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**Clinical Pathology****VIRUS RECOVERY FROM IDIOPATHIC CONJUNCTIVITIS OF DOGS****Background**

Conjunctivitis in dogs may result from a variety of ocular and systemic diseases. The conjunctiva is susceptible to infection from a variety of microorganisms, including algae, bacteria, *Chlamydomphila* spp., fungi, parasites, rickettsia, and viruses.

Dogs are unusual among domestic animal species, because no viral causes of naturally acquired conjunctivitis in the absence of systemic or additional ocular disease manifestations have been reported. This lack of recognized viral causes of conjunctivitis in dogs could be attributable to unidentified unique traits of the dog or its viral pathogens, or it could be the result of inadequate investigation.

Viruses are among the most common infectious agents of conjunctivitis in several other mammalian species. In these species, conjunctivitis is associated with infection by a variety of DNA and RNA viral families. Viral conjunctivitis may occur during generalized infection with concurrent systemic disease or localized ocular infection not associated with clinically detectable systemic abnormalities. Virus-induced conjunctivitis may be caused by direct virus-mediated effects during replication in conjunctival epithelium or vascular endothelium, humoral and cellular immune-mediated mechanisms, and secondary bacterial infection.

**Objectives**

To determine the frequency of viral detection in conjunctival samples from dogs with naturally acquired idiopathic conjunctivitis and to identify signalment, historical, and clinical findings positively associated with viral detection.

### **Procedure**

Complete physical and ophthalmic examinations were performed for 30 dogs with naturally acquired idiopathic conjunctivitis and a control population of 30 dogs without ocular disease. Conjunctival swab specimens were evaluated by virus isolation and PCR assays for the following viruses: canine adenovirus-2 (CAV-2), canine distemper virus, canine herpesvirus-1 (CHV-1), canine parainfluenza virus, canine respiratory coronavirus, influenza A virus, and West Nile virus. Signalment, clinical, and historical information was recorded and compared between groups.

### **Results**

Viruses were detected by either virus isolation or PCR methods significantly more frequently in conjunctival samples from dogs with conjunctivitis (7 of 30) than from dogs without conjunctivitis (none of 30). Canine herpesvirus-1 was isolated from 2 conjunctival samples and detected by use of PCR assay in 5 conjunctival samples. Canine adenovirus-2 was isolated from 1 conjunctival sample and detected by use of PCR assay in 2 conjunctival samples. Sexually intact dogs and frequent exposure to dogs outside the household were positively associated with viral detection in the conjunctivitis group.

### **Author Conclusion**

CHV-1 and CAV-2 are common infectious agents of conjunctivitis in domestic dogs. Risk factors for viral conjunctivitis in dogs reflected increased exposure to other dogs and opportunities for contact with infectious secretions.

### **Inclusions**

One table, 37 references.

### **Editor Annotation**

This is a controlled study with a small number of dogs demonstrating viral infection in cases of conjunctivitis. Evaluation of the samples for many viruses was attempted, including canine distemper virus, but the only viruses that were confirmed were canine herpesvirus-1 and canine adenovirus-2. Canine distemper virus or other viruses were not identified. Over the years, many conjunctival smears have been submitted to clinical pathologists requesting evaluation for canine distemper virus inclusions. This search has been

futile in most cases. I have seen only 1 or 2 cases out of hundreds submitted.

This study suggests that there are cases of canine conjunctivitis that are caused by viruses. Most of these cases will only be identified by PCR testing for canine herpesvirus and canine adenovirus. Culture is difficult, expensive, and not commonly available from most laboratories. PCR is more likely to be available.

There are many other causes of conjunctivitis in the dog, such as allergy and bacterial infection. When those conditions are appropriately treated with incomplete results, evaluation for viral infection may be warranted. It may be a good idea to evaluate conjunctival swabs by PCR for viral infection early in the disease process if this potential is suspected. This procedure is particularly indicated if there has been a history of contact with other dogs in a crowding situation, such as a kennel or pound, prior to clinical signs of conjunctivitis. (LDM)

Ledbetter EC, Hornbuckle WE, Dubovi EJ. Virologic survey of dogs with naturally acquired idiopathic conjunctivitis. *J Am Vet Med Assoc* 2009;235:954-959.