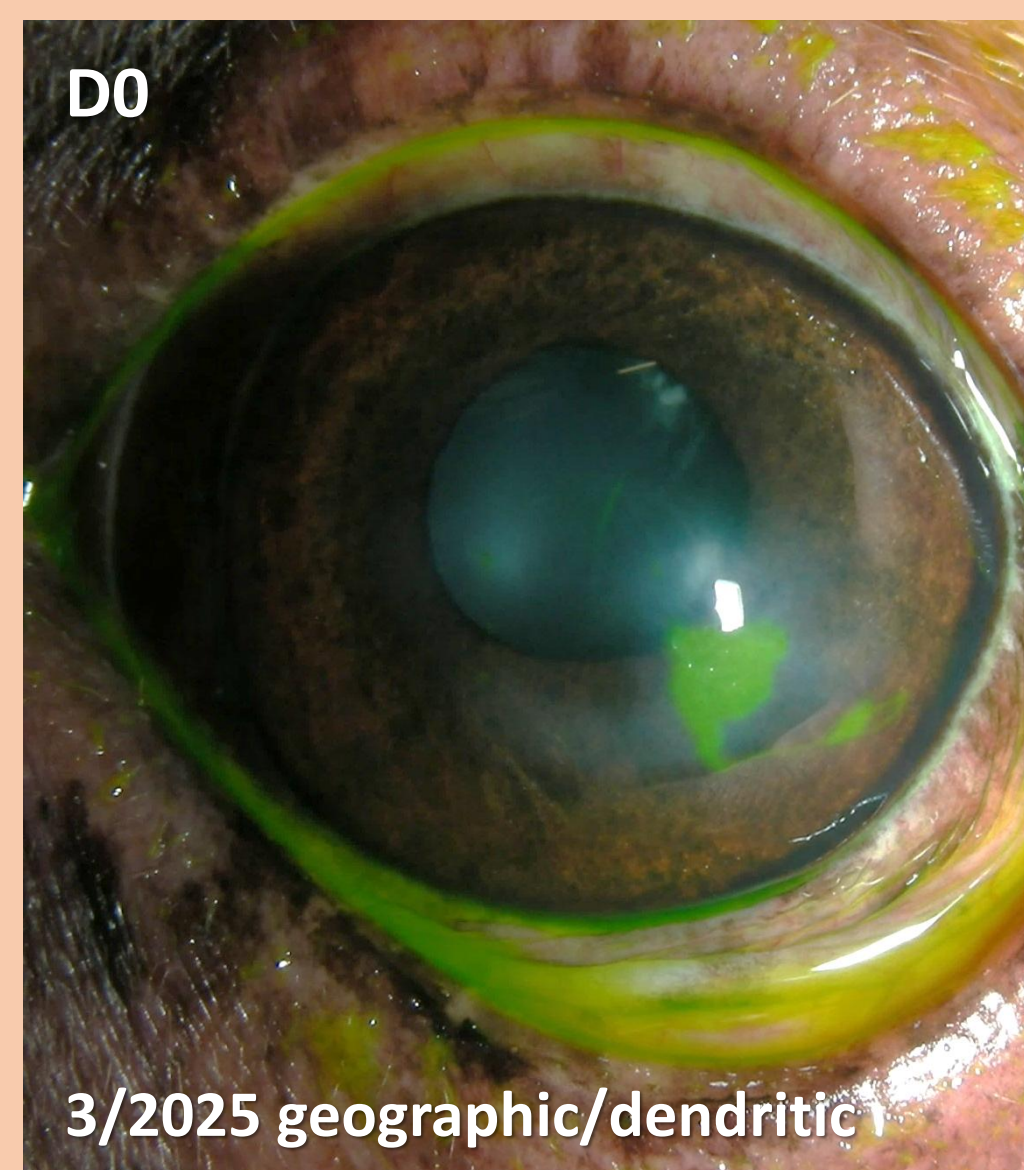
Ocular lesions associated with CHV infection in mature dogs are typically restricted to the ocular surface. Nonspecific clinical signs associated with CHV ocular infection in mature dogs include blepharospasm, photophobia, and ocular discharge. Primary and recurrent ocular CHV infection may be subclinical or associated with various combinations of blepharitis, conjunctivitis, keratitis, and corneal ulceration. In most cases, primary ocular CHV infection resolves spontaneously; however, recovered dogs are at risk for developing recurrent ocular disease associated with CHV reactivation. Recurrent CHV ocular infection may occur in dogs with no risk factors; however, an immunocompromise state is present in most dogs. [1]

Ulcerative keratitis and nonulcerative keratitis are frequent lesions associated with primary and recurrent ocular CHV infection. **Punctate keratitis** is the earliest detectable CHV corneal ulceration and appears clinically as a fine stippling of epithelial loss. As those progress, they form the classic alpha-herpesvirus corneal lesion of **dendritic ulcers**. Dendritic corneal ulcerations are strongly suggestive of CHV infection in the dog. These linear, branching ulcers stain brightly vital stains. Prominent terminal end bulbs are a consistent feature of CHV dendritic ulcers in the dog and can be used to differentiate CHV corneal lesions from other potential causes of linear corneal ulcers. Coalescence of dendritic ulcerations may result in the formation of **geographic ulcers**. Unless complicated by secondary bacterial infection, corneal ulcers remain superficial and corneal stromal loss is not appreciable. Nonulcerative keratitis is a less frequent lesion. Clinically, nonulcerative keratitis appears as a circumferential ring of cornea stromal neovascularization with epithelial and subepithelial infiltrates in the peripheral cornea. Nonulcerative keratitis may represent a resolution stage of active corneal epithelial disease.[1,2,3]

CASE REPORT: FOOD FOR THOUGHT

A case report unrelated to presented investigation (2025)

A nine-year-old castrated male French Bulldog was presented first time with **SCCED lesion in his right eye** in 2021. Subsequently, **evaporative dry eye disease (EDED)** was diagnosed and treated over the years with tacrolimus ointment and perfluorohexyloctane eye drops. In summer 2024, he presented with **SCCED lesion in his left eye**, diamond burr debridement was performed, bandage lens placed and ofloxacin and hyaluronic acid eye drops and systemic NSAIDs started. Lesion healed uneventfully in 12 days. In March 2025, he was presented with an ulcer **in the left eye with partially lose epithelium** (arrow in detail), **geographic appearance as well as dendritic component** (arrowheads). Careful debridement with cotton swab was performed and ofloxacin, ganciclovir and NSAID therapy started. PCR for CHV-1 was negative, bacterial culture yielded *S. pseudintermedius* (ofloxacin sensitive). Lesion was healed 8 days later and his EDED therapy continued.



Literature/sources: [1] Evermann JF, Ledbetter EC, Maes RK. Canine Reproductive, Respiratory, and Ocular Diseases due to Canine Herpesvirus, Veterinary Clinics of North America: Small Animal Practice, Volume 41, Issue 6, 2011, Pages 1097-1120. <https://doi.org/10.1016/j.cvsm.2011.08.007>.
[2] Ledbetter EC, Riis RC, Kern TJ, Haley NJ, Schatzberg SJ. Corneal ulceration associated with naturally occurring canine herpesvirus-1 infection in two adult dogs. J Am Vet Med Assoc. 2006 Aug 1;229(3):376-84. doi: 10.2460/javma.229.3.376. PMID: 16881829.
[3] Ledbetter EC, Kim SG and Dubovi EJ. Outbreak of ocular disease associated with naturally-acquired canine herpesvirus-1 infection in a closed domestic dog colony. Veterinary Ophthalmology, 2009, 12: 242-247. <https://doi.org/10.1111/j.1463-5224.2009.00709.x>



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👥 Petr Soukup,¹ Joschka Spornberger,¹ Maria Finneisen,¹ Katharina Kerner,² Elisabeth Müller² & Ingrid Allgoewer¹

🏠 Animal Eye Practice, Berlin¹ & Laboklin GmbH, Bad Kissingen, Germany² ✉ mvd.r.soukup@gmail.com